MICHIGAN STATE EMPLOYEES RETIREMENT SYSTEM

Report on Actuarial Valuation as of September 30, 2004

SEGAL

MICHIGAN
STATE EMPLOYEES
RETIREMENT SYSTEM

Report on Actuarial Valuation
as of September 30, 2004

Submitted by
The Segal Company
March, 2005

SEGAL

March, 2005

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

Dear Board Members:

We are pleased to present this report on our actuarial valuation of the Michigan State Employees' Retirement System (the "System") as of September 30, 2004, the sixth-first annual actuarial valuation of the System.

Our 2004 actuarial valuation of the System is based on the present provisions of the State Employees' Retirement Act; membership and financial data as of September 30, 2004; and the actuarial assumptions and cost methods described in Section V.

This report on our 2004 actuarial valuation of the System is presented in the following sections:

We look forward to meeting with you to review this report on our 2004 actuarial valuation of the System.

Sincerely,

The Segal Company

Michael Karlin, F.S.A., M.A.A.A.
Senior Vice President & Actuary

I. INTRODUCTION

Actuarial valuations of the Michigan State Employees' Retirement System (the "System") are prepared annually to determine the actuarial condition of the System and the employer contribution rates required to fund the System on an actuarial reserve basis. The calculated employer contribution rates derived from this actuarial valuation as of September 30, 2004 are based on the present provisions of the State Employees' Retirement Act.

A total of 87,765 System members are included in this 2004 actuarial valuation. The total membership is comprised of 34,749 active members, 7,397 inactive vested members, and 45,619 retirants and beneficiaries. As of September 30, 2004, the assets of the System amounted to over $9.46 billion at market value. Of this amount, the portion used to fund pension benefits was $9.43 billion at market value and $10.15 billion at actuarial value.

In addition to utilizing current membership and financial data, an actuarial valuation requires the use of a series of assumptions regarding uncertain future events. The assumptions used in the 2004 actuarial valuation of the System were revised this year based on an actuarial experience investigation covering the period from September 30, 1997 through September 30, 2002. These assumptions were first adopted by the Retirement Board and the Department of Management and Budget for the 2004 valuation.

Based on our actuarial valuation as of September 30, 2004, the calculated employer contribution rate for pension benefits increased by 2.19% of payroll, from 14.12% to 16.31%. More details concerning these calculations are shown in Section II.

II. RESULTS OF ACTUARIAL VALUATION

Our actuarial valuation of the Michigan State Employees' Retirement System as of September 30, 2004 is based on four major elements:

1. The present benefit provisions of the System, as governed by Act 240 of 1943, as amended (see Section VI).
2. The characteristics of active and inactive System members as of September 30, 2004 (see Section IV).
3. The pension assets attributable to System members, which amounted to a total of approximately $9.46 billion at market value ($9.43 billion for pension benefits and $33.9 million for retiree health) as of September 30, 2004 (see Section III).
4. The actuarial assumptions and funding method, which include an investment yield rate of 8% and the entry age actuarial cost method (see Section V). New actuarial assumptions were adopted for the 2004 valuation, based on the results of an actuarial experience investigation covering the period from September 30, 1997 through September 30, 2002.

Employer contributions are calculated separately for three groups of covered employees: (1) Corrections Officers; (2) Conservation Officers; and (3) all other employees. Table 1 presents the actuarially-determined employer contribution rates for the current and the prior two years, with the additional requirement for Corrections Officers and Conservation Officers identified.

The employer contribution rate has been determined based on the entry age normal funding method. Under the entry age normal cost funding method, the total employer contribution is comprised of the normal cost plus the level annual percentage of payroll payment required to amortize the unfunded actuarial accrued liability over 40 years from October 1, 1996 (32 years remaining from October 1, 2004). The employer normal cost is, for each employee, the level percentage of payroll contribution (from entry age to retirement) required to accumulate sufficient assets at the member's retirement to pay for his or her projected benefit.

The actuarial accrued liability represents the difference between the present value of all future benefits and the present value of future normal costs. The unfunded (or overfunded) actuarial accrued liability (*i.e.*, the actuarial accrued liability less assets accumulated as of the valuation date), is then amortized as noted above. Each of these components of the employer contribution rate (*i.e.*, normal cost and amortization payment) is shown separately in Table 1.

The total employer contribution rate (for pension benefits) for all employees increased from 14.12% to 16.31% of total payroll between the 2003 and 2004 actuarial valuations. The 2.19% of payroll increase in the total rate resulted from a 0.13% decrease in the normal cost rate (8.18% to 8.05%) and a 2.32% increase in the amortization payment as a percentage of payroll (from 5.94% to 8.26%). Table 1 provides further details concerning the components of the employer contribution rate for the 2003 and 2004 valuations.

Under the entry age funding method, actuarial gains or losses affect the actuarial accrued liability and, therefore, the amortization payment on the unfunded actuarial accrued liability. Table 2 shows the unfunded actuarial accrued liability for each of the past two fiscal years, and the derivation of the actuarial gain or loss for each year. Note that, for fiscal 2004, an experience loss of $560.2 million was realized (consisting of a $538.7 million loss due to investments, along with a loss of $21.5 million due to demographic factors). This compares to a loss of $460.9 million in the prior year (consisting of a $442.9 million loss due to investments, along with a loss of $18.0 million due to demographic factors). Table 3 shows the detailed components of the demographic loss.

Table 4 shows the actuarially-determined percent of payroll employer contribution rates over the past 17 years. Also shown are the actual contribution and actual payroll for each year. Table 5 presents an actuarial balance sheet for the System (pension benefits) as of September 30, 2004 (and 2003).

There is no single all-encompassing test for measuring a retirement system's funding progress and current funded status. However, some common indicators of the progress that a system has achieved in funding their obligations include observing the changes over time in the following items:

1. The ratio of valuation assets to actuarial accrued liabilities.
2. The pattern of the unfunded actuarial accrued liability as a percentage of active payroll.
3. The ratio of valuation assets to the actuarial present value of vested benefits (computed as if the system were terminated on the valuation date).
4. A comparison of the plan's present assets (at actuarial value) with (1) active member contributions on deposit, (2) liabilities for future benefits to retired lives, and (3) the actuarial accrued liabilities for service already rendered by active members.

Table 6 presents the historical changes in the first two funding measures over the past 17 years. Table 7 shows the funding progress achieved in measure 3 indicated above. Finally, Table 8 indicates the historical change in funding measure 4.

Table 1

Contribution Rates as a Percentage of Payroll
Pension Benefits Only

	October 1, 2004 Valuation	October 1, 2004 Valuation**	October 1, 2003 Valuation	October 1, 2002 Valuation
Normal Cost				
a) Regular Benefits	7.67 %	7.88 %	7.73 %	7.60 %
b) Additional for Corrections Officers	1.24	1.43	1.51	1.86
c) Additional for Conservation Officers	4.14	3.54	3.58	3.58
d) Total	8.05 %	8.32 %	8.18 %	8.10 %
Amortization Payment				
a) Regular Benefits	7.80%	8.54%	5.64%	0.51%
b) Additional for Corrections Officers	1.51	1.45	0.96	0.09
c) Additional for Conservation Officers	4.57	4.11	2.68	0.21
d) Total	8.26%	8.98%	5.94%	0.53%
Total Contribution Requirement				
a) Regular Benefits	15.47 %	16.42 %	13.37 %	8.10 %
b) Additional for Corrections Officers	2.75	2.88	2.47	1.95
c) Additional for Conservation Officers	8.71	7.65	6.26	3.79
d) Total	16.31 %	17.30 %	14.12 %	8.63 %
Payroll Used in Deriving Contribution Rates*				
a) All Employees	$1,889,410,368	$1,889,410,368	$1,859,555,375	$2,133,476,688
b) Corrections Officers Only	549,727,654	549,727,654	535,989,177	560,788,800
c) Conservation Officers Only	10,569,246	10,569,246	10,519,385	9,703,135

* Based on greater of rate and prior year actual earnings
** Based on old assumptions

Table 2

Unfunded Actuarial Accrued Liability and Actuarial Gain (Loss)
Pension Benefits Only

	Unfunded Actuarial Accrued Liability	
	September 30, 2004	**September 30, 2003**
1. Actuarial accrued liability	$ 12,003,994,703	$11,761,146,746
2. Valuation assets	10,149,275,470	10,440,610,630
3. Future reconciliation contribution	-0-	-0-
4. Unfunded (overfunded) actuarial accrued liability = (1) - (2) - (3)	$ 1,854,719,234	$ 1,320,536,116
	Derivation of Actuarial Gain (Loss) Years Ended September 30	
	2004	**2003**
5. Unfunded actuarial accrued liability (UAAL) at start of year	$ 1,320,536,116	$ 136,405,934
6. Normal cost	152,185,705	172,886,429
7. Actual employer pension contributions	103,873,294	79,291,845
8. Transfer from (to) advanced funding subaccount	24,363,516	(17,364,626)
9. Expected UAAL at end of year = (5) + (6) - (7) – (8), adjusted for interest	1,457,173,284	269,631,444
10. Estimated change due to early retirement window	-0-	590,000,000
11. Change due to revisions in actuarial assumptions..........................	(162,608,385)	-0-
12. Expected UAAL after changes = (9) + (10) + (11)..................................	1,294,564,899	859,631,444
13. Actual UAAL at end of year	1,854,719,234	1,320,536,116
14. Gain (loss) = (12) - (13)	(560,154,335)	(460,904,673)
15. Gain (loss) as percent of pension actuarial accrued liabilities at start of year ($11,761,146,746 and $10,752,684,307 as of September 30, 2003 and September 30, 2002)	(4.76%)	(4.29%)

Table 3

Gains/(Losses) in Accrued Liabilities During Years Ended September 30, 2004, 2003, 2002 and 2001 <u>Resulting from Differences Between Assumed Experience and Actual Experience</u>

Type of Activity	2004	2003	2002	2001
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.	(29,808,097)	$ (109,121)	$(102,704,717)	$ (28,983,156)
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.	29,535,426	(7,507,416)	16,866,339	(4,406,445)
3. **Pay Increases.** If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	(3,581,948)	30,429,393	75,819,398	82,095,050
4. **Investment Income.** If there is greater investment income than assumed, there is a gain. If less income, a loss.	(538,727,530)	(442,911,378)	(523,563,989)	(153,650,019)
5. **Death After Retirement.** If retirants live longer than assumed, there is a loss. If not as long, a gain.	(26,833,066)	(34,715,996)	(12,998,239)	(754,977)
6. **New entrants.**	(10,662,143)	(7,146,926)	(6,435,936)	(933,741)
7. **Other.** Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, etc.	19,923,023	1,056,771	(511,072)	89,382
8. **Composite Gain (or Loss) During Year**	$(560,154,335)	$(460,904,673)	$(553,528,216)	$(106,543,906)

Table 4
Recommended and Actual State Contributions

Fiscal Year	Valuation Date September 30	Actual Contributions[6]	Actual Payroll	% of Payroll Contribution Computed: Regular Benefits	% of Payroll Contribution Computed: Including Supplemental	% of Payroll Contribution Computed: Actual[6]
1987-1988	1987	$164,587,715	$1,945,713,552	6.04%	6.65%	8.46%
1988-1989	1988	-	-	6.47	7.16	-
1988-1989	1988[1]	113,410,605	2,058,967,359	6.47	6.89	5.51
1989-1990	1989	123,967,810	2,205,886,704	6.80	7.27	5.62
1990-1991	1990	-	-	8.10	8.61	-
1990-1991	1990[3]	154,027,600	2,261,157,940	8.10	8.65	6.81
1991-1992	1991	-	-	8.64	9.24	-
1991-1992	1991[3]	187,004,712	2,289,803,397	8.81	9.41	8.17
1992-1993	1992	-	-	12.02	12.64	-
1992-1993	1992[2]	-	-	9.74	10.36	-
1992-1993	1992[5]	247,047,499	2,257,823,941	9.12	9.74	10.94
1993-1994	1993	-	-	9.35	10.03	-
1993-1994	1993[4]	263,791,739	2,327,924,221	9.21	9.89	11.33
1994-1995	1994	-	-	9.39	10.02	-
1994-1995	1994[1]	306,488,437	2,434,824,614	10.15	10.71	12.59
1995-1996	1995	285,766,953	2,528,503,514	9.72	10.38	11.30
1996-1997	1996	288,366,799	2,458,227,626	9.30	9.93	11.73
1997-1998	1997	-	-	9.81	10.51	-
1997-1998	1997[1,4]	145,734,677	2,282,056,831	5.09	5.56	6.39
1998-1999	1998	-	-	4.92	5.41	-
1998-1999	1998[1]	121,119,857	2,125,707,551	4.77	5.29	5.70
1999-2000	1999	121,817,366	2,153,964,222	4.94	5.46	5.66
2000-2001	2000	[1]	2,204,452,791	4.06	4.57	5.09
2001-2002	2001	112,299,808	2,165,589,882	4.51	5.00	0.00
2002-2003	2002	[1]	1,859,884,999	8.10	8.63	3.33
2003-2004	2003	-[7]	1,759,588,178	13.37	14.12	7.29
2004-2005	2004	61,927,219[8]		16.42	17.30	-
2004-2005	2004[1]	128,326,810[8]		15.47	16.31	-
		-				

[1] Revised actuarial assumptions. [2] After reversion to 50-year amortization of unfunded actuarial accrued liabilities. [3] Benefit changes. [4] Revised asset valuation method. [5] After elimination of advance-funding for dental/vision benefits (1992-93 fiscal year). [6] Actual contributions above are State contributions net after deduction of health insurance premiums and special contributions funding the 1984 "early out" program. Beginning with the 1982-83 fiscal year, a statutory reconciliation process ensures that contribution shortfalls or overages will be corrected by special contribution rate adjustments in the second succeeding fiscal year. [7]. 2001-2002 employer contributions ($87,486,128) were transferred to the Advanced Health Funding Subaccount. [8] Net after transfer of $17,364,626 to the Advanced Health Funding Subaccount in fiscal 2003 and transfer of 24,363,516 from Advanced Health Funding Subaccount in fiscal 2004

Table 5

Actuarial Balance Sheet as of September 30, 2004 and 2003
Pension Benefits Only

Present Resources and Expected Future Resources		
	2004	**2003**
A. Valuation assets		
1. Net assets from system financial statements (market value)	$ 9,428,463,524	$ 8,924,266,601
2. Valuation asset adjustment	720,811,946	1,516,344,029
3. Valuation assets	$ 10,149,275,470	$ 10,440,610,630
B. Present value of expected future contributions		
1. For normal costs	1,244,884,106	1,306,673,279
2. For unfunded (overfunded) actuarial accrued liabilities	1,854,719,234	1,320,536,116
3. Total	$ 3,099,603,340	$ 2,627,209,395
C. Present value of expected future member contributions	-0-	-0-
D. Future reconciliation contributions	-0-	-0-
E. Total Present and Expected Future Resources	$ 13,248,878,810	$ 13,067,820,025
Present Value of Expected Future Benefit Payments and Reserves		
A. To retirants and beneficiaries	$ 7,503,391,467	$ 7,386,462,403
B. To vested terminated members	411,220,643	429,371,452
C. To present active members		
1. Allocated to service rendered prior to valuation date	4,089,382,593	3,945,312,891
2. Allocated to service projected to be rendered after valuation date	1,244,884,107	1,306,673,279
3. Total	$ 5,334,266,700	$ 5,251,986,170
D. Reserves		
1. Allocated to retirants and beneficiaries	-0-	-0-
2. Unallocated investment income & adjustments	-0-	-0-
3. Total	-0-	-0-
E. Total Present Value of Expected Future Benefit Payments and Reserves	$ 13,248,878,810	$ 13,067,820,025

Table 6

Historical Funding Levels for Actuarial Accrued Liabilities
Pension Benefits Only

Valuation Date September 30	Actuarial Accrued Liability	Valuation Assets	Funded Ratio	Unfunded (Overfunded) Accrued Liability[3]	Active Member Payroll	Unfunded (Overfunded) As % of Active Payroll
($ in thousands)						
1988[1]	$3,575,992	$3,641,723	101.8%	$ (65,731)	$1,926,833	(3.4)%
1989	3,966,631	3,927,648	99.0	38,983	2,065,901	1.9
1990[2]	4,463,561	4,105,717	92.0	357,844	2,305,726	15.5
1991[2]	4,939,084	4,346,586	88.0	592,498	2,314,608	25.6
1992	5,480,459	4,533,757	82.7	946,702	2,266,394	41.8
1993[4]	6,172,846	5,043,880	81.7	1,128,966	2,261,476	49.9
1994[1]	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	697,561	2,273,203	30.7
1997[5]	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[1]	8,496,974	9,108,985	107.2	(612,012)	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[1]	12,003,995	10,149,275	84.5	1,854,719	1,889,410	98.2

[1] Revised actuarial assumptions. [2] Benefit changes. [3] Excludes reduction in unfunded due to future Act No. 3 funding and future reconciliation contributions.
[4] Revised asset valuation method. [5] Revised actuarial assumptions and revised asset valuation method.

Table 7
Funding 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)**
1980[1]	$ 1,175,815	$ 1,071,464	109.7%	$ (22,472)
1981	1,373,884	1,106,535	124.2	(4,548)
1982	1,550,724	1,177,418	131.7	69,789
1983	1,752,080	1,305,929	134.2	20,800
1984	1,986,943	1,430,295	138.9	90,065
1985	2,240,372	1,642,733	136.4	(27,338)
1986	2,462,088	1,799,034	136.9	(144,372)
1986[2]	2,462,088	1,802,008	136.6	(144,372)
1986[3]	2,918,006	1,802,008	161.9	311,546
1986[2]	2,918,006	2,342,101	124.6	311,546
1986[1]	2,918,006	1,962,483	148.7	311,546
1987	3,402,870	2,340,877	145.4	58,935
1988	3,662,723	2,553,111	143.5	(96,061)
1988[1]	3,662,723	2,553,111	143.5	(96,061)
1989	3,957,648	2,917,202	135.7	(75,317)
1990	4,143,717	3,378,475	122.7	(306,981)
1990[2]	4,143,717	3,383,615	122.5	(306,981)
1991	4,392,586	3,735,240	117.6	(137,271)
1991[2]	4,392,586	3,766,794	116.6	(137,271)
1992	4,583,777	4,287,004	106.9	(300,607)
1993	5,004,990	4,394,179	113.9	(286,259)
1993[3]	5,089,835	4,394,179	115.8	(286,259)
1994	5,514,735	4,731,537	116.6	23,872
1994[1]	5,514,735	5,066,906	108.8	23,872
1995	6,132,233	5,255,984	116.7	333,511
1996[4]	6,678,011	5,337,969	125.1	308,146
1997	7,515,869	6,528,114	115.1	279,245
1997[5]	8,834,424	6,528,114	135.3	279,245
1998	9,108,985	6,607,380	137.9	(8,425)
1998[1]	9,108,985	6,696,390	136.0	(8,425)
1999	9,648,383	7,351,103	131.2	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[1]	10,149,275	10,503,835	96.6	(560,154)

[1] Revised actuarial assumptions. [2] Benefit changes. [3] Revised asset valuation method.
[4] Excludes health and dental/vision benefits beginning in 1996 (prior years included dental/vision). [5] Revised actuarial assumptions and revised asset valuation method.

Table 8

Historical Funding Levels for Actuarial Accrued Liability
Pension Benefits Only

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)**
1987	$82	$1,216	$2,053	$3,403	100%	100%	102.5%	101.6%
1988@	89	1,341	2,146	3,642	100	100	103.1	101.8
1989	83	1,551	2,333	3,928	100	100	98.3	99.0
1990#	83	1,715	2,666	4,106	100	100	86.6	92.0
1991#	82	1,870	2,987	4,347	100	100	80.2	88.0
1992	83	2,413	2,984	4,533	100	100	68.3	82.7
1993+	72	2,561	3,540	5,043	100	100	68.1	81.7
1994@	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@+	3	4,300	3,798	8,834	100	100	119.3	109.0
					100	100	118.4	108.8
1998	27	4,360	3,987	9,109				
1998@	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@	78	7,503	4,423	10,149	100	100	58.1	84.5

@ Revised actuarial assumptions
\# Benefits amended + Revised asset valuation method ** Percent funded on a total valuation asset and total actuarial accrued liability basis.

III. FINANCIAL EXPERIENCE

As of September 30, 2004, the market value of the total assets of the System amounted to over $9.46 billion. Of this total, $33.9 million was reserved for health benefits, leaving $9.43 billion in pension assets. Table 9 shows the distribution of assets by type of investment as of the current and preceding valuation dates. Table 10 shows the historical growth in market value of the System's assets.

During 1998, the Department of Management and Budget approved the use of market value of assets as of September 30, 1997 for actuarial valuation purposes. For investment gains or losses that occur after that date, a 5-year smoothing technique is being used. This is the same procedure as was in effect prior to September 30, 1997, and is described below.

The actuarial value of assets is determined on the basis of a valuation method that assumes the fund earns the expected rate of return of 8.0%, and includes an adjustment to reflect market value. This procedure is applied as follows:

(i) Preliminary value is determined by taking the sum of actuarial value at the beginning of the year and the excess of income over expenses during the year, assuming that the fund earns the assumed rate of 8% during the year.

(ii) This value is written-up or written-down by taking 20% of each year’s difference between actual and expected return for the next five years. Actual return for the year includes net interest, dividends, and asset appreciation or depreciation.

For the September 30, 2004 valuation, the actuarial value of assets is $10.15 billion for pension benefits, which is $721 million (*i.e.,* 7.65%) more than the market value of $9.43 billion. Table 11 presents the determination of the actuarial value of assets for the current and prior four years.

Table 9

Assets and Fund Balances at Market Value

Reported Assets (Market Value)		
	Assets September 30,	
Type of Asset	**2004**	**2003**
Cash	$ 37,349,491	$ 41,464,748
Receivables	100,430,267	114,178,314
Short Term	222,979,552	428,164,047
Fixed Income	1,594,597,959	1,527,090,095
Common and Preferred Stocks	4,567,227,550	3,973,715,495
Real Estate and Mortgages	723,689,176	853,356,337
Alternative	1,199,581,466	1,181,377,358
International Equities	1,020,557,590	855,654,706
Total Assets	$9,466,413,051	$8,975,001,100
Less: Current Liabilities	(4,044,852)	(8,475,307)
Net Assets Available for Benefits	$9,462,368,199	$ 8,966,525,793

Reported Fund Balance (Market Value)		
	Balance September 30,	
	2004	**2003**
Reserve for Employees' Contributions (Employee Savings Fund)	$ 185,773,730	$ 152,471,433
Reserve for Employer Contributions (Employer Accumulation Fund)	1,408,087,494	3,025,491,222
Reserve for Retired Benefit Payments (Pension Reserve Fund)	6,903,386,861	5,223,067,079
Reserve for Health Benefits	33,904,675	42,259,192
Reserve for Undistributed Investment Income (Income Fund)	931,215,439	523,236,867
Total Fund Balances	$ 9,462,368,199	$ 8,966,525,793

Table 10
Historical Growth of Assets at Market Value

Year Ended September 30	Revenues			Expenses			
	Member Contributions	Employer Contributions	Investment Income	Benefit Payments	Contribution Refunds and Transfers	Administrative Expenses	Net Assets at Market Value
1978	$ -	$ -	N/A	$ -	$ -	$ -	N/A
1979	2,228,493	107,078,586	N/A	51,506,719	1,434,766	948,330	N/A
1980	1,775,856	137,910,541	N/A	57,873,992	1,043,174	1,003,575	N/A
1981	1,580,234	141,975,446	N/A	66,576,515	1,014,194	1,107,743	N/A
1982	1,293,905	129,506,058	N/A	85,798,259	745,613	1,234,169	N/A
1983	2,343,258	132,445,312	N/A	100,929,944	559,716	1,387,266	N/A
1984	3,790,259	170,758,774	N/A	117,779,562	327,454	1,727,470	N/A
1985	1,398,082	220,640,888	N/A	152,351,357	231,382	2,373,482	N/A
1986	1,701,945	229,871,765	N/A	215,829,738	314,808	2,405,064	N/A
1987	2,404,944	227,689,118	N/A	225,372,098	190,867	2,524,823	$3,596,084,688
1988	4,595,524	198,535,629	$ (74,763,613)	180,131,209	196,462	2,583,564	3,541,540,993
1989	3,066,178	162,046,885	547,233,053	231,499,226	204,889	2,461,918	4,019,721,076
1990	2,733,598	188,863,034	(125,829,295)	246,339,702	125,828	2,993,159	3,836,029,724
1991	4,416,336	227,348,243	662,492,977	271,569,767	126,407	4,339,321	4,454,251,785
1992	4,810,700	285,424,632	397,363,808	333,082,769	123,793	5,223,109	4,803,421,254
1993	4,068,697	371,902,232	563,222,953	394,557,538	99,369	4,198,410	5,343,759,819
1994	2,257,176	389,728,590	128,583,844	409,975,307	92,153	5,101,168	5,449,160,801
1995	2,260,510	422,294,609	920,176,637	405,682,086	80,453	5,518,735	6,382,611,283
1996	2,619,067	431,094,371	959,236,243	439,056,604	30,082	6,721,163	7,329,753,115
1997	12,230,090	410,008,211	1,681,527,984	484,817,137	7,868,296	5,247,943	8,935,586,024
1998	11,549,990	257,934,304	686,386,228	593,453,929	134,441,035	4,248,894	9,159,312,688
1999	11,047,646	265,806,232	1,471,196,655	630,346,729	728,366	4,330,879	10,271,957,247
2000	9,663,634	289,224,539	1,363,375,124	667,431,376	222,171	3,954,992	11,262,612,005
2001	9,134,665	361,926,010	(1,263,116,077)	726,771,708	91,700	4,149,284	9,639,543,901
2002	179,559,102	345,216,945	(1,003,890,272)	782,452,212	18,331	6,432,819	8,371,526,314
2003	91,330,212	400,130,385	1,164,600,217	1,055,749,270	120,026	5,192,039	8,966,525,793
2004	47,406,113	461,427,993	1,077,140,707	1,085,658,774	157,200	4,316,433	9,462,368,199

Above figures include supplemental payments and health insurance premiums. Assets include pension and health.

Table 11
Derivation of Valuation Assets (Pension Only)

	Year Ending September 30				
	2004	**2003**	**2002**	**2001**	**2000**
1. Beginning of Year Assets					
a) Market Value	$ 8,924,266,601	$ 8,274,112,215	$ 9,616,516,845	$11,247,932,422	$10,224,880,350
b) Valuation Assets	10,440,610,630	10,616,278,373	10,632,677,141	10,336,872,252	9,648,383,481
2. End of Year Assets at Market Value	9,428,463,524	8,924,266,601	8,274,112,215	9,616,516,845	11,247,932,422
3. Net Additions to Market Value					
a) Member Contributions	37,682,883	80,185,475	173,232,835	3,341,381	4,606,662
b) Employer Contributions	103,873,294	79,291,845	87,486,128	112,299,808	121,817,366
c) Investment Income	1,073,759,972	1,215,018,189	(1,005,732,436)	(1,264,290,454)	1,359,608,973
d) Benefit Payments	(731,009,109)	(701,664,432)	(503,453,879)	(478,525,328)	(458,803,774)
e) Contribution Refunds/Transfers	(157,200)	(120,026)	(18,331)	(91,700)	(222,163)
f) Administrative Expenses	(4,316,433)	(5,192,039)	(6,432,819)	(4,149,284)	(3,954,992)
g) Transfers from (to) Advanced Funding Subaccount	24,363,516	(17,364,626)	(87,486,128)	N/A	N/A
h) Total Additions to Market Value	$ 504,196,923	$650,154,386	$(1,342,404,630)	$(1,631,415,577)	$1,023,052,072
4. Summary of Additions to Market Value					
a) Net Contributions = (3a) + (3b) + (3e) + (3g)	165,762,493	141,992,668	173,214,504	115,549,489	126,201,865
b) Net Investment Income = (3c) + (3f)	1,069,443,539	1,209,826,150	(1,012,165,255)	(1,268,439,738)	1,355,653,981
c) Benefit Payments = (3d)	(731,009,109)	(701,664,432)	(503,453,879)	(478,525,328)	(458,803,774)
d) Total Additions to Market Value	504,196,923	650,154,386	(1,342,404,630)	(1,631,415,577)	1,023,052,072
5. Average Valuation Assets = (1b) + .5 x [(4a) + (4c)]	10,157,987,322	10,336,442,491	10,467,557,453	10,155,384,333	9,482,082,527
6. Imputed Income at Valuation Rate = 8.0% x (5)	812,638,986	826,915,399	837,404,596	812,430,747	758,566,602
7. Gain (loss) from Investments = (4b) - (6)	256,804,553	382,910,751	(1,849,569,851)	(2,080,870,485)	597,087,379
8. Portion of Gains (Losses) Recognized					
a) From this year = .2 x (7)	51,360,911	76,582,150	(369,913,970)	(416,174,097)	119,417,476
b) From one year ago	76,582,150	(369,913,970)	(416,174,097)	119,417,476	147,177,063
c) From two years ago	(369,913,970)	(416,174,097)	119,417,476	147,177,063	(4,070,461)
d) From three years ago	(416,174,097)	119,417,476	147,177,063	(4,070,461)	N/A
e) From four years ago	119,417,476	147,177,063	(4,070,461)	N/A	N/A
f) Total	(538,727,530)	(442,911,378)	(523,563,989)	(153,650,019)	262,524,078
9. Change in Valuation Assets = (4a) + (4c) + (6) + (8f)	(291,335,161)	(175,667,743)	(16,398,768)	295,804,889	688,488,771
10. End of Year Assets					
a) Market Value = (2)	9,428,463,524	8,924,266,601	8,274,112,215	9,616,516,845	11,247,932,422
b) Valuation Assets = (1b) + (9)	10,149,275,470	10,440,610,630	10,616,278,373	10,632,677,141	10,336,872,252
11. Actuarial Rate of Return	2.70%	3.72%	3.00%	6.49%	10.77%
12. Market Rate of Return	12.38%	15.13%	(10.71)%	(11.46)%	13.48%

IV. MEMBERSHIP CHARACTERISTICS

A total of 87,765 active, inactive vested, and retired members of the Michigan State Employees' Retirement System are included in this 2004 actuarial valuation.

Computer tapes containing membership data as of September 30, 2004 were provided to us by the Office of Retirement Services. For purposes of the actuarial valuation, we prepared various tabulations of the membership data recorded on the computer tapes. Summaries of these tabulations are presented in this section and in the tables which follow.

Active Employees

The 34,749 active employees covered by the System as of September 30, 2004 had a total reported payroll of approximately $1.89 billion (up 1.6% from $1.86 billion last year) and an average annual salary of $54,373. Between the 2003 and 2004 actuarial valuations, the number of active members decreased by 1,787 or 4.89%. Average age, average service and average salary each changed, as shown below:

	September 30	
	2004	**2003**
Number of Active Members	34,749	36,536
Number of Corrections Officers	9,955	10,590
Number of Conservation Officers	144	155
Average Age	48.4	47.7
Average Service	19.0	17.9
Reported Payroll	$1,889,410,368	$1,859,555,375
Average Annual Pay	$ 54,373	$ 50,897
Payroll for Corrections Officers	$ 549,727,654	$ 535,989,177
Average Annual Pay for Corrections Officers	$ 55,221	$ 50,613
Payroll for Conservation Officers	$ 10,569,246	$ 10,519,385
Average Annual Pay for Conservation Officers	$ 73,398	$ 67,867

Table 12 shows the average age, average years of service, and average salary of active employees as of September 30, 2004. Table 13 shows the distribution of employees as of September 30, 2004 by annual salary.

Inactive Members

The 2004 actuarial valuation also takes account of the actuarial liabilities for 7,397 reported vested members, as compared to 7,528 in the 2003 valuation.

Pensioners and Beneficiaries

As of September 30, 2004, the System was paying retirement benefits to a total of 45,619 retirants and beneficiaries. During fiscal 2004, the total number of benefit recipients increased by 128 as shown below:

	September 30,	
	2004	**2003**
Retirement Annuities	36,207	36,324
Survivor Annuities*	5,869	5,691
Disability Annuities	3,543	3,476
Total benefit recipients	45,619	45,491

* Includes survivors of disability retirants.

Table 15 shows a distribution of the 45,619 System retirees as of September 30, 2004, by age, type and amount of benefit. Table 16 shows a similar distribution, by type of benefit and monthly amount categories. The average annual benefit for all retirees was $15,982 as of September 30, 2004, after adjustment for optional benefit forms. During fiscal 2004, the average annual benefit for all System retirees increased from $15,577 to $15,982, or by 2.6%.

Table 17 shows the number and annual allowances as of September 30, 2004 for each specific type of pension in force. Table 18 presents a historical development of the growth in number and amount of pensioners in force, as well as the present value of pensioner liabilities, since the 1945 valuation. Finally, Table 19 shows a reconciliation of data from the 2003 to the 2004 valuation.

Table 12

Number and Average Salaries for Employees in Active Service as of September 30, 2004 by Age and by Years of Service

Age	Total	Years of Service: 0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 and over
Total	34,749	358	4,224	6,425	9,697	5,068	6,265	2,303	371	38
	$54,373	$43,547	$51,678	$53,330	$54,974	$54,000	$55,228	$58,467	$61,681	$68,364
Under 25	2	2								
	30,472	30,472								
25 - 29	156	36	117	3						
	43,828	38,339	45,619	39,832						
30 - 34	1,435	37	965	411	22					
	52,393	45,501	52,015	53,992	50,686					
35 - 39	3,287	43	943	1,330	952	18	1			
	53,063	43,014	52,167	53,666	53,546	52,730	74,537			
40 - 44	5,600	33	710	1,453	2,682	571	147	4		
	53,605	41,155	51,178	52,972	55,275	52,228	49,331	51,065		
45 - 49	8,653	75	570	1,262	2,496	1,827	2,147	272	4	
	53,551	47,711	50,837	53,066	55,344	54,288	52,376	50,910	58,471	
50 - 54	9,358	53	460	1,039	2,021	1,681	2,911	1,118	71	4
	55,099	45,881	52,304	53,393	55,018	53,652	56,684	56,432	55,238	60,792
55 - 59	4,763	37	300	669	1,176	782	850	731	204	14
	56,432	40,457	53,375	53,429	54,719	54,533	57,285	63,212	62,404	64,725
60 - 64	1,251	20	116	213	311	164	186	154	79	8
	57,272	51,950	52,212	53,266	54,429	57,938	59,523	63,627	67,014	76,619
65 - 69	181	9	30	36	33	24	16	16	9	8
	55,852	33,970	51,151	57,594	57,036	54,240	60,398	61,662	51,747	74,124
70 & over	63	13	13	9	4	1	7	8	4	4
	50,680	31,213	44,919	42,487	64,678	82,273	69,240	64,345	59,426	60,645

Table 13

Employees in Active Service as of September 30, 2004 by Annual Salary

Salary	All Employees	Corrections Officers	Conservation Officers
Total	34,749	9,955	144
Less than $10,000	9	0	0
$10,000 - 14,999	5	0	0
15,000 - 19,999	47	0	0
20,000 - 24,999	43	0	0
25,000 - 29,999	87	1	0
30,000 - 34,999	345	4	0
35,000 - 39,999	3,937	131	0
40,000 - 44,999	5,111	994	0
45,000 - 49,999	6,258	2,470	3
50,000 - 54,999	5,321	2,546	2
55,000 - 59,999	4,629	1,444	15
60,000 - 64,999	2,946	946	22
65,000 - 69,999	2,174	652	14
70,000 - 74,999......	1,104	265	32
75,000 - 79,999	876	178	19
80,000 - 84,999	391	111	11
85,000 - 89,999	373	56	9
90,000 - 94,999	336	37	7
95,000 - 99,999	168	50	7
100,000 and over.......	589	70	3

Table 14
Active and Inactive Members Reported for Valuation
Historical Comparison

Valuation Date	Active Members: Number	Active Members: Reported Payroll (Thousands)	Average: Ann. Pay	Average: Age	Average: Service	Number of Inactive Members
6-30-1945	13,833	$ 30,043	$ 2,164			--
6-30-1950	21,633	61,722	2,853			26
6-30-1955	24,436	102,534	4,196			49
6-30-1960	29,638	162,654	5,488			60
6-30-1965	31,675	194,114	6,128			84
6-30-1968	39,145	287,500	7,344	41.3	8.3	107
6-30-1969	42,209	331,726	7,859	40.9	8.1	101
6-30-1970	46,435	420,018	9,045	39.8	7.6	108
6-30-1971	47,893	470,972	9,834	39.6	7.6	108
6-30-1972	51,341	533,925	10,400	39.0	7.4	110[2]
6-30-1973	53,132	577,479	10,869	38.9	7.6	115[2]
6-30-1974	55,485	612,975	11,048	38.7	7.6	138
6-30-1975	56,236	671,893	11,948	38.6	7.7	182
9-30-1976	55,630	690,119	12,406	38.8	8.0	278
9-30-1977	56,250	810,031	14,401	39.2	8.3	337[2]
9-30-1978	75,158[1]	1,103,569	14,683	37.4	6.8	396
9-30-1979	67,064[1]	1,130,420	16,856	38.6	7.7	461
9-30-1980	71,380[1]	1,306,959	18,310	38.3	7.6	508
9-30-1981	62,963[1]	1,333,673	21,182	39.5	8.9	745
9-30-1982	59,145	1,304,315	22,053	40.3	9.7	915
9-30-1983	58,650	1,361,648	23,217	40.7	10.3	927
9-30-1984	57,362	1,405,394	24,500	40.5	10.1	968
9-30-1985	59,850	1,504,409	25,136	40.6	10.2	971
9-30-1986	61,174	1,677,066	27,415	40.8	10.5	913
9-30-1987	63,548	1,794,213	28,234	40.8	10.6	863
9-30-1988	63,511	1,861,675	29,313	41.1	10.9	811
9-30-1989	66,388	1,996,039	30,066	40.9	10.7	753
9-30-1990	69,558[1]	2,227,755	32,027	41.2	10.9	2,458[2]
9-30-1991	65,595	2,236,336	34,093	42.1	11.9	3,030
9-30-1992	64,248	2,189,752	34,083	42.2	11.9	4,367
9-30-1993	63,906	2,185,036	34,191	42.6	12.1	4,359
9-30-1994	64,923	2,271,158	34,982	43.1	12.6	4,540
9-30-1995	65,133	2,348,534	36,058	43.2	12.7	5,276
9-30-1996	63,807	2,515,420	39,422	43.8	13.0	6,667
9-30-1997	55,434	2,273,203	41,007	43.7	13.1	7,656
9-30-1998	49,717	2,107,996	42,400	44.8	14.8	8,021
9-30-1999	49,612	2,213,851	44,623	45.9	15.8	7,376
9-30-2000	47,778	2,253,818	47,173	46.7	16.7	7,556
9-30-2001	45,852	2,230,562	48,647	47.4	17.7	8,809
9-30-2002	43,064	2,133,477	49,542	48.0	18.6	7,917
9-30-2003	36,536	1,859,555	50,897	47.7	17.9	7,528
9-30-2004	34,749	1,889,410	54,373	48.4	19.0	7,397

[1] Data reporting correction. [2] Estimated.

Table 15

Pensions in Force on September 30, 2004
By Age, Type and Amount of Pension*

Attained Age Groups	All Pensioners		Age and Service Retirants		Disability Retirants		Beneficiaries**	
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances
Total	45,619	$729,087,371	36,207	$639,595,702	3,543	$33,299,451	5,869	$56,192,222
15 – 19	14	150,233	-	-	-	-	14	150,233
20 – 24	30	377,361	-	-	-	-	30	377,361
25 – 29	45	482,410	-	-	-	-	45	482,410
30 – 34	61	618,564	1	3,428	2	12,000	58	603,136
35 – 39	102	897,336	1	1,345	17	116,022	84	779,968
40 – 44	193	1,644,990	6	106,450	92	716,714	95	821,826
45 – 49	641	7,284,358	100	2,295,952	373	3,338,786	168	1,649,621
50 – 54	3,131	67,686,171	2,117	57,381,336	749	7,355,553	265	2,949,282
55 – 59	7,220	171,474,753	5,952	157,607,244	878	9,022,215	390	4,845,294
60 – 64	7,671	146,063,292	6,719	135,578,813	536	5,399,241	416	5,085,239
65 – 69	7,180	107,572,576	6,285	97,590,418	339	3,108,806	556	6,873,352
70 – 74	5,965	84,529,768	4,980	74,125,018	209	1,909,808	776	8,494,942
75 – 79	5,299	66,454,401	4,226	56,673,614	150	1,112,013	923	8,668,775
80 – 84	4,361	45,250,976	3,225	36,593,041	125	811,861	1,011	7,846,074
85 – 89	2,558	21,165,975	1,797	16,287,741	63	351,430	698	4,526,805
90 – 94	927	6,149,706	638	4,460,657	10	45,002	279	1,644,048
95 – 99	183	1,058,323	135	764,758	-	-	48	293,565
100 & over	38	226,178	25	125,887	-	-	13	100,291
Average Annual Benefit		$15,982		$17,665		$9,399		$9,574

* Amounts may not add due to rounding.
** Includes survivors of disability retirants.

Table 16

Pensions in Force on September 30, 2004
by Monthly Amount and Type of Pension

Monthly Amount	Type of Pension			
	Total	**Retiree**	**Disability**	**Beneficiaries***
Total	45,619	36,207	3,543	5,869
Less than $200	793	390	40	363
$ 200 - 399	3,637	2,314	262	1,061
400 - 599	5,713	3,477	1,079	1,157
600 - 799	5,033	3,364	737	932
800 - 999	4,260	3,016	552	692
1,000 - 1,199	3,956	3,021	423	512
1,200 - 1,399	3,934	3,275	228	431
1,400 - 1,599	3,323	2,966	104	253
1,600 - 1,799	2,990	2,743	73	174
1,800 - 1,999	2,699	2,566	24	109
2,000 - 2,199	2,273	2,203	8	62
2,200 - 2,399	1,909	1,862	1	46
2,400 - 2,599	1,451	1,414	6	31
2,600 - 2,799	998	980	2	16
2,800 - 2,999	717	709	-	8
3,000 – 3,199	550	538	-	12
3,200 – 3,399	355	350	1	4
3,400 – 3,599	270	266	1	3
3,600 – 3,799	172	170	-	2
3,800 – 3,999	147	146	-	1
4,000 – 4,199	102	102	-	-
4,200 – 4,399	79	79	-	-
4,400 – 4,599	69	69	-	-
4,600 – 4,799	57	56	1	-
4,800 – 5,000	41	41	-	-
5,000 & over	91	90	1	-
Average monthly benefit	$1,331.84	$1,472.08	$783.22	$797.87

* Includes survivors of disability retirants.

Table 17

Retirants and Beneficiaries Reported September 30, 2004
By Type of Allowance

Type of Allowance	Number	Annual Allowances*
AGE AND SERVICE		
Straight Life	15,992	$252,551,594
Survivor Pension – 100%	7,573	145,712,278
Survivor Pension – 50%	6,499	125,314,783
Survivor Pension – 75%	1,111	27,691,159
Soc. Sec. Equated		
- Straight Life	3,031	47,655,013
- Survivor Pension – 100%	739	14,261,030
- Survivor Pension – 50%	1,101	21,866,795
- Survivor Pension – 75%	161	4,543,050
Beneficiaries	3,743	35,188,874
Totals	39,950	674,784,576
DISABILITY		
Duty	464	2,732,000
Non-Duty	1,699	16,779,016
Survivor Pension – 100%	955	9,252,664
Survivor Pension – 50%	375	3,942,111
Survivor Pension – 75%	50	593,658
Beneficiaries	823	6,036,090
Totals	4,366	39,335,539
SURVIVORS OF MEMBERS		
Duty	19	114,000
Non-Duty	1,284	14,853,256
Totals	1,303	14,967,256
TOTAL ALLOWANCES	45,619	$729,087,371

* Allowances may not add due to rounding.

Table 18
Retirants and Beneficiaries - Historical Comparison

Valuation Date	Allowances on Rolls: No.	Annual Amount[2]	Annual Increase[1]: No.	Annual Increase[1]: Amount	Average Allowance	Discounted Value of Allowances[3]: Total[2]	Discounted Value of Allowances[3]: Average
6-30-1945	347	$ 164	-	-	$ 473	$ -	, -
6-30-1950	1,580	747	39.7%	37.9%	473	-	-
6-30-1955	2,222	1,380	7.1	13.1	621	13,150	5,918
6-30-1960	3,602	3,155	10.3	18.3	876	34,001	9,439
6-30-1965	5,335	6,469	7.2	12.2	1,213	70,966	13,302
6-30-1968	6,467	9,474	5.9	17.4	1,465	91,468	14,144
6-30-1969	6,920	10,593	7.0	11.8	1,531	102,987	14,883
6-30-1970	7,358	11,827	6.3	11.6	1,607	115,731	15,729
6-30-1971	7,859	13,275	6.8	12.2	1,689	125,852	16,014
6-30-1972	8,477	15,957	7.9	20.2	1,882	151,771	17,904
6-30-1973	8,884	17,429	4.8	9.2	1,962	166,284	18,717
6-30-1974	9,600	21,588	8.1	23.9	2,249	205,748	21,432
6-30-1975	10,439	25,375	8.7	17.5	2,431	241,658	23,150
9-30-1976	11,537	30,742	10.5	21.2	2,665	293,738	25,461
9-30-1977	12,340	34,645	7.0	12.7	2,808	332,759	26,966
9-30-1978	13,105	41,659	6.2	20.0	3,179	400,505	30,561
9-30-1979	13,990	46,622	6.8	11.9	3,333	451,606	32,281
9-30-1980	14,860	52,030	6.2	11.6	3,501	435,672	29,318
9-30-1981	15,947	58,706	7.3	12.8	3,681	495,437	31,068
9-30-1982	16,867	65,563	5.8	11.7	3,887	555,559	32,938
9-30-1983	17,788	73,529	5.5	12.2	4,134	625,038	35,138
9-30-1984	19,423	93,251	9.2	26.8	4,801	790,929	40,721
9-30-1985	20,869	111,708	7.4	19.8	5,353	947,265	45,391
9-30-1986	21,271	115,279	1.9	3.2	5,420	978,079	45,982
9-30-1987	21,873	121,033	2.8	5.0	5,533	1,173,492	53,650
9-30-1988	23,008	149,237	5.2	23.3	6,486	1,341,152	58,291
9-30-1989	24,187	168,795	5.1	13.1	6,979	1,551,324	64,139
9-30-1990	24,863	180,696	2.8	7.1	7,268	1,714,914	68,975
9-30-1991	25,566	194,928	2.8	7.9	7,624	1,870,737	73,173
9-30-1992	28,856	243,612	12.9	25.0	8,442	2,413,082	83,625
9-30-1993	29,175	257,193	1.1	5.6	8,816	2,679,949	91,858
9-30-1994	29,962	273,387	2.7	6.3	9,124	2,906,035	96,991
9-30-1995	30,562	290,694	2.0	6.3	9,512	2,887,202	94,470
9-30-1996	31,093	307,933	1.7	5.9	9,904	2,843,976[4]	91,467[4]
9-30-1997	36,123	421,060	16.2	36.7	11,656	4,299,696	119,029
9-30-1998	36,185	432,456	0.2	2.7	11,951	4,483,898	123,916
9-30-1999	36,346	444,167	0.4	2.7	12,221	4,537,846	124,851
9-30-2000	36,705	463,969	1.0	4.5	12,640	4,659,321	126,940
9-30-2001	37,111	471,407	1.1	1.6	12,703	4,677,147	126,031
9-30-2002	39,666	546,968	6.9	16.0	13,789	5,511,998	138,960
9-30-2003	45,491	708,607	14.7	29.6	15,577	7,386,462	162,372
9-30-2004	45,619	729,087	0.3	2.9	15,982	7,503,391	164,480

[1] For 1950, 1955 and 1960 the increase is the average of the 5 annual increases ending with the year shown. [2] In thousands of dollars. [3] Discounted values are calculated by discounting all expected future payments to the valuation date at the valuation interest rate (including dental/vision benefits). [4] Excludes health and dental/vision benefits beginning in 1996.

Table 19

Reconciliation of Data

	Active Participants	Vested Former Participants	Disability Annuities	Retirement Annuities	Survivor Annuities	Total
Number as of September 30, 2003	36,536	7,528	3,476	36,324	5,691	89,555
New participants	0	N/A	N/A	N/A	N/A	0
Terminations – with vested rights	(530)	530	N/A	N/A	N/A	0
Terminations – without vested rights	(359)	N/A	N/A	N/A	N/A	(359)
Retirements	(610)	(217)	N/A	827	N/A	0
New disabilities	(147)	(60)	207	N/A	N/A	0
Died with beneficiary	(98)	(40)	(44)	(330)	512	0
Died without beneficiary	(20)	0	(96)	(614)	(334)	(1,064)
Refund of employee money	(85)	0	0	0	0	(85)
Rehired	62	(62)	0	0	N/A	0
Data adjustments	0	(282)	0	0	0	(282)
Number as of September 30, 2004	34,749	7,397	3,543	36,207	5,869	87,765

V. ACTUARIAL ASSUMPTIONS AND FUNDING METHOD

Actuarial Assumptions

To calculate System contribution requirements, assumptions are made about all of the future events that could affect the amount and timing of benefits to be paid and the assets to be accumulated. The assumptions include several economic and demographic predictions such as:

- o An assumed rate of investment return which is used to discount liabilities and project what plan assets will earn.
- o A mortality table projecting the number of employees who will die before retirement and the duration of benefit payments after retirement.
- o Assumed retirement rates projecting when employees will retire and commence receiving retirement benefits.
- o Withdrawal and disability rates to estimate the number of employees who will leave the work force before retirement.
- o Assumed rates of salary increases to project employees' compensation in future years.

Based on an actuarial experience investigation covering the period from September 30, 1997 through September 30, 2002, several changes in actuarial assumptions were adopted for use beginning with the 2004 valuation. The actuarial assumptions used in connection with this 2004 actuarial valuation of the System are summarized in the following paragraphs.

Investment Yield

Funding the System on an actuarial reserve basis involves the accumulation of substantial reserves to pay benefits in the future. These reserves are invested and the net rate of investment earnings is a major factor in determining the contributions required to support the ultimate cost of benefits.

The net rate of investment yield is comprised of imputed income at the valuation interest rate, plus a write-up (down). This write-up (down) reflects 20% of the actual investment return (including interest, dividends, and asset appreciation or depreciation, less administrative expenses) in excess of (less than) this assumption, over each year during the current year and the subsequent four-year period.

For the 2004 actuarial valuation of the System, the long-term net investment yield rate is assumed to be 8.0%. This is the same assumption as used in 2003.

The schedule below shows the approximate net investment yield rate on average total assets at actuarial value for each of the past 17 fiscal years (determined as (i) investment income net of expenses, divided by (ii) the average actuarial value of assets during the year):

Fiscal Year Ended September 30	**Net investment yield rate**
2004	2.70%
2003	3.72
2002	3.00
2001	6.49
2000	10.77
1999	9.60
1998	7.95
1997*	13.59
1996	10.82
1995	10.84
1994	8.72
1993	11.47
1992	5.36
1991	7.00
1990	6.13
1989	9.96
1988	6.94

* Note that the above yield for 1997 excludes the additional write up due to the resetting of actuarial value to market value as of September 30, 1997. If included, the net investment yield rate for fiscal 1997 would be 19.84% higher, or 33.43%.

Salary Increases

Because System benefits are based on a member's final average compensation, it is necessary to make an assumption with respect to the salary progression of employees in the future. The salary increase assumption used in this 2004 actuarial valuation projects annual salary increases of 3.5% representing inflation (reduced from 4.0% used in 2003), plus a percentage based on an age-related scale to reflect merit, longevity and promotional salary increases (also revised for 2004).

The salary increase assumption projects the following salary increases for selected ages:

Age	Assumed Percentage Increase in Salary
20	14.37%
25	10.74
30	6.61
35	4.95
40	4.43
45	4.12
50	3.91
55	3.91
60	3.50
65	3.50

Withdrawal Rates

The withdrawal rates used in an actuarial valuation project the percentage of employees at each age who are assumed to terminate employment before qualifying for retirement benefits. The withdrawal rates do not apply to members eligible to retire, and do not include separation on account of death or disability.

The assumed rates of withdrawal applied in the current valuation have been revised for the 2004 valuation and are as follows:

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

Disability Rates

The assumed rates of disablement (also revised for the 2004 valuation) are shown below at various ages:

	Percent Becoming Disabled Within Next Year	
Sample Ages	Non-Duty Disabilities	Duty Disabilities
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

The mortality table used for disabled lives is a table based primarily on 1992-97 Michigan experience (in effect since 1998).

Retirement Age

A schedule of retirement rates is used to measure the probability of eligible members retiring during the next year. The following retirement rates apply to members eligible for normal retirement (*i.e.*, with an unreduced benefit):

	Percent Retiring Each Year		
Retirement Age	**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

For Conservation Officers, 50% are assumed to retire in the first year of eligibility for unreduced benefits (i.e., at 25 years of service) instead of the age based assumption.

A Conservation Officer is eligible for retirement after 25 years of service regardless of age, or after attaining age 60 with 10 or more years of service.

A Corrections Officer is eligible for retirement after attaining age 51 with 25 or more years of covered service, or after attaining age 56 with 10 or more years of covered service.

Other members are eligible for full retirement after attaining age 55 with 30 or more years of service, or after attaining age 60 with 10 or more years of service.

For members eligible for early retirement (*i.e.*, age 55 with 15 years of service), but not yet eligible for an unreduced retirement benefit, the following rates apply:

Age	Percent Retiring Each Year
55	4.5%
56	3.0
57	4.0
58	4.0
59	4.0

The current retirement age assumption was revised for the 2004 valuation.

Mortality

In estimating the amount of the reserves required at the time of retirement to pay an employee's benefit for the remainder of his or her lifetime, it is necessary to make an assumption with respect to expected mortality after retirement. In addition, the same assumption is used to measure the probability of members dying before retirement.

The mortality table used to project the mortality experience of System members is the 1994 Group Annuity Mortality Table, set forward one year for both men and women (first used in the 1998 valuation).

The life expectancies projected by the assumed mortality table for male and female System retirees are shown below for selected ages, along with the present value of $1 payable monthly for life (at an 8% interest rate):

	Expected Years of Life Remaining		Present Value of $1 Monthly for Life	
Age	**Men**	**Women**	**Men**	**Women**
50	29.81	33.98	$133.78	$139.77
55	25.31	29.28	125.93	133.49
60	21.04	24.74	116.20	125.33
65	17.14	20.50	104.97	115.57
70	13.67	16.58	92.65	104.12
75	10.57	12.94	79.03	90.41
80	7.93	9.76	64.93	75.42

Funding Method

Funding the System on an actuarial reserve basis seeks to achieve the following major objectives:

- Level required contribution rates as a percentage of payroll;
- Finance benefits earned by present employees on a current basis;
- Accumulate assets to enhance members' benefit security;
- Produce investment earnings on accumulated assets to help meet future benefit costs;
- Make it possible to estimate the long-term actuarial cost of proposed amendments to System provisions; and
- Assist in maintaining the System's long-term financial viability.

The basic funding objective is a level pattern of cost as a percentage of salary throughout an employee's working lifetime. The funding method used in this actuarial valuation - the entry age normal cost method - is intended to meet this objective and result in a relatively level long-term contribution requirement as a percentage of salary.

Under the entry age normal cost method, the total actuarially-determined contribution requirement is the sum of the normal cost and the payment required to amortize the unfunded accrued liability over the adopted amortization period of 40 years from October 1, 1996 (32 years remaining as of the valuation date).

Normal Cost

In general terms, the normal cost is the cost of benefit rights accruing on the basis of current service. Technically, the normal cost rate is the level percentage-of-salary contribution required each year, with respect to each employee, to accumulate over his or her projected working lifetime the reserves needed to meet the cost of earned benefits. The normal cost represents the ultimate cost of the System if the unfunded liability is paid up and the actual experience of the System conforms to the assumptions.

Normal cost contributions for death and disability benefits were determined using a one-year term cost method. This method produces contributions sufficient to fund the value of (i) disability benefits and (ii) survivor benefits because of a member's death while employed, likely to be incurred during the year (net of the member's accrued age and service benefits).

Actuarial Accrued Liabilities

The total actuarial present value of future benefits is computed as the current discounted value of all benefits expected to be paid in the future to all active, retired and inactive vested members. Subtracting the present value of future normal costs results in the actuarial accrued liability.

The total actuarial accrued liability essentially represents the amount that would have been accumulated as of September 30, 2004 if contributions sufficient to meet the normal costs of the System had been made each year in the past, and if the actual experience of the System had never deviated from the assumptions. If assets equalled the total accrued liability, there would be no unfunded liability and future contribution requirements would consist solely of the calculated normal cost rates.

Amortization of Unfunded Actuarial Accrued Liabilities

Unfunded (overfunded) actuarial accrued liabilities are amortized by level percent of payroll contributions over a 40-year period from October 1, 1996 (32 years remaining from October 1, 2004). Active member payroll is not assumed to increase for the purpose of determining the level percent contributions.

VI. SUMMARY OF SYSTEM PROVISIONS

Our actuarial valuation of the System as of September 30, 2004 is based on the present provisions of the State Employees' Retirement Act, which are summarized in this section.

Regular Retirement (no reduction factor for age):

Eligibility - Age 55 with 30 years 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 1/2% for each month under age 60.

Deferred Retirement (vested benefit):

Eligibility - 10 years of 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.

Duty Disability Retirement:

Eligibility - No age or service requirement.

Annual Amount - Disability after 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 2/3 of FAC but limited to $6,000 per year. Additional limitation such that benefit plus workers' compensation does not exceed final compensation. After age 60, benefit is recomputed as a regular retirement benefit with service granted for period in receipt of disability benefit before age 60 (benefit not reduced after 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. Also applies to duty disability retirant who dies within 3 years of disability and before age 60.

Annual Amount - Accumulated employee contributions are refunded. Surviving spouse receives annual benefit of 1/3 of final compensation until death. Unmarried children under age 18 each receive an equal share of 1/4 of final compensation (if no spouse each child receives 1/4, to a maximum of 1/2 for all children). If no spouse or eligible children, each dependent parent receives 1/6 of final compensation. Total benefits payable are limited to $2,400 per year. Additional limitation such that benefits plus workers' compensation does not exceed final compensation.

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 regular retirement benefit but reduced in accordance with a 100% joint and survivor election.

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.

Post-Retirement Health Insurance Coverage: Persons in receipt of retirement allowances (including members who did not retire directly from the System, but come from a vested deferred status), and their dependents, are eligible for 95% State-paid health insurance coverage and 90% State-paid dental and vision insurance.

Member Contributions: None

Defined Contribution Legislation (Public Act 487 of 1996):
New 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 were able to 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 were to have the actuarial present value of their Tier 1 accrued benefit transferred into Tier 2 by November 30, 1998.

2002 Early Out Window
Members retiring between April 1, 2002 and November 1, 2002 whose combined age and service equals 80 points, or who are age 60 or older with 10 or more years of service are eligible to receive a benefit equal to 1.75% of final average compensation multiplied by years of credited service. Members who had previously transferred to the Defined Contribution plan, are eligible to receive a benefit equal to 0.25% of final average compensation multiplied by years of credited service.

VII. <u>ACCOUNTING INFORMATION</u>

The Governmental Accounting Standards Board (GASB) has changed the way governmental entities account for their pension plans. The new standards, GASB Statements Nos. 25 and 27, replace the prior reporting requirements under GASB Statement No. 5.

GASB Statement No. 25

For plan years commencing after June 15, 1996, the plan is subject to the disclosure requirements of Statement No. 25 of the Governmental Accounting Standards Board (GASB).

Statement No. 25 establishes financial reporting standards for defined benefit pension plans as they relate to the <u>Plan's</u> financial accounting. As used in Statement No. 25, pension benefits include retirement income as well as other types of postemployment benefits (disability, death benefits, life insurance) but exclude postemployment healthcare.

Statement No. 25 for defined benefit plans requires two plan financial statements on an accrual basis (statement of plan net assets and a statement of changes in plan net assets). The statement now requires the fair value of assets for those financial statements where previously cost or amortized cost could be used.

Statement No. 25 also requires notes to the Financial Statements including plan description, classes of employees covered, brief description of benefit provisions and a summary of significant accounting policies (including funding policy).

Also required (after the notes) is supplementary information ("Required Supplementary Information") including a schedule of funding progress and a schedule of employer contributions. The actuarial information to be shown must be determined under certain parameters. These parameters are the same as those required under GASB Statement No. 27, and are summarized below:

> **Actuarial Valuations**: Must occur at least every two years and the results must be applied within 12 months (24 months for biennial valuations) for plans and 24 months for employers.

Actuarial Assumptions: Best estimate of individual assumptions and consistency of all assumptions. Investment return assumption (discount rate) based on estimated long-term investment yield for plan.

Actuarial Cost Method: Entry age, frozen entry age, attained age, frozen attained age, aggregate or projected unit credit are acceptable.

Actuarial Value of Assets: Market-related.

Annual Required Contributions of Employers: Must include normal (current service) cost and amortization of the plan's total unfunded actuarial liability (UAL).

Amortization Period: Periods of up to 40 years will be acceptable for the first 10 years after the effective date of Statement No. 25. After that, periods cannot exceed 30 years. Significant decreases in UAL caused by changing actuarial methods must be amortized over at least 10 years.

Amortization Method: Level dollar or level percentage of projected payroll, open or closed basis.

It is important to note that GASB Statement No. 25 eliminates the need to report actuarial accrued liabilities on a standardized basis (*i.e.*, pension benefit obligation) and instead substitutes all actuarially determined information based on the plan's funding method (*e.g.*, Entry Age Normal Actuarial Cost for the Michigan State Employees' Retirement System).

Paragraph 39 states that the required "Schedules of Funding Progress" and "Employer Contributions" should include information for the current year and as many of the prior years as information, according to the parameters, is available.

The "Schedule of Funding Progress" is presented in Table 6, which appears in Section II.

The "Schedule of Employer Contributions" is presented in Table 4, which also appears in Section II. Each applicable computed contribution (or the annual required contribution) is based on the actuarial valuation for that year. Actual contributions shown are based on data provided by the System

Additional "Required Supplementary Information" is shown in Table 20.

GASB Statement No. 27

GASB Statement No. 27 establishes the standards of accounting and financial reporting for pension expenditures/expense and related pension liabilities, pension assets, note disclosures and required supplementary information in the financial reports of governmental employers. (The financial reporting for the pension trust funds is covered by GASB Statement No. 25 as described above.)

GASB Statement No. 27 does not mandate or require the employer to fund (contribute) any specific amount. Rather it determines the standards (parameters) to be used for the purpose of expensing the cost of pension benefits on the employer's financial statements. To the extent that an employer wants to fund (contribute) the same amount that it expenses, the amount contributed must be determined under certain parameters. When the funding methods and assumptions meet the parameters, the same methods and assumptions are used for both funding and expensing (accounting). If they do not, the employer/entity must choose between making two calculations at each actuarial valuation - one for funding and one for accounting - or modifying the funding approach to meet the parameters. Using different methods for accounting and funding may result in increasing employer liabilities (Net Pension Obligation).

Statement No. 27 uses some new terms, including:

Net Pension Obligation (NPO) - Represents the employer's transition obligation/asset for past underfunding/overfunding of contribution amounts compared to those actuarially determined. After the effective date of Statement No. 27, it will include the cumulative difference between annual pension cost (ARC) and the employer's contributions.

In determining the NPO at transition, paragraph 30 of GASB 27 refers to the "employer's required contributions in accordance with the plan's actuarially determined funding requirements. . ." We have determined the "required contribution" for prior years based on the actuarial valuation results for such applicable year. The determination of the NPO as of September 30, 2004 is shown in Table 21. The table shows that, as of September 30, 2004, the employer has a net pension obligation of $266,147,645.

Actuarial Required Contribution (ARC) - Represents the contribution amount that can also be used for purposes of reporting annual pension expense/accounting. If an employer has an NPO, an adjustment to the ARC is needed to be used for expense/accounting purpose. In determining the ARC amount, certain actuarial parameters must be met. The parameters are the same as those for GASB 25.

The actuarial assumptions and methods currently employed for purposes of actuarially determining the System's annual contribution are, in our opinion, within the required GASB parameters.

We have determined the Actuarial Required Contribution (ARC) and Pension Cost (after adjustment to the ARC as a result of the NPO) for the fiscal year ending September 30, 2005 in Table 22.

Table 20

Required Supplementary Information
- GASB Statement Nos. 25 and 27

Valuation date	9/30/2004
Actuarial cost method	Entry Age Normal
Amortization method	Level percent, closed
Remaining amortization period	32 years
Asset valuation method	5 year smoothed market
Actuarial assumptions:	
Investment rate of return	8.00%
Projected salary increases	3.5-14.4%
Cost-of-living adjustments	3% Annual Non-Compounded With Maximum Annual Increase of $300 For Those Eligible

Table 21

Development of GASB Statement No. 27 Net Pension Obligation (NPO)

(1) Fiscal Year Ending Sept. 30	(2) Valuation Date Sept. 30	(3) Actuarial Required Contribution	(4) Interest on BOY NPO [(10) x (9)]	(5) Adjustment to "(3)" [BOY NPO x (11)]	(6) Pension Cost [(3) + (4) - (5)]	(7) Actual Employer Contribution	(8) Change in NPO [(6)-(7)]	(9) Net Pension Obligation [BOY NPO + (8)]	(10) Interest Rate	(11) Amort. Factor
1988	1987	$129,389,951	$ -0-	$ -0-	$129,389,951	$164,587,715	$(35,197,764)	$ (35,197,764)	8.00%	.038087
1989	1988	141,862,851	(2,815,821)	(1,340,577)	140,387,607	113,410,605	26,977,002	(8,220,762)	8.00	.038087
1990	1989	160,367,963	(657,661)	(313,104)	160,023,406	123,967,810	36,055,596	27,834,834	8.00	.038087
1991	1990	195,590,162	2,226,787	1,060,145	196,756,804	154,027,600	42,729,204	70,564,038	8.00	.038087
1992	1991	215,470,500	5,645,123	2,687,573	218,428,050	187,004,712	31,423,338	101,987,376	8.00	.038087
1993	1992	219,912,052	8,158,990	3,884,393	224,186,649	247,047,499	(22,860,850	79,126,526	8.00	.038087
1994	1993	230,231,706	6,330,122	3,013,692	233,548,136	263,791,739		48,882,923	8.00	.038087
1995	1994	260,769,716	3,910,634	1,989,193	262,691,157	306,488,437	(30,243,603	5,085,643	8.00	.040693
1996	1995	262,458,665	406,851	203,649	262,661,867	285,766,953		(18,019,453)	8.00	.040044
1997	1996	244,102,003	(1,441,555)	(792,783)	243,453,231	288,366,799	(43,797,280	(62,933,021)	8.00	.043996
1998	1997	126,396,181	(5,034,642)	(5,098,015)	126,459,554	145,734,677	(23,105,086	(82,208,144)	8.00	.081007
1999	1998	111,415,984	(6,576,652)	(6,687,438)	111,526,770	121,119,857		(91,801,231)	8.00	.081348
2000	1999	120,906,261	(7,344,098)	(7,501,863)	121,064,026	121,817,366	(44,913,658	(92,554,571)	8.00	.081719
2001	2000	102,989,963	(7,404,366)	(7,600,854)	103,186,451	112,299,808		(101,667,928)	8.00	.082123
2002	2001	111,551,549	(8,133,434)	(8,394,134)	111,812,249	-		10,144,321	8.00	.082564
							(19,275,123			
2003	2002	184,214,419	811,546	842,445	184,183,520	61,927,219		132,400,622	8.00	.083046
2004	2003	262,546,900	10,592,050	11,065,117	262,073,833	128,326,810	(9,593,08	266,147,645	8.00	.083573
							(753,3			
							(9,113,35			
							111,812,249			
							122,256,301			
							133,747,023			

Table 22

Actuarial Required Contribution and Pension Cost
For Fiscal Year Ending September 30, 2005
- GASB Statement No. 27

1.	Net Pension Obligation (asset) as of September 30, 2004	$ 266,147,645
2.	Actuarial Required Contribution (ARC) for fiscal year ending September 30, 2005	308,208,544
3.	Interest on NPO: 8.00% x item 1	21,291,812
4.	Adjustment to ARC due to NPO: 0.0841496 x item 1	22,396,218
5.	Pension Cost (GASB Statement No. 27) for fiscal year ending September 30, 2005 (2 + 3 - 4)	307,104,138

Note: Pension Cost is the expense to be reported on the employer's financial statement for the fiscal year.

APPENDIX

ACTUARIAL VALUATION STATEMENT

March, 2005

MICHIGAN STATE EMPLOYEES RETIREMENT SYSTEM

Actuarial Valuation Statement

This is to certify that we have prepared an actuarial valuation of the Michigan State Employees' Retirement System (the "System") as of September 30, 2004.

Actuarial calculations were made with respect to a total of 87,765 System members: 34,749 active employees, 7,397 inactive members with vested rights to a deferred pension; and 45,619 retirees and surviving beneficiaries.

The actuarial cost factors for pension benefits for System members are as follows:

1. Actuarial accrued liability - total		$ 12,003,994,703
Active employees - total		4,089,382,593
Active employees - regular benefits	3,859,766,327	
Additional for employees with Corrections Officer service	216,952,807	
Additional for employees with Conservation Officer service	12,663,459	
Inactive members		411,220,643
Retirees and surviving beneficiaries		7,503,391,467
2. Assets at actuarial value ($9,428,463,524 at market value)		10,149,275,470
3. Future reconciliation contributions		-0-
4. Unfunded (overfunded) actuarial accrued liability = (1) - (2) - (3)		1,854,719,234
5. Payment required to amortize unfunded actuarial accrued liability over 32 years as a level percent of payroll .08414958 x (4)		156,073,852
6. Normal Cost - total		152,134,692
Regular benefits	144,891,781	
Additional for members with Corrections Officer service	6,805,367	
Additional for members with Conservation Officer service	437,545	
7. Total payroll (greater of rate and prior year earnings)		1,889,410,368
8. Normal cost as percentage of payroll		
a) Total		8.05%
b) Employee portion		-0-
c) Employer portion		8.05%
9. Payment required to amortize unfunded actuarial accrued liability as a percentage of payroll		8.26%
10. Total employer cost = (5) + (6)		308,208,544
11. Employer cost as percentage of payroll = (10)/(7)		16.31%

The key actuarial assumptions used in the September 30, 2004 actuarial valuation are summarized below:

Interest Rate:

8.0%

Salary Scale:

Inflation component is 3.5%; the merit component varies from 10.5% per annum at age 20 to 0.1% per annum at age 59 and 0.0% at ages 60 and later.

Retirement Ages

In accordance with a table of rates, at each age from 55 to 75 (except 45 to 75 for Conservation Officers and 51 to 75 for Corrections Officers).

For Conservation Officers, 50% are assumed to retire in the first year of eligibility for unreduced benefits (i.e., at 25 years of service) instead of the age based assumption.

Termination Rates Before Retirement:

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

Mortality Rates:

In accordance with the 1994 Group Annuity Mortality Table (set forward one year for men and one year for women).

The actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, and were based on the actuarial assumptions adopted by the Retirement Board and the Department of Management and Budget upon the recommendation of the actuary.

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Michael Karlin, F.S.A., M.A.A.A.
Senior Vice President & Actuary

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