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**Correctional Employees Retirement Fund**

*Actuarial Valuation and Review  
as of July 1, 2004*

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*February 7, 2005*

*Mr. Dave Bergstrom  
Minnesota State Retirement System  
Correctional Employees Retirement Fund  
60 Empire Drive, Suite 300  
St. Paul, Minnesota 55103-3000*

*Dear Mr. Bergstrom:*

*We are pleased to submit this Actuarial Valuation and Review as of July 1, 2004. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2005 and analyzes the preceding year's experience.*


*The census and financial information on which our calculations were based was prepared by the Minnesota State Retirement System. That assistance is gratefully acknowledged. The actuarial calculations were completed under our supervision.*

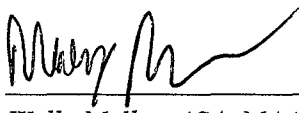
*This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate.*

*We look forward to reviewing this report at your next meeting and to answering any questions.*

*Sincerely,*

*THE SEGAL COMPANY*

By:   
*Leslie L. Thompson, FSA, MAAA, EA  
Senior Vice President and Actuary*

  
*Wally Malles, ASA, MAAA, EA  
Associate Actuary*

*cc: Legislative Commission on Pensions and Retirement (3 copies)  
Minnesota Legislative Reference Library (6 copies)  
Minnesota Department of Finance (2 copies)*

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## SECTION 1: Valuation Summary for the Correctional Employees Retirement Fund

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### Purpose

This report has been prepared by The Segal Company to present a valuation of the Minnesota State Retirement System (Correctional Employees Retirement Fund) as of July 1, 2004. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- Applicable Minnesota Statutes;
- The benefit provisions of the Retirement Fund, as administered by the Fund;
- The characteristics of covered active participants, inactive vested participants, pensioners and beneficiaries as of July 1, 2004, provided by the Fund;
- The assets of the Fund as of June 30, 2004, provided by the Fund;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

## SECTION 1: Valuation Summary for the Correctional Employees Retirement Fund

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### Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The statutory contribution rate under Chapter 352 is equal to 13.67% of payroll compared to the required contribution rate under Chapter 356 of 17.48% of payroll. Therefore, the contribution deficiency is expected to be 3.81% of payroll or \$5,099,213.
- The actuarial accrued liability funded ratio based on the actuarial value of assets over the actuarial accrued liability as of July 1, 2004 is 92.83% compared to 97.06% as of July 1, 2003. This ratio is a measure of funding status, and its history is a measure of funding progress, and is the ratio required to be reported under GASB 25.
- As indicated on page 4 of this report, the total unrecognized investment loss as of June 30, 2004 is approximately \$20.9 million. This investment loss will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment gains derived from future experience.
- There were no changes in plan provisions, actuarial assumptions or actuarial cost methods since the prior valuation. This is the first year that The Segal Company prepared the actuarial valuation of the Fund.

**SECTION 1: Valuation Summary for the Correctional Employees Retirement Fund**

**Summary of Key Valuation Results**

	<b>2004</b>	<b>2003</b>
<b>Contributions (% of payroll) for plan year beginning July 1:</b>		
Statutory – Chapter 352	13.67%	13.67%
Required – Chapter 356	17.48%	15.83%
Sufficiency/(Deficiency)	-3.81%	-2.16%
<b>Funding elements for plan year beginning July 1:</b>		
Normal cost	\$20,066,740	\$20,857,000
Market value of assets	465,703,137	418,744,000
Actuarial value of assets (AVA)	486,617,032	470,716,000
Actuarial accrued liability (AAL)	524,215,028	484,974,000
Unfunded/(Overfunded) actuarial accrued liability	37,597,996	14,258,000
<b>Funded ratios:</b>		
<u>Accrued Benefit Funded Ratio</u>	100.93%	105.62%
Current assets (AVA)	\$486,617,032	\$470,716,000
Current benefit obligations	482,144,107	445,683,000
<u>Projected Benefit Funded Ratio</u>	90.65%	91.38%
Current and expected future assets	\$600,401,802	\$576,148,000
Current and expected future benefit obligations (Present Value of Benefits)	662,364,192	630,499,000
<b>GASB 25/27 for plan year beginning July 1:</b>		
Annual required employer contributions	\$13,332,988	\$11,735,000
<u>Accrued Liability Funded Ratio (AVA/AAL)</u>	92.83%	97.06%
Covered actual payroll	\$133,172,068	\$131,328,000
<b>Demographic data for plan year beginning July 1:</b>		
Number of pensioners and beneficiaries	1,188	1,060
Number of vested terminated participants	678	601
Number of other non-vested terminated participants	339	340
Number of active participants	3,326	3,262
Total projected payroll	\$134,117,624	\$138,518,000
Average projected payroll	40,324	42,464

**SECTION 2: Valuation Results for the Correctional Employees Retirement Fund**

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**A. PARTICIPANT DATA**

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, vested terminated participants, pensioners and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

*A historical perspective of how the participant population has changed over the past three valuations can be seen in this chart.*

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**CHART 1**  
**Participant Population: 2002 – 2004**

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<b>Year Ended June 30</b>	<b>Active Participants</b>	<b>Vested Terminated Participants*</b>	<b>Pensioners and Beneficiaries</b>	<b>Ratio of Non-Actives to Actives</b>
2002	3,249	550	938	0.46
2003	3,262	601	1,060	0.51
2004	3,326	678	1,188	0.56

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*\*Excludes terminated participants due a refund of employee contributions.*

**SECTION 2: Valuation Results for the Correctional Employees Retirement Fund**

**Active Participants**

Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 3,326 active participants with an average age of 41.0, average years of service of 8.1 years and average projected payroll of \$40,324. The 3,262 active participants in the prior valuation had an average age of 41.1, average service of 8.2 years and average projected payroll of \$42,464.

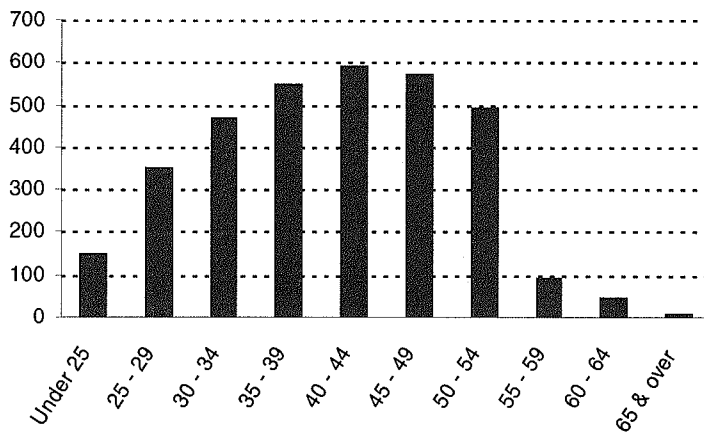
**Inactive Participants**

In this year's valuation, there were 678 participants with a vested right to a deferred or immediate vested benefit.

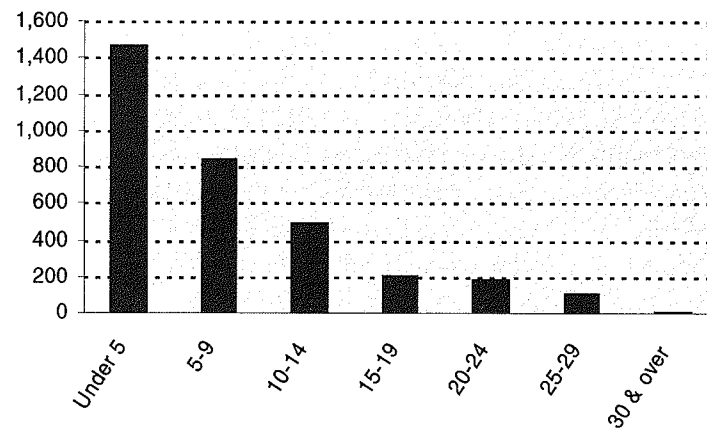
In addition there were 339 other non-vested terminated participants entitled to a return of their employee contributions.

*These graphs show a distribution of active participants by age and by years of service.*

**CHART 2**  
**Distribution of Active Participants by Age as of June 30, 2004**



**CHART 3**  
**Distribution of Active Participants by Years of Service as of June 30, 2004**





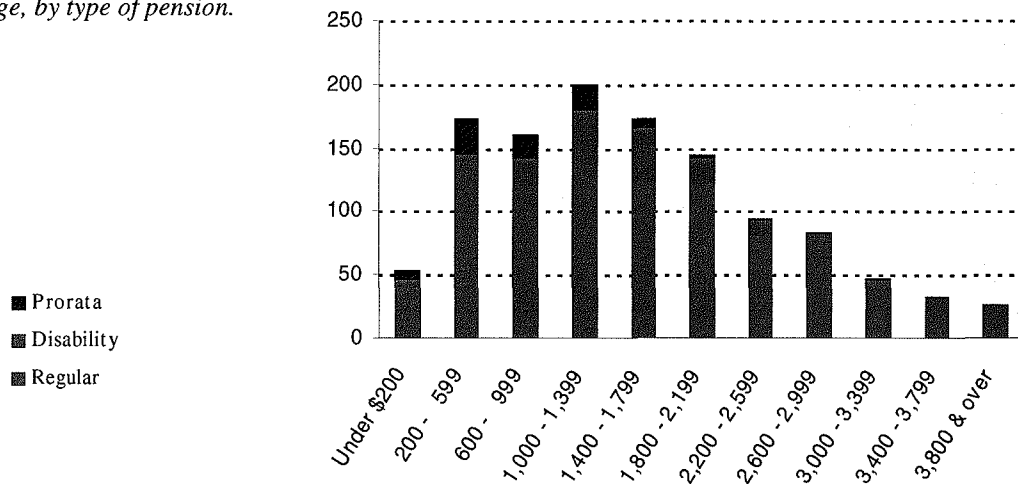
**SECTION 2: Valuation Results for the Correctional Employees Retirement Fund**

**Pensioners and Beneficiaries**

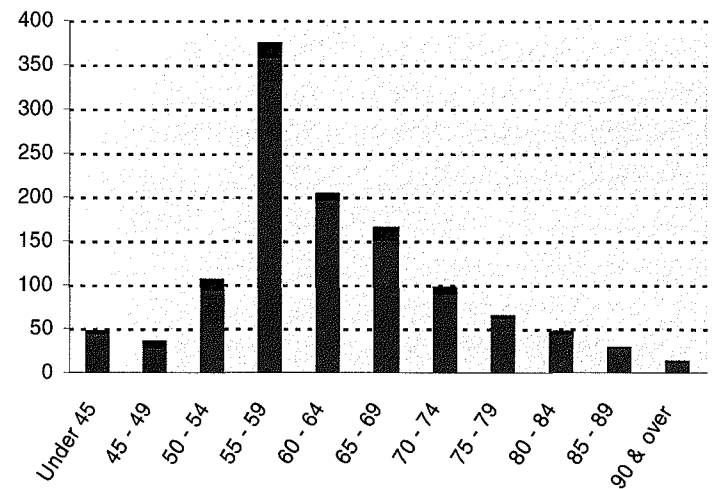
As of June 30, 2004, 1,097 pensioners (943 retired and 154 disabled participants) and 91 beneficiaries were receiving average monthly benefits of \$1,558. For comparison, in the previous valuation, there were 978 pensioners (843 retired and 135 disabled participants) and 82 beneficiaries receiving average monthly benefits of \$1,492.

*These graphs show a distribution of the current pensioners and beneficiaries based on their monthly amount and age, by type of pension.*

**CHART 4**  
**Distribution of Pensioners and Beneficiaries by Type and by Monthly Amount as of June 30, 2004**



**CHART 5**  
**Distribution of Pensioners and Beneficiaries by Type and by Age as of June 30, 2004**



**SECTION 2: Valuation Results for the Correctional Employees Retirement Fund**

**B. FINANCIAL INFORMATION**

It is desirable to have level and predictable plan costs from one year to the next. For this reason, Minnesota Statutes require an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

Both the actuarial value and market value of assets are representations of the Fund's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the Fund's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

*The chart shows the determination of the actuarial value of assets as of the valuation date.*

**CHART 6**

**Determination of Actuarial Value of Assets for Year Ended June 30, 2004**

	Original Amount	% Not Recognized	
1. Market value of assets available for benefits			\$465,703,137
2. Calculation of unrecognized return			
(a) Year ended June 30, 2004	\$16,844,381	80%	\$13,475,505
(b) Year ended June 30, 2003	-15,234,000	60%	-9,140,400
(c) Year ended June 30, 2002	-41,435,000	40%	-16,574,000
(d) Year ended June 30, 2001	-43,375,000	20%	<u>-8,675,000</u>
(e) Total unrecognized return			-\$20,913,895
3. Actuarial value of assets ("Current Assets"): (1) - (2e)			<u>\$486,617,032</u>

**SECTION 2: Valuation Results for the Correctional Employees Retirement Fund**

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**C. ACTUARIAL EXPERIENCE**

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term

development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

For the plan year ended June 30, 2004 the total loss is \$18,654,451, including a loss of \$27,646,313 from investments, and a gain of \$8,991,862 from all other sources. The net experience variation from individual sources other than investments was 1.72% of the actuarial accrued liability.

*This chart provides a summary of the actuarial experience during the past year.*

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**CHART 7**  
**Actuarial Experience for Year Ended June 30, 2004**

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1. Net gain/(loss) from investments	-\$27,646,313
2. Net gain/(loss) from other experience	<u>8,991,862</u>
3. Net experience gain/(loss): (1) + (2)	-\$18,654,451

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## SECTION 2: Valuation Results for the Correctional Employees Retirement Fund

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### D. INFORMATION REQUIRED BY THE GASB

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to GASB is the historical comparison of the GASB required contribution to the actual contributions. This comparison demonstrates whether a plan is being funded on an actuarially sound basis and in accordance with the GASB funding requirements. Section IV, Exhibit III presents a schedule of this information of the Fund.

The other critical piece of information regarding the Fund's financial status is the funded ratio. This ratio compares the

actuarial value of assets to the actuarial accrued liabilities of the plan as calculated under GASB. High ratios indicate a well-funded plan with assets sufficient to pay most benefits. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other changes.

GASB requires that the actuarial value of assets be used to determine the funded ratio, as shown in Section 4, Exhibit IV.

**SECTION 3: Supplemental Information for the Correctional Employees Retirement Fund**

**EXHIBIT A**

**Table of Plan Coverage**

<b>Category</b>	<b>Year Ended June 30</b>		<b>Change From Prior Year</b>
	<b>2004</b>	<b>2003</b>	
<b>Active participants in valuation:</b>			
Number	3,326	3,262	2.0%
Average age	41.0	41.1	N/A
Average service	8.1	8.2	N/A
Total projected payroll	\$134,117,624	\$138,518,000	-3.2%
Average projected payroll	40,324	42,464	-5.0%
Total active vested participants	2,393	2,360	1.4%
<b>Vested terminated participants</b>	678	601	12.8%
<b>Retired participants:</b>			
Number in pay status	943	843	11.9%
Average age	64.2	64.5	N/A
Average monthly benefit	\$1,643	\$1,562	5.2%
<b>Disabled participants:</b>			
Number in pay status	154	135	14.1%
Average age	49.6	49.2	N/A
Average monthly benefit	\$1,428	\$1,433	-0.3%
<b>Beneficiaries:</b>			
Number in pay status	91	82	11.0%
Average age	61.6	61.4	N/A
Average monthly benefit	\$900	\$870	3.4%
<b>Other non-vested terminated participants</b>	339	340	-0.3%

**SECTION 3: Supplemental Information for the Correctional Employees Retirement Fund**

**EXHIBIT B**

**Participants in Active Service as of June 30, 2004  
By Age, Years of Service, and Average Projected Payroll**

Age	Total	Years of Service						
		Under 5	5-9	10-14	15-19	20-24	25-29	30 & over
Under 25	148	148	--	--	--	--	--	--
	\$19,947	\$19,947	--	--	--	--	--	--
25 - 29	351	313	38	--	--	--	--	--
	28,541	27,261	\$39,090	--	--	--	--	--
30 - 34	471	264	185	22	--	--	--	--
	35,272	30,292	40,829	\$48,291	--	--	--	--
35 - 39	552	219	186	126	20	1	--	--
	40,326	31,288	43,125	49,676	\$53,199	\$63,368	--	--
40 - 44	594	183	147	135	90	38	1	--
	43,864	33,724	44,364	49,611	51,052	53,296	\$44,717	--
45 - 49	571	168	134	109	48	82	30	--
	44,824	33,063	45,567	48,207	52,019	54,395	57,401	--
50 - 54	491	116	109	84	38	58	76	10
	48,200	37,924	47,258	49,967	52,266	53,803	55,647	\$58,307
55 - 59	93	43	28	6	8	6	1	1
	44,955	37,987	49,983	48,173	51,520	53,707	73,251	51,181
60 - 64	46	18	18	6	2	2	--	--
	51,418	51,580	49,744	50,019	68,346	52,295	--	--
65 & over	9	1	4	1	1	1	1	--
	45,865	11,799	43,129	45,457	70,313	50,352	62,348	--
<b>Total</b>	<b>3,326</b>	<b>1,473</b>	<b>849</b>	<b>489</b>	<b>207</b>	<b>188</b>	<b>109</b>	<b>11</b>
	<b>\$40,324</b>	<b>\$30,572</b>	<b>\$43,941</b>	<b>\$49,295</b>	<b>\$51,985</b>	<b>\$53,972</b>	<b>\$56,252</b>	<b>\$57,659</b>

**SECTION 3: Supplemental Information for the Correctional Employees Retirement Fund**

**EXHIBIT C**

**Reconciliation of Participant Data**

	<b>Active Participants</b>	<b>Vested Terminated Participants</b>	<b>Other Non- Vested Terminated Participants</b>	<b>Disabled</b>	<b>Retired Participants</b>	<b>Beneficiaries</b>	<b>Total</b>
Number as of July 1, 2003	3,262	601	340	135	843	82	5,263
Changes	<u>64</u>	<u>77</u>	<u>-1</u>	<u>19</u>	<u>100</u>	<u>9</u>	<u>268</u>
Number as of July 1, 2004	3,326	678	339	154	943	91	5,531

**SECTION 3: Supplemental Information for the Correctional Employees Retirement Fund**

**EXHIBIT D**

**Summary Statement of Income and Expenses on a Market Value Basis for Year Ended June 30, 2004**

	<b>Non-MPRIF Assets</b>	<b>MPRIF Reserve</b>	<b>Market Value</b>
A. Assets available at beginning of period	\$226,012,000	\$192,732,000	\$418,744,000
B. Operating revenues:			
1. Member contributions	\$7,748,150	\$0	\$7,748,150
2. Employer contributions	10,627,131	0	10,627,131
3. MPRIF income	0	15,519,067	15,519,067
4. Net investment income			
(a) Interest and dividends	\$42,626,274	\$0	\$42,626,274
(b) Net appreciation/(depreciation)	-6,783,431	0	-6,783,431
(c) Investment expenses	<u>-309,378</u>	<u>0</u>	<u>-309,378</u>
(d) Net subtotal	\$35,533,465	\$0	\$35,533,465
5. Other	<u>79,521</u>	<u>0</u>	<u>79,521</u>
6. Total additions	\$53,988,267	\$15,519,067	\$69,507,334
C. Operating expenses:			
1. Benefits	\$0	\$21,298,286	\$21,298,286
2. Refunds	721,711	0	721,711
3. Administrative expenses	275,310	0	275,310
4. Other	<u>252,890</u>	<u>0</u>	<u>252,890</u>
5. Total operating expenses	\$1,249,911	\$21,298,286	\$22,548,197
D. Other changes in reserves			
1. Annuities awarded	-\$27,535,129	\$27,535,129	\$0
2. Mortality gain/(loss)	-8,751,331	8,751,331	0
3. Change in MPRIF assumptions	<u>0</u>	<u>0</u>	<u>0</u>
4. Total other changes	-\$36,286,460	\$36,286,460	\$0
E. Assets available at end of period	\$242,463,896	\$223,239,241	\$465,703,137
F. Determination of current year unrecognized asset return (UAR)			
1. Average balance:			
(a) Non-MPRIF assets available at BOY: (A)			\$226,012,000
(b) Non-MPRIF assets available at EOY*: (E) – (D.2)			251,215,227
(c) Average balance: [(F.1(a)) + (F.1(b)) – (B.4(d)) – B.5]/2			220,807,121
2. Expected return: 8.50% x (F.1(c))			18,768,605
3. Actual return: (B.4(d)) + (B.5)			<u>35,612,986</u>
4. Current year UAR: (F.3) – (F.2)			\$16,844,381

\*Before adjustment for MPRIF Mortality gain/loss



**SECTION 3: Supplemental Information for the Correctional Employees Retirement Fund**

**EXHIBIT E**

**Table of Financial Information for Year Ended June 30, 2004**

	<b>Market Value</b>	<b>Cost Value</b>
<b>Assets in trust</b>		
Cash, equivalents, short-term securities:	\$11,381,089	\$11,381,089
Fixed income	52,115,805	53,696,362
Equity	187,298,126	187,766,294
Real estate	0	0
Equity in MPRIF	223,239,241	223,239,241
Other	<u>0</u>	<u>0</u>
Total assets in trust	\$474,034,261	\$476,082,986
<b>Assets receivable</b>	-\$7,974,075	-\$7,974,075
<b>Total assets</b>	\$466,060,186	\$468,108,911
<b>Amounts currently payable</b>	-\$357,049	-\$357,049
<b>Assets available for benefits</b>		
MPRIF reserves	223,239,241	223,239,241
Member reserves	58,959,695	58,959,695
Other non-MPRIF reserves	<u>183,504,201</u>	<u>185,552,926</u>
<b>Net Assets at Market/Cost Value</b>	<u>\$465,703,137</u>	<u>\$467,751,862</u>
<b>Net Assets at Actuarial Value</b>	<u>\$486,617,032</u>	<u>\$486,617,032</u>

**SECTION 3: Supplemental Information for the Correctional Employees Retirement Fund**

**EXHIBIT F**

**Development of the Fund Through June 30, 2004**

<b>Year Ended June 30</b>	<b>Employer Contributions</b>	<b>Employee Contributions</b>	<b>Net Investment Return*</b>	<b>Administrative Expenses</b>	<b>Benefit Payments</b>	<b>Actuarial Value of Assets at End of Year</b>
2003	\$10,480,000	\$7,610,000	\$15,359,000	\$286,000	\$19,863,000	\$470,716,000
2004	10,627,131	7,748,150	19,821,058	275,310	22,019,997	486,617,032

*\* Net Investment Return on an Actuarial Value of Assets basis and net of investment fees.*

**SECTION 3: Supplemental Information for the Correctional Employees Retirement Fund**

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**EXHIBIT G**

**Development of Unfunded/(Overfunded) Actuarial Accrued Liability for Year Ended June 30, 2004**

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1. Unfunded/(Overfunded) actuarial accrued liability at beginning of year		\$14,258,000
2. Normal cost at beginning of year		20,857,000
3. Total contributions		18,375,281
4. Interest		<u>2,203,826</u>
5. Expected unfunded/(overfunded) actuarial accrued liability (1) + (2) - (3) + (4)		\$18,943,545
6. Changes due to:		
(a) Investments	\$27,646,313	
(b) MPRIF mortality	8,751,331	
(c) Other experience	-17,743,193	
(d) Total changes		<u>18,654,451</u>
7. Unfunded/(Overfunded) actuarial accrued liability at end of year		<u>\$37,597,996</u>

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**SECTION 3: Supplemental Information for the Correctional Employees Retirement Fund**

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**EXHIBIT H**

**Definitions of Pension Terms**

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The following list defines certain technical terms for the convenience of the reader:

**Assumptions or Actuarial**

**Assumptions:**

The estimates on which the cost of the Fund is calculated including:

- (a) Investment return — the rate of investment yield that the Fund will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

**Normal Cost:**

The amount of contributions required to fund the benefit allocated to the current year of service.

**Actuarial Accrued Liability**

**For Actives:**

The equivalent of the accumulated normal costs allocated to the years before the valuation date.

**Actuarial Accrued Liability**

**For Pensioners:**

The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

**Unfunded Actuarial Accrued**

**Liability:**

The extent to which the actuarial accrued liability of the Fund exceeds the assets of the Fund. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

**SECTION 3: Supplemental Information for the Correctional Employees Retirement Fund**

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**Amortization of the Unfunded**

**Actuarial Accrued Liability:** Payments made over a period of years equal in value to the Fund's unfunded actuarial accrued liability.

**Investment Return:**

The rate of earnings of the Fund from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.

**Accrued Benefit Funded Ratio:**

A current year funded status that measures the percent of benefits covered by Current Assets. This ratio is based on benefits earned to the valuation date (accrued service) and includes future salary increases to retirement. The liability for these benefits is defined as the Current Benefit Obligations. The Accrued Benefit Funded Ratio is calculated as the Actuarial Value of Assets (Current Assets) divided by the Current Benefit Obligations.

**Projected Benefit Funded Ratio:**

A projected funded status that measures contribution sufficiency/deficiency, which is based on a present value of all plan benefits for the lifetime of all plan members. The liability for these benefits is defined as the Current and Expected Future Benefit Obligations, or Present Value of Benefits. The Current and Expected Future Assets are determined as the sum of the Actuarial Value of Assets (Current Assets), the Present Value of Expected Future Statutory Supplemental Contributions and the Present Value of Future Normal Costs. The Projected Benefit Funded Ratio is calculated as the Current and Expected Future Assets divided by the Current and Expected Future Benefit Obligations. If the ratio is equal to or more than 100%, there is a contribution sufficiency, and if it is less than 100% there is a contribution deficiency.

**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

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**EXHIBIT I**

**Summary of Actuarial Valuation Results**

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The valuation was made with respect to the following data supplied to us:

1. Pensioners as of the valuation date (including 91 beneficiaries in pay status)		1,188
2. Participants inactive during year ended June 30, 2004 with vested rights		678
3. Participants active during the year ended June 30, 2004		3,326
Fully vested	2,393	
Not vested	933	

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The actuarial factors as of the valuation date are as follows:

1. Normal cost		\$20,066,740
2. Present value of future benefits		662,364,192
3. Present value of future normal costs		138,149,164
4. Actuarial accrued liability		524,215,028
Pensioners and beneficiaries	\$223,239,241	
Inactive participants with vested rights	34,888,744	
Participants due refunds	382,264	
Active participants	265,704,779	
5. Actuarial value of assets (\$465,703,137 at market value)		\$486,617,032
6. Unfunded actuarial accrued liability		\$37,597,996

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**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

**EXHIBIT I (continued)**

**Summary of Actuarial Valuation Results**

	<b>Actuarial Present Value of Projected Benefits</b>	<b>Actuarial Present Value of Future Normal Costs</b>	<b>Actuarial Accrued Liability</b>
<b>A. Determination of Actuarial Accrued Liability</b>			
1. Active participants:			
(a) Death benefits	\$9,229,539	\$2,240,348	\$6,989,191
(b) Disability benefits	23,410,317	14,018,365	9,391,952
(c) Withdrawal benefits	28,841,818	11,380,016	17,461,802
(d) Retirement benefits	333,400,788	98,978,856	234,421,932
(e) Refunds	<u>8,971,481</u>	<u>11,531,579</u>	<u>-2,560,098</u>
(f) Total	\$403,853,943	\$138,149,164	\$265,704,779
2. Vested terminated participants	\$34,888,744	\$0	\$34,888,744
3. Other non-vested terminated participants	382,264	0	382,264
4. Annuitants in MPRIF	223,239,241	0	223,239,241
5. Annuitants not in MPRIF	<u>0</u>	<u>0</u>	<u>0</u>
6. Total	\$662,364,192	\$138,149,164	\$524,215,028
<b>B. Determination of Unfunded Actuarial Accrued Liability</b>			
1. Actuarial Accrued Liability			\$524,215,028
2. Actuarial Value of Assets			<u>486,617,032</u>
3. Unfunded Actuarial Accrued Liability: (1) – (2)			\$37,597,996
<b>C. Determination of Supplemental Contribution Rate</b>			
1. Present value of future payrolls through the amortization date of June 30, 2020			\$1,624,292,940
2. Supplemental contribution rate: (B.3) / (C.1)			2.31%

**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

**EXHIBIT II  
Actuarial Balance Sheet**

A. Current Assets				\$486,617,032
B. Expected Future Assets				
1. Present Value of Expected Future Statutory Supplemental Contributions				-\$24,364,394
2. Present Value of Future Normal Costs				<u>138,149,164</u>
3. Total Expected Future Assets				\$113,784,770
C. Total Current and Expected Future Assets				\$600,401,802
D. Current Benefit Obligations				
		<b><u>Non-Vested</u></b>	<b><u>Vested</u></b>	<b><u>Total</u></b>
1. Benefit recipients:				
(a) Retirement annuities		\$0	\$181,637,850	\$181,637,850
(b) Disability benefits		0	31,117,121	31,117,121
(c) Beneficiaries		0	10,484,270	10,484,270
2. Vested terminated participants		0	34,888,744	34,888,744
3. Other non-vested terminated participants		0	382,264	382,264
4. Active participants		<u>6,011,122</u>	<u>217,622,736</u>	<u>223,633,858</u>
5. Total Current Benefit Obligations		\$6,011,122	\$476,132,985	\$482,144,107
E. Expected Future Benefit Obligations				<u>180,220,085</u>
F. Total Current and Expected Future Benefit Obligations - Present Value of Benefits: (D.5 + E)				\$662,364,192
G. Current Unfunded Actuarial Liability (D.5 - A)				-\$4,472,925
H. Current and Future Unfunded Actuarial Liability (F - C)				\$61,962,390



**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

**EXHIBIT III**

**Supplementary Information Required by the GASB – Schedule of Employer Contributions**

<b>Year Ended June 30</b>	<b>Actuarially Required Contribution Rate (a)</b>	<b>Actual Covered Payroll (b)</b>	<b>Actual Member Contributions (c)</b>	<b>Annual Required Employer Contributions [(a x (b)) – (c) = (d)]</b>	<b>Actual Employer Contributions<sup>(1)</sup> (e)</b>	<b>Percentage Contributed (e) / (d)</b>
1991	10.73%	\$43,429,000	\$2,128,000	\$2,532,000	\$2,731,000	107.86%
1992	10.82%	47,592,000	2,332,000	2,817,000	2,955,000	104.90%
1993	11.41%	52,122,000	2,554,000	3,393,000	3,217,000	94.81%
1994	10.97%	54,673,000	2,679,000	3,319,000	3,355,000	101.08%
1995	11.30%	66,939,000	3,280,000	4,284,000	4,195,000	97.92%
1996	11.11%	72,959,000	3,575,000	4,531,000	4,559,000	100.62%
1997	11.21%	112,408,000	5,508,000	7,093,000	9,129,000	128.70%
1998	12.49%	105,796,000	5,954,000	7,260,000	8,146,000	112.20%
1999	12.99%	106,131,000	6,378,000	7,408,000	8,172,000	110.31%
2000	13.66% <sup>(2)</sup>	112,587,000	6,526,000	8,853,000	8,984,000	101.48%
2001	13.72% <sup>(3)</sup>	120,947,000	6,996,000	9,598,000	9,652,000	100.56%
2002	13.81%	124,373,000	7,207,000	9,969,000	9,925,000	99.56%
2003	14.73% <sup>(4)</sup>	131,328,000	7,610,000	11,735,000	10,480,000	89.31%
2004	15.83%	133,172,068	7,748,150	13,332,988	10,627,131	79.71%
2005	17.48%					

<sup>(1)</sup> Includes contributions from other sources (if applicable).

<sup>(2)</sup> Actuarially Required Contribution Rate calculated according to parameters of GASB 25 using a 30-year amortization of the negative unfunded accrued liability.

<sup>(3)</sup> Actuarially Required Contribution Rate prior to change in Asset Valuation Method is 13.34%.

<sup>(4)</sup> Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 14.46%.

**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

**EXHIBIT IV**

**Supplementary Information Required by the GASB – Schedule of Funding Progress**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) (b)</b>	<b>Unfunded AAL (UAAL) (b) – (a)</b>	<b>Funded Ratio (a) / (b)</b>	<b>Actual Covered Payroll (Previous FY) (c)</b>	<b>UAAL as a Percentage of Covered Payroll [(b) – (a)] / (c)</b>
07/01/1991	\$105,925,000	\$112,171,000	\$6,246,000	94.43%	\$43,429,000	14.38%
07/01/1992	121,051,000	123,515,000	2,464,000	98.01%	47,592,000	5.18%
07/01/1993	135,939,000	134,280,000	-1,659,000	101.24%	52,122,000	-3.18%
07/01/1994	148,163,000	152,702,000	4,539,000	97.03%	54,673,000	8.30%
07/01/1995	165,427,000	153,491,000	-11,936,000	107.78%	66,939,000	-17.83%
07/01/1996	193,833,000	170,959,000	-22,874,000	113.38%	72,959,000	-31.35%
07/01/1997	241,916,000	212,638,000	-29,278,000	113.77%	112,408,000	-26.05%
07/01/1998	295,291,000	261,869,000	-33,422,000	112.76%	105,796,000	-31.59%
07/01/1999	335,408,000	307,408,000	-28,000,000	109.11%	106,131,000	-26.38%
07/01/2000	386,964,000	359,885,000	-27,079,000	107.52%	112,587,000	-24.05%
07/01/2001	431,134,000	398,633,000	-32,501,000	108.15%	120,947,000	-26.87%
07/01/2002	457,416,000	446,426,000	-10,990,000	102.46%	124,373,000	-8.84%
07/01/2003	470,716,000	484,974,000	14,258,000	97.06%	131,328,000	10.86%
07/01/2004	486,617,032	524,215,028	37,597,996	92.83%	133,172,068	28.23%

**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

**EXHIBIT V**

**Determination of Contribution Sufficiency**

	July 1, 2004	
	Percent of Payroll	Dollar Amount
<b>A. Statutory Contributions – Chapter 352</b>		
1. Member Contributions	5.69%	\$7,631,293
2. Employer Contributions	<u>7.98%</u>	<u>10,702,586</u>
3. Total	<u>13.67%</u>	<u>\$18,333,879</u>
<b>B. Required Contributions – Chapter 356</b>		
1. Normal Cost		
(a) Retirement Benefits	11.05%	\$14,816,033
(b) Disability Benefits	1.61%	2,154,732
(c) Survivors	0.22%	294,928
(d) Deferred Retirement Benefits	1.04%	1,398,563
(e) Refunds	<u>1.05%</u>	<u>1,402,484</u>
(f) Total	14.97%	\$20,066,740
2. Amortization of Supplemental Contribution UAAL	2.31%	3,098,117
3. Allowance for Expenses	<u>0.20%</u>	<u>268,235</u>
4. Total	<u>17.48%</u>	<u>\$23,433,092</u>
<b>C. Contribution Sufficiency (Deficiency) (A.3 – B.4)</b>	-3.81%	-\$5,099,213
<b>D. Projected annual payroll for fiscal year beginning on the valuation date</b>		\$134,117,624

**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

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**EXHIBIT VI**

**Supplementary Information Required by the GASB**

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<b>Valuation date</b>	July 1, 2004
<b>Actuarial cost method</b>	Entry Age Normal
<b>Amortization method</b>	Level percentage of payroll
<b>Remaining amortization period</b>	16 years remaining as of July 1, 2004
<b>Asset valuation method</b>	Market Value, adjusted for amortization obligations receivable at the end of each fiscal year, less a percentage of the Unrecognized Asset Return determined at the close of each of the four preceding fiscal years. Unrecognized Asset Return is the difference between actual net return on Market Value of Assets and the asset return expected during that fiscal year (based on the assumed interest rate employed in the July 1 Actuarial Valuation of the fiscal year).

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**Actuarial assumptions:**

Investment rate of return:	
Pre-retirement	8.50% per annum
Post-retirement	6.00% per annum (payment of earnings on retired reserves in excess of 6.00% accounted for by 6.00% post-retirement assumption)

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**Plan membership:**

Pensioners and beneficiaries receiving benefits	1,188
Terminated participants entitled to, but not yet receiving benefits	678
Other non-vested terminated participants due a refund of contributions	339
Active participants	<u>3,326</u>
Total	5,531

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**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

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**EXHIBIT VII**

**Actuarial Assumptions and Actuarial Cost Method**

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**Net Investment Return:**

*Pre-Retirement:* 8.50% per annum.

*Post-Retirement:* 8.50% per annum.

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**Benefit Increases After Retirement:** Payment of earnings on retired reserves in excess of 6.00% accounted for by using a 6.00% post-retirement assumption.

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**Salary Increases:** Reported salary at valuation date increased according to the rate table on pages 18 and 19 to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for new members.

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**Mortality Rates:**

*Healthy Pre-Retirement:* Male - 1983 Group Annuity Mortality Table for males set back one year.

Female - 1983 Group Annuity Mortality Table for females.

*Healthy Post-Retirement:* Male - 1983 Group Annuity Mortality Table for males set forward two years.

Female - 1983 Group Annuity Mortality Table for females set forward two years.

*Disabled:* Male - Combined Annuity Mortality Table.

Female - Combined Annuity Mortality Table.

**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

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**Retirement Rates:**

Age-related table as follows:

Ages:	50-53	2.00%
	54	20.00
	55	60.00
	56-61	20.00
	62-64	50.00
	65 & over	100.00

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**Withdrawal Rates:**

Graded rates based on actual experience developed by the June 30, 1997 experience analysis. Rates are shown in rate table.

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**Disability:**

Rates as shown in rate table.

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**Allowance for Combined Service Annuity:**

Liabilities for active members are increased by 0.00% and liabilities for former members are increased by 30.00% to account for the effect of some participants having eligibility for a Combined Service Annuity.

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**Administrative Expenses:**

Prior year administration expenses expressed as percentage of prior year payroll.

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**Return of Contributions:**

All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit.

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**Percent Married:**

85.00% of members are assumed to be married.

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**Age of Spouse:**

Females are assumed to be three years younger than males.

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**Social Security:**

Based on the present law and 6.00% retroactive salary scale. Only earnings history while in state service is used. Future Social Security benefits replace the same proportion of salary as at present.

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**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

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**Special Consideration:** Married members assumed to elect subsidized joint and survivor form of annuity as follows:

Males -	25.00% elect 50% J&S option
	25.00% elect 100% J&S option
Females -	5.00% elect 50% J&S option
	5.00% elect 100% J&S option

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**Actuarial Cost Method:** Entry Age Normal Actuarial Cost Method. Entry Age is the age at the time the participant commenced employment. Normal cost and Actuarial Accrued Liability are calculated on an individual basis and are expressed as a level percentage of payroll, with normal cost determined as if the current benefit accrual rate had always been in effect.

The actuarial cost method was changed as of July 1, 1997 to permit negative amortization of supplemental contribution surpluses.

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**Asset Valuation Method:** Market Value less a percentage of the Unrecognized Asset Return determined at the close of each of the four preceding fiscal years. Unrecognized Asset Return is the difference between actual net return on Market Value of Assets and the asset return expected during that fiscal year (based on the assumed interest rate employed in the July 1 Actuarial Valuation of the fiscal year). Transition rules apply between July 1, 2000 and July 1, 2003, when the method is fully in effect.

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**Payment on the Unfunded Actuarial Accrued Liability:** A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5.00% per annum. If there is a negative Unfunded Actuarial Accrued Liability, the surplus amount shall be amortized over 30 years as a level percentage of payroll.

**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

**Summary of Rates:**

Shown below for selected ages:

Age	Rates(%)								Salary Increases
	Pre-Retirement Death		Withdrawal		Disability		Retirement		
	Male	Female	Male	Female	Male	Female	Male	Female	
20	0.04%	0.02%	24.00%	16.00%	0.04%	0.04%	0.00%	0.00%	7.75%
25	0.04	0.03	14.70	14.20	0.06	0.06	0.00	0.00	7.00
30	0.06	0.03	9.10	13.50	0.08	0.08	0.00	0.00	7.00
35	0.08	0.05	6.00	12.90	0.11	0.11	0.00	0.00	7.00
40	0.11	0.07	4.40	10.40	0.18	0.18	0.00	0.00	6.50
45	0.19	0.10	3.40	6.40	0.29	0.29	0.00	0.00	5.75
50	0.35	0.16	2.40	4.70	0.50	0.50	2.00	2.00	5.50
55	0.57	0.25	1.40	3.30	0.88	0.88	60.00	60.00	5.25
60	0.84	0.42	0.00	0.00	1.42	1.41	20.00	0.00	5.25
65	1.29	0.71	0.00	0.00	0.00	0.00	100.00	100.00	5.25
70	2.48	1.24	0.00	0.00	0.00	0.00	0.00	0.00	5.25

**Changes in Actuarial Assumptions  
and Actuarial Cost Methods:**

There have been no changes in the actuarial assumptions or actuarial cost methods since the prior valuation.



**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

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**EXHIBIT VIII**

**Summary of Plan Provisions**

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This summary of provisions reflects the interpretation of applicable Statutes for purposes of preparing this valuation. This interpretation is not intended to create or rescind any benefit rights in conflict with any Minnesota Statutes.

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<b>Plan Year:</b>	July 1 through June 30
<b>Eligibility:</b>	State employees in covered correctional service.
<b>Contributions:</b>	
<i>Member:</i>	5.69% of salary.
<i>Employer:</i>	7.98% of salary.
<b>Allowable Service:</b>	Service during which member contributions were made. May also include certain leaves of absence, military service and periods while temporary Worker's Compensation is paid.
<b>Salary:</b>	Includes wages, allowances and fees. Excludes lump sum payments at separation and reduced salary while receiving Worker's Compensation benefits.
<b>Average Salary:</b>	Average of the five highest successive years of salary. Average Salary is based on all Allowable Service if less than five years.
<b>Retirement:</b>	
<u><i>Normal Retirement Benefit:</i></u>	
<i>Age/Service Requirement:</i>	Age 55 and three years of Allowable Service under the Correctional and General Plans. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.
<i>Amount:</i>	2.40% of Average Salary for each year of Allowable Service, pro rata for completed months.

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## SECTION 4: Reporting Information for the Correctional Employees Retirement Fund

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### Early Retirement Benefit:

*Age/Service Requirement:*

Age 50 and three years of Allowable Service.

*Amount:*

Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date reduced by 2/10% per month for each month that the member is under age 55.

*Form of Payment:*

Life annuity. Actuarially equivalent options are:

- (a) 50% or 100% joint and survivor with bounce back feature without additional reduction.
- (b) 15 year certain and life benefits.
- (c) Level Social Security option either to age 62 or Social Security Retirement Age.

*Benefit Increases:*

Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one full month but less than 12 full months will receive a partial increase.

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### **Disability:**

#### Occupational Disability:

*Age/Service Requirement:*

Member who cannot perform his duties as a direct result of a disability relating to an act of duty.

*Amount:*

50.00% of Average Salary plus 2.40% of Average Salary for each year in excess of 20 years and 10 months of Allowable Service (pro rata for completed months).  
Maximum of 75.00% of Average Salary.

Payment begins at disability and stops at age 65 or the five-year anniversary of the effective date of the disability benefit, whichever is later. Payments stop earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability

**SECTION 4: Reporting Information for the Correctional Employees Retirement Fund**

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Non-Occupational Disability:

*Age/Service Requirement:* At least one year of Correctional service and disability not related to covered employment.

*Amount:* Normal Retirement Benefit based on Allowable Service (minimum of 15 years) and Average Salary at disability.  
Payment begins at disability and ends at age 65 or the five-year anniversary of the effective date of the disability benefit, whichever is later. Payments stop earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.

*Form of Payment:* Same as for retirement.

*Benefit Increases:* Adjusted by MSRS to provide same increase as MPRIF.

Retirement Disability:

*Age/Service Requirement:* Age 62 with continued disability.

*Amount:* Benefit computed as a normal retirement benefit under General Plan based on same Allowable Service and without reduction for age.

*Form of Payment:* Same as for retirement.

*Benefit Increases:* Same as for retirement.

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**Death:**

Surviving Spouse Benefit:

*Age/Service Requirement:* Member at any age or former member age 50 or older who dies before retirement or disability benefits commence with three years of Allowable Service. If a former member dies before age 55 and has less than 30 years of Allowable Service, benefits commence when the former member would have been age 55. If an active member dies, benefits may commence immediately, regardless of age.

*Amount:* Surviving spouse receives the 100% joint and survivor benefit using the Normal Retirement formula above. If commencement is prior to age 55, the appropriate early

## SECTION 4: Reporting Information for the Correctional Employees Retirement Fund

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retirement formula described above applies except that one-half the monthly reduction factor is used from age 55 to the commencement age and the Rule of 90 does not apply. In lieu of this benefit, the surviving spouse may elect a refund of contributions with interest or an actuarially equivalent term certain annuity (lump sum payable to estate at death).

*Benefit Increases:* Adjusted by MSRS to provide same income as MPRIF.

*Surviving Dependent Children's Benefit:*

*Age/Service Requirement:* If no surviving spouse, all dependent children (biological or adopted) below age 20 who are dependent for more than half of their support on deceased member.

*Amount:* Actuarially equivalent to surviving spouse 100% joint and survivor annuity payable to the later of age 20 or five years. The amount is to be proportionally divided among surviving children.

*Refund of Contributions With Interest:*

*Age/Service Requirement:* Active employee dies and survivor benefits are not payable or a former employee dies before annuity begins. If accumulated contributions with interest exceed total payments to the surviving spouse and children, then the remainder is paid out.

*Amount:* The member's contributions with 5.00% interest if death occurred on or after May 16, 1989 and 6.00% interest if death occurred on or after May 16, 1989.

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### **Termination:**

*Refund of Contributions:*

*Age/Service Requirement:* Termination of state service.

*Amount:* Member's contributions with 5.00% interest compounded annually if termination occurred before May 16, 1989 and 6.00% interest if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund if three or more years of Allowable Service.

*Deferred Benefit:*

*Age/Service Requirement:* Three years of Correctional and General Service.

*Amount:* Benefit computed under law in effect at termination.

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**Changes in Plan Provisions:** There have been no changes in plan provisions since the prior valuation.