

**Employees' Retirement System  
of Rhode Island**

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**ACTUARIAL VALUATION**

**June 30, 2002**



**GABRIEL, ROEDER, SMITH & COMPANY**

**Consultants & Actuaries**

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August 29, 2003

Board of Trustees  
Employees' Retirement System of Rhode Island  
40 Fountain Street, First Floor  
Providence, RI 02903-1854

Dear Members of the Board:

**Subject: Actuarial Valuation as of June 30, 2002**

This is the June 30, 2002 actuarial valuation of the Employees' Retirement System of Rhode Island (ERSRI), which covers state employees and teachers. This report describes the current actuarial condition of ERSRI, determines recommended employer contribution rates, and analyzes changes in these contribution rates. Valuations are prepared annually, as of June 30, the last day of the ERSRI plan year. Not covered in this report are the Municipal Employees' Retirement System, the State Police Retirement Benefits Trust, the Judicial Retirement Benefits Trust, and the Teachers Survivors Plan, even though assets for ERSRI and these other programs are commingled for investment purposes.

Under Rhode Island General Laws, the employer contribution rates for state employees and for teachers are certified annually by the Employees' Retirement Board. These rates are determined actuarially, based on the plan provisions in effect as of the valuation date, the actuarial assumptions adopted by the Board, and the methodology set forth in the statutes. The Board's current policy is that the contribution rates determined by a given actuarial valuation become effective two years after the valuation date. For example, the rates determined by this June 30, 2002 actuarial valuation will be applicable for the year beginning July 1, 2004 and ending June 30, 2005.

**Financing objectives**

The actuarial cost method and the amortization periods are set by statute. Contribution rates and liabilities are computed using the Entry Age actuarial cost method. The employer contribution rate is the sum of two pieces: the employer normal cost rate and the amortization rate. The normal cost rate is determined as a percent of pay. The employer normal cost is the difference between this and the member contribution rate. The amortization rate is determined as a level percent of pay. It is the amount required to amortize the unfunded actuarial accrued liability over a closed period (30 years as of June 30, 1999). The amortization rate is adjusted

for the two-year deferral in contribution rates. Separate employer contribution rates are determined for state employees and for teachers.

### **Progress toward realization of financing objectives**

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan's funded status. In the absence of benefit improvements, it should increase over time, until it reaches 100%. For the state employees, the funded ratio is 71.7%, while for teachers the ratio is 73.2%.

The employer contribution rate increased for state employees, from 9.60% to 11.51%, and for teachers, from 13.72% to 14.84%. The increase in the contribution rates was the result of the actuarial investment losses during FY 2001 and FY 2002.

### **Benefit provisions**

The benefit provisions reflected in this valuation are those which were in effect on June 30, 2002. There were no material changes adopted since the previous actuarial valuation. The benefit provisions are summarized in Appendix B.

### **Assumptions and methods**

Actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the plan's actuary. The last review of the assumptions and methods were done in association with the June 30, 2000 actuarial valuation. All assumptions and methods are described in Appendix A and are unchanged from the last valuation.

### **Data**

The System's staff supplied member data for retired, active and inactive members as of June 30, 2002. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data. The System's staff also supplied asset data as of June 30, 2002.

### **Certification**

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of Rhode Island state law and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board.

Members of the Board  
August 29, 2003  
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The undersigned are independent actuaries. Both are Members of the Society of Actuaries and Members of the American Academy of Actuaries, and they are experienced in performing valuations for large public retirement systems.

Sincerely,  
Gabriel, Roeder, Smith & Company



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Senior Consultant



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**Executive Summary (State Employees)**

Item	2002	2001
<b>Membership</b>		
• Number of:		
- Active members	13,795	13,594
- Retirees and beneficiaries	9,426	9,225
- Inactive members	<u>1,569</u>	<u>1,800</u>
- Total	24,790	24,619
• Payroll supplied by ERSRI	\$ 563,002,274	\$ 520,929,741
<b>Contribution rates</b>		
• Member	8.75%	8.75%
• Employer	11.51%	9.60%
<b>Assets</b>		
• Market value	\$1,831,019,880	\$2,070,325,723
• Actuarial value	2,353,855,871	2,406,278,029
• Return on market value	-8.4%	-11.0%
• Return on actuarial value	0.9%	4.9%
• Employer contribution	\$ 31,840,749	\$ 44,482,312
• Ratio of actuarial value to market value	128.6%	116.2%
<b>Actuarial Information</b>		
• Employer normal cost %	0.32%	0.20%
• Unamortized actuarial accrued liability (UAAL)	\$ 930,271,090	\$ 682,969,709
• Amortization rate	11.19%	9.40%
• Funding period	27 years	28 years
• GASB funded ratio	71.7%	77.9%
<b>Projected employer contribution</b>		
• Fiscal year ending June 30,	2005	2004
• Projected payroll (millions)	\$ 622.6	\$ 571.8
• Projected employer contribution (millions)	71.7	54.9

**Executive Summary (Teachers)**

Item	2002	2001
<b>Membership</b>		
• Number of:		
- Active members	14,710	14,092
- Retirees and beneficiaries	7,311	6,875
- Inactive members	<u>1,042</u>	<u>1,392</u>
- Total	23,063	22,359
• Payroll supplied by ERSRI	\$ 735,288,788	\$ 697,429,469
<b>Contribution rates</b>		
• Member	9.50%	9.50%
• Employer	14.84%	13.72%
• State share	6.12%	5.73%
• Local employer share	8.72%	7.99%
<b>Assets</b>		
• Market value	\$2,754,225,451	\$3,111,666,873
• Actuarial value	3,553,823,995	3,619,863,426
• Return on market value	-8.4%	-11.0%
• Return on actuarial value	0.9%	4.9%
• Employer contribution (state & local)	\$ 74,648,349	\$ 83,519,617
• Ratio of actuarial value to market value	129.0%	116.3%
<b>Actuarial Information</b>		
• Normal cost %	3.35%	3.21%
• Unamortized actuarial accrued liability (UAAL)	\$1,303,179,066	\$1,059,424,584
• Amortization percentage	11.49%	10.51%
• Funding period	27 years	28 years
• GASB funded ratio	73.2%	77.4%
<b>Projected employer contribution</b>		
• Fiscal year ending June 30,	2005	2004
• Projected payroll (millions)	\$ 840.2	\$ 794.0
• Projected employer contribution (millions)	124.7	108.9
• State share (millions)	51.4	45.5
• Local employer share (millions)	73.3	63.4

**Contribution Rates**

The employer contribution rates for ERSRI are determined actuarially. Separate rates are determined for State Employees and for Teachers. The rates determined in this valuation become effective two years after the valuation date, i.e., as of July 1, 2004.

The rate consists of two pieces: the normal cost rate and the amortization rate. The normal cost rate is the Entry Age Normal cost as a percent of pay. The amortization rate is the unfunded actuarial liability amortized over 27 years as a level percent of pay.

For the Teachers, the State of Rhode Island pays 40% of the rate, adjusted so that the State pays the entire amortization charges for the 1990/91 and 1991/92 deferrals, and the town or city employing the teacher pays the balance.

	<u>Local</u>	<u>State</u>	<u>Total</u>
Amortization for FY 91 and 92 deferrals	0.00%	0.30%	0.30%
Normal cost and all other amortizations	<u>8.72%</u>	<u>5.82%</u>	<u>14.54%</u>
Total	8.72%	6.12%	14.84%

Five towns or cities—Burrillville, East Greenwich, Little Compton, New Shoreham, and North Smithfield—did not participate in the 1990 early retirement window for teachers, and an adjusted contribution rate is charged for these:

	<u>Local</u>	<u>State</u>	<u>Total</u>
Amortization for FY 91 and 92 deferrals	0.00%	0.30%	0.30%
Normal cost and all other amortizations	<u>7.99%</u>	<u>5.32%</u>	<u>13.31%</u>
Total	7.99%	5.62%	13.61%



### **Financial Data and Experience**

Assets for ERSRI are held in trust and are commingled with those of several other plans and programs for investment purposes. The State Treasurer is responsible for setting the asset allocation policy and for investing the funds. The ERSRI assets are then allocated by the system's staff among State Employees, Teachers, and the Teachers' Survivor Benefits Plan.

Table 5 shows the net plan assets for ERSRI in total, and it shows the breakdown between State Employees, Teachers and the Teachers' Survivor Benefit Plan. Table 6 shows a reconciliation of the assets for State Employees and Teachers between the previous valuation and this valuation. Table 8 shows the distribution of investments by category—65% of assets are held in equities and Table 9 shows a historical summary of the return rates. The System's staff provided all of the financial information used in this report.

### Member Data

The ERSRI staff supplied member data as of June 30, 2002. While we did not audit this data, we did perform various tests to ensure that it was internally consistent, consistent with the prior year's data, and was reasonable overall. Information provided for active members includes: name, social security number, sex, a code indicating whether the member was active or inactive, a code indicating employee type (state employee or teacher), date of birth, service, salary, and accumulated member contributions without interest. For retired members, data includes: name, social security number, sex, date of birth, date of retirement, amount of benefit, the amount of adjustment after age 62 for anyone electing the Social Security option, a code indicating the option elected and the type of retiree (service retiree, disabled retiree, beneficiary), and if applicable, the joint pensioner's date of birth and sex.

Tables 11A and 11B show the number of members by category (active, inactive, retired, etc.). Table 12 shows a historical summary of active member statistics, and Tables 13A and 13B show the distribution of active members by age and service.

The total payroll shown on the statistical tables is the amount that was supplied by ERSRI, annualized if necessary. For the cost calculations, the pays were adjusted in accordance with the actuarial assumptions to reflect one year's salary increase.

### **Benefit Provisions**

Appendix B includes a summary of the benefit provisions for ERSRI. There were no material changes in the benefit provisions since the preceding valuation.

There are no ancillary benefits—e.g., cost of living benefits—that are currently provided by a source independent of ERSRI but that might be deemed an ERSRI liability if continued beyond the availability of funding by the current funding source.

### **Actuarial Methods and Assumptions**

Appendix A includes a summary of the actuarial assumptions and methods used in this valuation. Costs are determined using the Entry Age Normal actuarial cost method. This method was adopted effective June 30, 1999.

The method used to determine the actuarial value of assets is the five-year smoothed market method. This technique is further described in Section III of Appendix A.

The development of the actuarial value of assets utilizing this method is shown on Tables 7A and 7B.

### **GASB 25 and Funding Progress**

Accounting requirements for ERSRI are set by Governmental Accounting Standards Board Statement No. 25 (GASB 25). Table 3 shows a historical summary of the funded ratios and other information for ERSRI. Table 4 shows other information needed in connection with disclosure under GASB 25.

GASB 25 requires that plans calculate an Annual Required Contribution (ARC), and, if actual contributions received are less than the ARC, this must be disclosed. The ARC must be calculated in accordance with certain parameters. In particular, it must include a payment to amortize the UAAL. This amortization payment eventually will have to be computed using a funding period no greater than 30 years, but a 40-year maximum amortization period may be used during a ten-year transition period. Further, the amortization payment included in the ARC may be computed as a level amount, or it may be computed as an amount that increases with payroll. However, if payments are computed on a level-percent of payroll approach, the payroll growth assumption may not anticipate future membership growth.

For ERSRI, the calculated contribution rates from Tables 1A and 1B are the ARCs for State Employees and Teachers, respectively. The payroll growth rate used in the amortization calculations is set equal to the assumed inflation rate, and does not include any allowance for membership growth.

**Development of Contribution Rate (State Employees)**

	<u>June 30, 2002</u>	<u>June 30, 2001</u>
1. Compensation		
(a) Supplied by ERSRI	\$ 563,002,274	\$ 520,929,741
(b) Adjusted for one-year's pay increase	586,888,745	539,015,218
2. Actuarial accrued liability	3,284,126,961	3,089,247,738
3. Actuarial value of assets	2,353,855,871	2,406,278,029
4. Unamortized accrued actuarial liability (UAAL) ( 2 -3 )	930,271,090	682,969,709
5. Normal cost	51,134,407	46,317,694
6. Amortization of UAAL	69,681,839	53,784,754
7. Payroll projected for two-year delay	622,630,270	571,841,245
8. 2004-2005 normal cost	56,486,243	51,165,402
9. Total cost ( 6 + 8 )	126,168,082	104,950,156
10. Employee contribution rate as percent of payroll	8.75%	8.75%
11. Employer contribution rate as percent of payroll		
(a) Normal cost ( 8 / 7 - 10 )	0.32%	0.20%
(b) Amortization payments ( 6 / 7 )	11.19%	9.40%
(c) Total ( 11(a) + 11(b) )	<u>11.51%</u>	<u>9.60%</u>

**Development of Contribution Rate (Teachers)**

	<u>June 30, 2002</u>	<u>June 30, 2001</u>
1. Compensation		
(a) Supplied by ERSRI	\$ 735,288,788	\$ 697,429,469
(b) Adjusted for one-year's pay increase	792,015,577	748,460,527
2. Actuarial accrued liability	4,857,003,061	4,679,288,010
3. Actuarial value of assets	3,553,823,995	3,619,863,426
4. Unamortized accrued actuarial liability (UAAL) ( 2 -3 )	1,303,179,066	1,059,424,584
5. Normal cost	97,766,488	91,362,607
6. Amortization of UAAL	96,506,223	83,431,065
7. Payroll projected for two-year delay	840,249,326	794,041,773
8. 2004-2005 normal cost	107,998,936	100,924,812
9. Total cost ( 6 + 8 )	204,505,159	184,355,877
10. Employee contribution rate as percent of payroll	9.50%	9.50%
11. Employer contribution rate as percent of payroll		
(a) Normal cost ( 8 / 7 - 10 )	3.35%	3.21%
(b) Amortization payments ( 6 / 7 )	11.49%	10.51%
(c) Total ( 11(a) + 11(b) )	<u>14.84%</u>	<u>13.72%</u>

**Actuarial Present Value of Future Benefits (State Employees)**

	June 30, 2002 <u>(1)</u>	June 30, 2001 <u>(1)</u>
1. Active members		
a. Service retirement benefits	\$ 1,689,882,303	\$ 1,578,491,287
b. Deferred termination benefits	242,515,217	220,858,574
c. Refunds	43,364,079	40,723,597
d. Pre-retirement death benefits	69,046,215	63,811,898
e. Disability retirement benefits	67,603,480	62,679,629
f. Post-retirement death benefits	4,732,372	4,550,318
g. Total	<u>\$ 2,117,143,666</u>	<u>\$ 1,971,115,303</u>
2. Retired members		
a. Service retirements	\$ 1,307,804,280	\$ 1,228,295,430
b. Disability retirements	75,629,956	69,524,865
c. Beneficiaries	114,329,697	105,389,289
d. Post-retirement death benefit	14,157,710	13,806,380
e. Total	<u>\$ 1,511,921,643</u>	<u>\$ 1,417,015,964</u>
3. Inactive members	\$ 26,259,414	\$ 38,943,826
4. Total actuarial present value of future benefits	\$ 3,655,324,723	\$ 3,427,075,093



**Actuarial Present Value of Future Benefits (Teachers)**

	June 30, 2002	June 30, 2001
	(1)	(1)
1. Active members		
a. Service retirement benefits	\$ 2,824,705,526	\$ 2,844,838,450
b. Deferred termination benefits	178,499,111	162,454,544
c. Refunds	45,351,134	44,385,572
d. Pre-retirement death benefits	71,091,147	68,489,408
e. Disability retirement benefits	52,885,902	50,413,910
f. Post-retirement death benefits	3,992,261	3,837,830
g. Total	<u>\$ 3,176,525,081</u>	<u>\$ 3,174,419,714</u>
2. Retired members		
a. Service retirements	\$ 2,478,200,041	\$ 2,224,590,136
b. Disability retirements	43,630,331	37,455,056
c. Beneficiaries	59,163,042	51,579,886
d. Post-retirement death benefit	9,225,583	8,777,259
e. Total	<u>\$ 2,590,218,997</u>	<u>\$ 2,322,402,337</u>
3. Inactive members	\$ 23,594,108	\$ 48,739,305
4. Total actuarial present value of future benefits	\$ 5,790,338,186	\$ 5,545,561,356

**Schedule of Funding Progress  
(As required by GASB #25)**

Valuation Date (1)	Actuarial Value of Assets (AVA) (2)	Actuarial Accrued Liability <sup>2</sup> (3)	Unfunded Actuarial Accrued Liability <sup>3</sup>		Funded Ratio (2)/(3) (5)	Annual Covered Payroll (6)	UAAL as % of Payroll (4)/(6) (7)
			(3)-(2) (4)				
<b>State Employees</b>							
June 30, 1997	1,810,447,649	2,312,563,765	502,116,116		78.3%	443,709,290	113.2%
June 30, 1998	2,075,619,320	2,576,282,134	500,662,814		80.6%	477,319,627	104.9%
June 30, 1999 <sup>1</sup>	2,201,890,748	2,607,397,329	405,506,581		84.4%	494,815,513	82.0%
June 30, 2000	2,345,319,663	2,874,905,547	529,585,884		81.6%	517,632,152	102.3%
June 30, 2001	2,406,278,029	3,089,247,738	682,969,709		77.9%	539,015,218	126.7%
June 30, 2002	2,353,855,871	3,284,126,961	930,271,090		71.7%	586,888,745	158.5%
<b>Teachers</b>							
June 30, 1997	2,626,621,502	3,579,652,537	953,031,035		73.4%	604,076,573	157.8%
June 30, 1998	3,045,858,851	3,999,722,806	953,863,955		76.2%	636,246,593	149.9%
June 30, 1999 <sup>1</sup>	3,259,015,814	3,967,529,172	708,513,358		82.1%	673,484,467	105.2%
June 30, 2000	3,514,399,312	4,359,881,262	845,481,950		80.6%	703,201,056	105.2%
June 30, 2001	3,619,863,426	4,679,288,010	1,059,424,584		77.4%	748,460,527	120.2%
June 30, 2002	3,553,823,995	4,857,003,061	1,303,179,066		73.2%	792,015,577	164.5%

<sup>1</sup>Restated numbers based on Entry Age Normal funding method

<sup>2</sup>Frozen Actuarial Liability for plan years 1998 and prior

<sup>3</sup>Unfunded Frozen Actuarial Liability for plan years 1998 and prior

**Notes to Required Supplementary Information**  
 (as required by GASB #25)

Item (1)	State Employees (2)	Teachers (3)
Valuation date	June 30, 2002	June 30, 2002
Actuarial cost method	Entry Age Normal	Entry Age Normal
Amortization method	Level percentage, closed	Level percentage, closed
Remaining amortization period	27 years	27 years
Asset valuation method	5-Yr Smoothed Market	5-Yr Smoothed Market
Actuarial assumptions:		
Investment rate of return *	8.25%	8.25%
Projected salary increase *	4.25% to 14.25%	4.25% to 16.75%
* Includes inflation at:	3.00%	3.00%
Cost of living adjustment	3.00%	3.00%

**Plan Net Assets**  
**(Assets at Market or Fair Value)**

Item (1)	June 30, 2002 (2)	June 30, 2001 (3)
<b>A. Total ERSRI assets</b>		
1. Cash and cash equivalents	\$ 4,319,155	\$ 685,257
2. Receivables:		
a. Transfers receivable	\$ 374,110	\$ -
b. Member and employer contributions	22,105,123	21,091,478
c. Due from state for teachers	15,486,158	7,568,759
d. Net investment income and other	2,356,727	1,340,768
e. Total receivables	\$ 40,322,118	\$ 30,001,005
3. Investments		
a. Short-term investment fund	\$ (7,365,699)	\$ 4,322,868
b. Pooled trust	4,677,732,344	5,296,571,916
c. Plan specific investments	23,071,604	27,325,594
d. Invested securities lending collateral	457,123,111	381,179,145
e. Total	\$ 5,150,561,360	\$ 5,709,399,523
4. Total property and equipment	\$ 11,058,453	\$ 7,935,873
5. Total assets	\$ 5,206,261,086	\$ 5,748,021,658
6. Liabilities		
a. Cash overdraft	\$ -	\$ -
b. Benefits payable	-	-
c. Accounts and vouches payable	4,169,294	5,164,143
d. Securities lending liability	457,123,111	381,179,145
e. Total liabilities	\$ 461,292,405	\$ 386,343,288
7. Total market value of assets available for benefits Total (Item 4 - Item 5)	\$ 4,744,968,681	\$ 5,361,678,370
<b>B. Breakdown</b>		
1. State employees	\$ 1,831,019,880	\$ 2,070,325,723
2. Teachers	2,754,225,451	3,111,666,873
3. Teachers' survivors benefits	159,723,350	179,685,774
4. Reserve for certain employees	-	-
5. Total	\$ 4,744,968,681	\$ 5,361,678,370

**Reconciliation of Plan Net Assets**

Item (1)	Year Ending 06/30/2002	
	State Employees (2)	Teachers (3)
1. Market value of assets at beginning of year	\$ 2,070,325,723	\$ 3,111,666,873
Current year prior period adjustments	-	-
Adjusted market value of assets at BOY	\$ 2,070,325,723	\$ 3,111,666,873
2. Contributions		
a. Members	\$ 50,011,335	\$ 72,376,644
b. Legislative	-	-
c. State	31,840,749	30,763,337
d. Local employers	-	43,885,012
e. Reimbursement of Supplemental Pensions	197,478	806,403
f. Service purchases	338,896	460,769
g. Total	\$ 82,388,458	\$ 148,292,165
3. Investment earnings, net of investment and administrative expenses	\$ (165,826,200)	\$ (261,591,103)
4. Expenditures for the year		
a. Benefit payments	\$ (113,019,764)	\$ (185,641,298)
b. Cost-of-living adjustments	(32,280,101)	(39,911,002)
c. Death benefits	(1,837,020)	(814,777)
d. Social security supplements	(5,590,229)	(15,741,981)
e. Supplemental pensions	(215,739)	(774,858)
f. Refunds	(2,925,248)	(1,258,568)
g. Total expenditures	\$ (155,868,101)	\$ (244,142,484)
5. Transfers and other adjustments	\$ -	\$ -
6. Market value of assets at end of year	\$ 1,831,019,880	\$ 2,754,225,451

**Development of Actuarial Value of Assets (State Employees)**

	<u>Year Ending June 30, 2002</u>		
1. Market value of assets at beginning of year	\$ 2,070,325,723		
2. Net new investments			
a. Contributions	\$ 82,388,458		
b. Benefits paid	(152,942,852)		
c. Refunds	(2,925,248)		
d. Subtotal	<u>(73,479,642)</u>		
3. Market value of assets at end of year	\$ 1,831,019,880		
4. Net earnings (3-1-2)	\$ (165,826,201)		
5. Assumed investment return rate	8.25%		
6. Expected return	\$ 167,770,837		
7. Excess return (4-6)	\$ (333,597,038)		
8. Excess return on assets as of 06/30/2002:			
<u>Period End</u>	<u>Excess Return</u>	<u>Percent Deferred</u>	<u>Deferred Amount</u>
(1)	(2)	(3)	(4)
June 30, 1999	\$ 33,594,705	20%	\$ 6,718,941
June 30, 2000	12,693,234	40%	5,077,294
June 30, 2001	(446,257,659)	60%	(267,754,596)
June 30, 2002	(333,597,038)	80%	<u>(266,877,630)</u>
			\$ (522,835,991)
9. Actuarial value of assets as of June 30, 2002 (Item 3 - Item 8)	\$ 2,353,855,871		
10. Ratio of actuarial value to market value	128.6%		

**Development of Actuarial Value of Assets (Teachers)**

	<u>Year Ending June 30, 2002</u>																												
1. Market value of assets at beginning of year	\$ 3,111,666,873																												
2. Net new investments																													
a. Contributions	\$ 148,292,165																												
b. Benefits paid	(242,883,915)																												
c. Refunds	(1,258,568)																												
d. Subtotal	<u>(95,850,319)</u>																												
3. Market value of assets at end of year	\$ 2,754,225,451																												
4. Net earnings (3-1-2)	\$ (261,591,103)																												
5. Assumed investment return rate	8.25%																												
6. Expected return	\$ 252,758,691																												
7. Excess return (4-6)	\$ (514,349,794)																												
8. Expected return on assets as of 06/30/2002:																													
	<table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Period End</u></th> <th style="text-align: left;"><u>Excess Return</u></th> <th style="text-align: left;"><u>Percent Deferred</u></th> <th style="text-align: left;"><u>Deferred Amount</u></th> </tr> <tr> <th style="text-align: center;">(1)</th> <th style="text-align: center;">(2)</th> <th style="text-align: center;">(3)</th> <th style="text-align: center;">(4)</th> </tr> </thead> <tbody> <tr> <td>June 30, 1999</td> <td style="text-align: right;">\$ 55,689,847</td> <td style="text-align: right;">20%</td> <td style="text-align: right;">\$ 11,137,969</td> </tr> <tr> <td>June 30, 2000</td> <td style="text-align: right;">28,046,192</td> <td style="text-align: right;">40%</td> <td style="text-align: right;">11,218,477</td> </tr> <tr> <td>June 30, 2001</td> <td style="text-align: right;">(684,125,258)</td> <td style="text-align: right;">60%</td> <td style="text-align: right;">(410,475,155)</td> </tr> <tr> <td>June 30, 2002</td> <td style="text-align: right;">(514,349,794)</td> <td style="text-align: right;">80%</td> <td style="text-align: right;"><u>(411,479,835)</u></td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: right;">\$ (799,598,544)</td> </tr> </tbody> </table>	<u>Period End</u>	<u>Excess Return</u>	<u>Percent Deferred</u>	<u>Deferred Amount</u>	(1)	(2)	(3)	(4)	June 30, 1999	\$ 55,689,847	20%	\$ 11,137,969	June 30, 2000	28,046,192	40%	11,218,477	June 30, 2001	(684,125,258)	60%	(410,475,155)	June 30, 2002	(514,349,794)	80%	<u>(411,479,835)</u>				\$ (799,598,544)
<u>Period End</u>	<u>Excess Return</u>	<u>Percent Deferred</u>	<u>Deferred Amount</u>																										
(1)	(2)	(3)	(4)																										
June 30, 1999	\$ 55,689,847	20%	\$ 11,137,969																										
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			\$ (799,598,544)																										
9. Actuarial value of assets as of June 30, 2002 (Item 3 - Item 8)	\$ 3,553,823,995																												
10. Ratio of actuarial value to market value	129.0%																												

**Distribution of Assets at Market Value  
 (Percentage of Total Investments)**

Item (1)	June 30, 2002 (2)	June 30, 2001 (3)
Cash & cash equivalents	3.2%	2.9%
U.S. government & agency securities	12.0%	15.4%
Corporate bonds & notes	13.4%	13.8%
Foreign bonds	1.0%	0.8%
U.S. equity securities	43.9%	45.1%
Foreign equity securities	21.1%	16.9%
Emerging markets equity	0.0%	0.0%
Real estate, venture capital, other	5.4%	5.1%
Total investments	100.0%	100.0%



**History of Investment Return Rates**

<u>Year Ending June 30 of</u>	<u>Market</u>	<u>Actuarial</u>
(1)	(2)	(3)
1994	4.0%	-
1995	17.0%	10.2%
1996	13.7%	13.7%
1997	19.1%	19.1%
1998	16.1%	16.5%
1999	10.1%	14.7%
2000	9.1%	8.8%
2001	(11.0%)	4.9%
2002	(8.4%)	0.9%

**Analysis of Change in Employer Cost**

Basis (1)	State Employees (2)	Teachers (3)
1. Employer fiscal 2004 cost	9.60%	13.72%
2. Impact of changes, gains and losses		
a. Liability experience (gain)/loss	-0.42%	-1.46%
b. Effect of FY 2002 return less than 8.25%	0.89%	0.98%
c. of prior years' investment gains and losses (FY 1999 through FY 2001)	1.44%	1.60%
d. Changes in provisions	N/A	N/A
e. Total	1.91%	1.12%
3. Employer fiscal 2005 cost	11.51%	14.84%

**Membership Data (State Employees)**

	<u>June 30, 2002</u>	<u>June 30, 2001</u>
	(1)	(1)
1. Active members		
a. Number	13,795	13,594
b. Number vested	8,906	9,049
c. Total payroll supplied by ERSRI	\$ 563,002,274	\$ 520,929,741
d. Average salary	40,812	38,321
e. Average age	47.4	46.9
f. Average service	14.3	14.5
2. Inactive members		
a. Number	1,569	1,800
3. Service retirees		
a. Number	7,761	7,637
b. Total annual benefits	\$ 134,644,000	\$ 126,075,840
c. Average annual benefit	17,349	16,509
d. Average age	73.2	73.0
4. Disabled retirees		
a. Number	628	613
b. Total annual benefits	\$ 8,018,000	\$ 7,423,494
c. Average annual benefit	12,768	12,110
d. Average age	62.4	62.5
5. Beneficiaries and spouses		
a. Number	1,037	975
b. Total annual benefits	\$ 12,341,000	\$ 11,191,372
c. Average annual benefit	11,901	11,478
d. Average age	74.5	74.1

**Membership Data (Teachers)**

	June 30, 2002 (1)	June 30, 2001 (1)
1. Active members		
a. Number	14,710	14,092
b. Number vested	7,568	7,561
c. Total payroll supplied by ERSRI	\$ 735,288,788	\$ 697,429,469
d. Average salary	49,986	49,491
e. Average age	44.4	44.4
f. Average service	12.5	13.3
2. Inactive members		
a. Number	1,042	1,392
3. Service retirees		
a. Number	6,772	6,370
b. Total annual benefits	\$ 232,932,070	\$ 209,736,183
c. Average annual benefit	34,396	32,926
d. Average age	67.4	67.5
4. Disabled retirees		
a. Number	213	208
b. Total annual benefits	\$ 4,600,110	\$ 4,297,969
c. Average annual benefit	21,597	20,663
d. Average age	62.8	62.5
5. Beneficiaries and spouses		
a. Number	326	297
b. Total annual benefits	\$ 5,854,110	\$ 5,105,369
c. Average annual benefit	17,957	17,190
d. Average age	70.8	70.7

Historical Summary of Active Member Data

Valuation as of June 30, (1)	Active Members		Covered Payroll		Average Salary		Average Age (8)	Average Service (9)
	Number (2)	Percent Increase (3)	Amount in \$ Millions (4)	Percent Increase (5)	\$ Amount (6)	Percent Increase (7)		
<i>State Employees</i>								
1996	12,976	-4.2%	\$453	0.4%	34,900	4.8%	45.5	13.7
1997	12,865	(0.9%)	426	(6.0%)	33,103	(5.1%)	45.7	14.0
1998	13,105	1.9%	458	7.6%	34,963	5.6%	46.4	14.4
1999	13,369	2.0%	476	3.9%	35,606	1.8%	46.4	14.4
2000	13,305	(0.5%)	499	4.8%	37,510	5.3%	46.7	14.4
2001	13,594	2.2%	521	4.4%	38,321	2.2%	46.9	14.5
2002	13,795	1.5%	563	8.1%	40,812	6.5%	47.4	14.3
<i>Teachers</i>								
1996	12,391	2.6%	\$544	9.6%	43,900	6.8%	44.9	15.5
1997	12,681	2.3%	573	5.4%	45,193	2.9%	45.1	15.1
1998	12,883	1.6%	598	4.4%	46,453	2.8%	45.0	14.9
1999	13,282	3.1%	633	5.7%	47,642	2.6%	45.0	14.6
2000	13,607	2.4%	659	4.0%	48,402	1.6%	44.7	14.0
2001	14,092	3.6%	697	5.9%	49,491	2.3%	44.4	13.3
2002	14,710	4.4%	735	5.4%	49,986	1.0%	44.4	12.5

**Distribution of Active Members by Age and by Years of Service (State Employees)  
As of 06/30/2002**

Attained Age	Years of Credited Service														Total Count & Avg. Comp.													
	0		1		2		3		4		5-9		10-14			15-19		20-24		25-29		30-34		35-39		40 & Over		
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.		Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	63 \$10,341	45 \$26,476	37 \$25,486	14 \$27,158	3 \$27,338	3 \$29,881	1 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	163 \$20,110
25-29	103 \$15,840	125 \$29,034	123 \$31,894	95 \$33,078	46 \$34,320	52 \$36,108	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	544 \$29,012
30-34	74 \$16,499	106 \$32,066	142 \$32,159	116 \$35,347	111 \$34,712	254 \$38,840	242 \$38,517	7 \$32,164	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,052 \$34,745
35-39	73 \$17,377	100 \$35,403	99 \$34,640	113 \$37,022	76 \$35,969	280 \$40,926	588 \$40,455	217 \$39,698	11 \$39,202	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,557 \$38,181
40-44	77 \$16,153	112 \$35,293	100 \$33,693	100 \$36,717	75 \$37,022	292 \$42,001	520 \$41,014	487 \$46,395	321 \$41,825	46 \$40,037	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	2,130 \$40,595
45-49	215 \$6,722	91 \$28,823	94 \$31,588	121 \$36,430	81 \$33,735	264 \$41,963	478 \$41,827	380 \$47,456	523 \$47,278	473 \$44,703	35 \$41,192	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	2,755 \$40,143
50-54	47 \$17,642	57 \$34,041	62 \$34,034	71 \$37,015	66 \$38,920	236 \$41,338	381 \$40,094	342 \$45,833	396 \$49,521	499 \$54,979	224 \$51,901	8 \$45,474	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	2,389 \$45,968
55-59	34 \$19,220	22 \$30,906	30 \$32,949	36 \$34,271	33 \$29,955	157 \$41,807	318 \$40,561	313 \$43,056	328 \$46,800	284 \$50,808	198 \$60,889	43 \$51,068	1 \$52,490	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,797 \$45,391
60-64	9 \$15,643	5 \$34,116	17 \$29,216	15 \$40,375	13 \$36,517	79 \$41,632	191 \$36,528	190 \$42,178	159 \$43,809	150 \$47,489	64 \$47,731	18 \$57,936	9 \$53,001	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	919 \$42,254
65-69	0 \$0	2 \$50,449	3 \$41,958	4 \$42,505	3 \$43,522	15 \$33,155	74 \$35,909	58 \$41,562	53 \$40,752	57 \$49,464	24 \$47,983	6 \$83,854	5 \$70,973	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	304 \$43,031
70 & Over	1 \$0	2 \$17,120	1 \$14,159	1 \$82,965	6 \$19,062	6 \$40,517	32 \$41,034	30 \$37,636	38 \$41,306	37 \$38,741	12 \$48,771	6 \$58,988	13 \$54,512	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	185 \$40,983
Total	696 \$13,053	667 \$31,877	708 \$32,395	686 \$35,870	513 \$35,153	1,636 \$40,907	2,824 \$40,209	2,024 \$44,552	1,829 \$46,057	1,546 \$49,306	557 \$53,708	81 \$55,057	28 \$56,894	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	13,795 \$40,812

**Distribution of Active Members by Age and by Years of Service (Teachers)  
As of 06/30/2002**

Attained Age	Years of Credited Service													Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over		
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.		
Under 25	51 \$16,888	148 \$27,764	85 \$32,183	23 \$34,016	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	307 \$27,649
25-29	67 \$15,810	204 \$29,050	337 \$32,830	301 \$35,530	213 \$37,843	232 \$41,179	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,354 \$34,238
30-34	52 \$20,467	179 \$31,369	196 \$35,327	208 \$37,146	183 \$39,997	863 \$45,308	184 \$54,545	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,865 \$41,708
35-39	45 \$14,814	106 \$31,600	125 \$38,728	118 \$39,309	117 \$41,003	460 \$47,653	573 \$56,089	81 \$59,146	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,625 \$47,473
40-44	42 \$16,292	97 \$34,947	116 \$36,587	97 \$41,965	92 \$42,133	359 \$48,895	415 \$57,342	271 \$58,112	74 \$57,598	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,563 \$49,665
45-49	75 \$14,827	186 \$33,950	170 \$38,568	138 \$40,718	113 \$44,251	423 \$51,176	551 \$57,585	302 \$59,297	406 \$59,879	289 \$60,834	3 \$64,368	0 \$0	0 \$0	0 \$0	2,656 \$51,947
50-54	40 \$12,092	56 \$39,951	69 \$45,454	73 \$47,894	63 \$48,750	285 \$52,809	601 \$58,147	320 \$58,946	256 \$59,777	805 \$60,765	691 \$61,990	1 \$65,959	0 \$0	0 \$0	3,260 \$57,793
55-59	18 \$14,838	27 \$42,515	28 \$53,921	30 \$44,681	26 \$50,079	116 \$54,606	255 \$57,894	202 \$59,397	172 \$59,615	194 \$62,105	416 \$63,285	73 \$63,508	0 \$0	0 \$0	1,557 \$59,041
60-64	9 \$9,158	6 \$51,472	7 \$61,451	5 \$45,765	3 \$59,606	45 \$56,402	83 \$58,032	64 \$56,567	46 \$61,703	52 \$60,662	46 \$60,593	32 \$64,977	10 \$70,564	0 \$0	408 \$58,257
65-69	4 \$0	1 \$27,139	1 \$45,762	1 \$56,170	2 \$22,550	6 \$50,622	15 \$51,710	5 \$55,109	15 \$58,468	17 \$57,465	11 \$62,453	2 \$63,921	2 \$68,193	2 \$0	82 \$52,857
70 & Over	5 \$0	2 \$16,697	1 \$29,727	1 \$29,463	0 \$0	3 \$30,598	3 \$49,970	3 \$60,678	4 \$53,680	2 \$55,528	5 \$66,145	0 \$0	4 \$77,147	4 \$0	33 \$44,891
Total	408 \$15,394	1,012 \$32,074	1,135 \$36,579	995 \$38,877	812 \$41,442	2,792 \$48,028	2,680 \$57,147	1,248 \$58,802	973 \$59,671	1,359 \$60,918	1,172 \$62,423	108 \$63,973	16 \$71,913	16 \$0	14,710 \$49,986

## SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

### I. Valuation Date

The valuation date is June 30th of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

### II. Actuarial Cost Method

The actuarial valuation uses the Entry Age Normal actuarial cost method. Under this method, the employer contribution rate is the sum of (i) the employer normal cost rate, and (ii) a rate that will amortize the unfunded actuarial liability.

1. The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 8.25 percent), of each participant's expected benefit payable at retirement or death is determined, based on his age, service, sex and compensation. The calculations take into account the probability of a participant's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his terminating with a service or survivor's benefit. Future salary increases are also anticipated. The present value of the expected benefits payable on account of the active participants is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits payable from the Plan on account of the present group of participants and beneficiaries.
2. The employer contributions required to support the benefits of the Plan are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.
3. The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made to determine the average uniform and constant percentage rate of employer contribution which, if applied to the compensation of each new participant during the entire period of his anticipated covered service, would be required in addition to the contributions of the participant to meet the cost of all benefits payable on his behalf.



4. The unfunded accrued liability contributions are determined by subtracting the actuarial value of assets from the actuarial accrued liability and amortizing the result over 30 years from June 30, 1999.

The contribution rate determined by this valuation will not be effective until two years later, and the determination of the rate reflects this deferral. It is assumed that there will be no change in the employer normal cost rate due to the deferral, and it is assumed that payments are, on average, made at mid-year.

### III. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses.

### IV. Actuarial Assumptions

#### A. Economic Assumptions

1. Investment return: 8.25% per year, compounded annually, composed of an assumed 3.00% inflation rate and a 5.25% net real rate of return. This rate represents the assumed return, net of all investment and administrative expenses.

2. Salary increase rate: A service-related component, plus a 3.00% inflation component, plus a general increase, as follows:

<b>State Employees</b>		
Years of Service	Service-related Component	Total Annual Rate of Increase Including 3.00% Inflation Component and 1.25% General Increase Rate
(1)	(2)	(3)
0	10.00%	14.25%
1	3.00	7.25
2	2.50	6.75
3	2.00	6.25
4	1.75	6.00
5	1.50	5.75
6	1.25	5.50
7	1.00	5.25
8	0.75	5.00
9	0.50	4.75
10 or more	0.00	4.25

<b>Teachers</b>		
Years of Service	Service-related Component	Total Annual Rate of Increase Including 3.00% Inflation Component and 1.25% General Increase Rate
(1)	(2)	(3)
0	12.50%	16.75%
1	7.75	12.00
2	6.00	10.25
3	5.50	9.75
4	4.75	9.00
5	3.50	7.75
6	3.25	7.50
7	3.00	7.25
8	2.75	7.00
9	1.00	5.25
10 or more	0.00	4.25

Salary increases are assumed to occur once a year, on July 1. Therefore the pay used for the period between the valuation date and the first anniversary of the valuation date is equal to the reported pay for the prior year, annualized if necessary, and then increased by the salary increase assumption.

3. Payroll growth rate: In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 3.00% per year. This increase rate is solely due to the effect of inflation on salaries, with no allowance for future membership growth.

B. Demographic Assumptions

1. Mortality rates (for active and retired members)
  - a. Healthy males – Based on the 1994 Group Annuity Mortality Tables for males. Rates are set forward one year.
  - b. Healthy females - Based on the 1994 Group Annuity Mortality Tables for females.
  - c. Disabled males - PBGC Table Va for disabled males eligible for Social Security disability benefits
  - d. Disabled females - PBGC Table VIa for disabled females eligible for Social Security disability benefits.

Sample rates are shown below:

Expected Deaths per 100 Lives				
Age	Healthy Males	Healthy Females	Disabled Males	Disabled Females
(1)	(2)	(3)	(6)	(7)
25	0.07	0.03	4.83	2.63
30	0.08	0.04	3.62	2.37
35	0.09	0.05	2.78	2.14
40	0.12	0.07	2.82	2.09
45	0.17	0.10	3.22	2.24
50	0.29	0.14	3.83	2.57
55	0.49	0.23	4.82	2.95
60	0.90	0.44	6.03	3.31
65	1.62	0.86	6.78	3.70
70	2.60	1.37	7.39	4.11
75	4.09	2.27	8.42	4.92
80	6.86	3.94	11.28	7.46

2. Disability rates: Sample rates are shown below.

Expected Disabilities per 1,000 Lives								
Age	State Ordinary Males	State Accidental Males	State Ordinary Females	State Accidental Females	Teachers Ordinary Males	Teachers Accidental Males	Teachers Ordinary Females	Teachers Accidental Females
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
25	0.25	0.20	0.36	0.09	0.15	0.08	0.15	0.08
30	0.30	0.25	0.44	0.11	0.18	0.10	0.18	0.10
35	0.41	0.34	0.60	0.15	0.24	0.13	0.24	0.13
40	0.61	0.50	0.88	0.22	0.36	0.19	0.36	0.19
45	0.99	0.81	1.44	0.36	0.59	0.32	0.59	0.32
50	1.68	1.37	2.44	0.61	0.99	0.54	0.99	0.54
55	2.78	2.27	4.04	1.01	1.65	0.89	1.65	0.89
60	3.88	3.17	5.64	1.41	2.30	1.24	2.30	1.24
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3. Termination rates (for causes other than death, disability or retirement):

Termination rates are a function of the member's sex, age and service. Termination rates are not applied after a member becomes eligible for a retirement benefit. Rates at selected ages are shown:

Active Male Members - State Employees						
Years of Service						
Age	0	1	2	3	4	5+
20	0.3942	0.3512	0.3047	0.2591	0.2182	0.1488
25	0.3306	0.2902	0.2501	0.2076	0.1601	0.1019
30	0.2477	0.2300	0.2025	0.1652	0.1174	0.0677
35	0.1983	0.1859	0.1620	0.1275	0.0834	0.0422
40	0.1740	0.1557	0.1285	0.0951	0.0595	0.0291
45	0.1770	0.1401	0.1020	0.0683	0.0464	0.0365
50	0.2087	0.1394	0.0825	0.0471	0.0453	0.0766
55	0.2706	0.1540	0.0697	0.0316	0.0569	0.1595
60	0.3634	0.1841	0.0635	0.0217	0.0809	0.2872
65	0.4849	0.2287	0.0638	0.0175	0.1227	0.4906
70	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Active Female Members - State Employees						
Years of Service						
Age	0	1	2	3	4	5+
20	0.3105	0.2823	0.2555	0.2285	0.2008	0.1628
25	0.2851	0.2424	0.2025	0.1671	0.1369	0.1164
30	0.2551	0.2057	0.1627	0.1257	0.0952	0.0805
35	0.2362	0.1821	0.1359	0.0979	0.0677	0.0513
40	0.2246	0.1690	0.1219	0.0846	0.0557	0.0326
45	0.2192	0.1649	0.1203	0.0858	0.0601	0.0317
50	0.2183	0.1682	0.1304	0.1013	0.0817	0.0575
55	0.2211	0.1777	0.1520	0.1314	0.1211	0.1174
60	0.2270	0.1930	0.1851	0.1758	0.1777	0.2119
65	0.2357	0.2135	0.2296	0.2375	0.2608	0.3638
70	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

3. Termination rates (continued):

Active Male Members – Teachers						
Years of Service						
Age	0	1	2	3	4	5+
20	0.2430	0.1142	0.0544	0.0318	0.0282	0.0456
25	0.1990	0.0947	0.0463	0.0242	0.0175	0.0267
30	0.1431	0.0789	0.0426	0.0217	0.0129	0.0154
35	0.1135	0.0727	0.0434	0.0232	0.0127	0.0096
40	0.1035	0.0752	0.0491	0.0289	0.0170	0.0103
45	0.1134	0.0870	0.0602	0.0391	0.0261	0.0194
50	0.1431	0.1085	0.0770	0.0537	0.0399	0.0391
55	0.1924	0.1399	0.0996	0.0730	0.0585	0.0709
60	0.2613	0.1813	0.1281	0.0967	0.0817	0.1146
65	0.3481	0.2317	0.1625	0.1263	0.1125	0.1794
70	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Active Female Members – Teachers						
Years of Service						
Age	0	1	2	3	4	5+
20	0.0923	0.0912	0.0887	0.0784	0.0746	0.0705
25	0.0929	0.0822	0.0674	0.0541	0.0481	0.0512
30	0.1007	0.0753	0.0530	0.0386	0.0314	0.0359
35	0.1109	0.0723	0.0453	0.0294	0.0207	0.0233
40	0.1168	0.0724	0.0436	0.0264	0.0170	0.0151
45	0.1161	0.0746	0.0472	0.0297	0.0204	0.0142
50	0.1102	0.0783	0.0554	0.0388	0.0314	0.0244
55	0.0989	0.0831	0.0678	0.0535	0.0502	0.0484
60	0.0822	0.0889	0.0842	0.0735	0.0764	0.0862
65	0.0606	0.0958	0.1047	0.0999	0.1142	0.1469
70	0.0606	0.0000	0.0000	0.0000	0.0000	0.0000

4. Retirement rates: Separate male and female rates, based on age. Sample rates are below:

Expected Retirements per 100 Lives				
	State Employees		Teachers	
Age	Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)
45	10	10	10	5
46	10	10	10	6
47	10	10	10	7
48	10	10	10	8
49	10	10	10	10
50	15	10	16	12
51	15	10	18	14
52	15	10	20	16
53	15	10	22	18
54	15	10	24	20
55	15	15	26	22
56	16	16	28	24
57	17	17	30	26
58	18	18	33	28
59	20	20	36	30
60	25	20	40	35
61	10	15	20	15
62	25	30	25	25
63	15	20	20	20
64	15	25	15	25
65	25	30	25	35
66	20	25	20	25
67	20	25	20	25
68	20	25	20	25
69	20	25	20	25
70	100	100	100	100

C. Other Assumptions

1. Percent married: 100% of employees are assumed to be married.
2. Age difference: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.
3. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an annuity.
4. Percent electing deferred termination benefit: Vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
5. There will be no recoveries once disabled.
6. No surviving spouse will remarry and there will be no children's benefit.
7. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at the first age at which unreduced benefits are available.
8. Administrative expenses: The assumed investment return rate represents the anticipated net return after payment of all investment and administrative expenses.
9. Inactive members: Liabilities for inactive members were approximated as a multiple of their member contribution account balances. For nonvested members, the multiple was one, and for vested inactive members, the multiple was between three and eight, depending on age and service.

D. Participant Data

Participant data was supplied on electronic files. There were separate files for (i) active and inactive members, and (ii) members and beneficiaries receiving benefits.

The data for an active members included birthdate, sex, service, salary and employee contribution account balance. For retired members and beneficiaries, the data included date of birth, sex, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and a form of payment code.



Salary supplied for the current year was based on the earnings for the year preceding the valuation date. This salary was adjusted by the salary increase rate for one year.

Assumptions were made to correct for missing, bad, or inconsistent data. These had no material impact on the results presented.

## Summary of Benefit Provisions

1. Effective Date and Authority: The Employees' Retirement System of Rhode Island (ERSRI) became effective on July 1, 1936 for state employees and on July 1, 1949 for teachers. Benefits for state employees are described in Rhode Island General Laws, Title 36, Chapters 8-10, and benefits for teachers are described in Rhode Island General Laws, Title 16, Chapters 15-17.
2. Plan Year: A twelve-month period ending June 30th.
3. Administration: ERSRI is administered by the Employees' Retirement Board. However, the State Treasurer is responsible for the investment of the trust assets, including the establishment of the asset allocation policy.
4. Type of Plan: ERSRI is a qualified governmental defined benefit retirement plan. Separate contribution rates are determined for state employees and for teachers. For Governmental Accounting Standards Board purposes, it is a cost-sharing multiple employer plan.
5. Eligibility: Most Rhode Island state employees and certified public school teachers participate in ERSRI. State police officers, state judges, and teachers and administrators in the public colleges and universities are covered by their own separate systems, and are therefore excluded. Certain elected state officials are excluded unless they make an election to join ERSRI. Superintendents, principals, business agents and other administrators participate as teachers. Non-certified public school employees, such as teacher's aides, janitors, secretaries, and bus drivers, cannot participate in ERSRI, although they may be covered by the Municipal Employees Retirement System (MERS) or a separate plan maintained by the town or city. Eligible employees become members at their date of employment.
6. Employee Contributions: State employees generally contribute 8.75% of their salary per year, although members of the General Assembly who elect to participate contribute 30.0% of salary per year. Teachers contribute 9.50% per year. The state "picks up" the members' contributions for its employees under the provisions of Internal Revenue Code (IRC) Section 414(h). At their option, the city or town employing a teacher may also pick up their members' contributions.

7. Salary: Salary includes the member's base earnings plus any payments under a regular longevity or incentive plan. Salary excludes overtime, unused sick and vacation leave, severance pay, and other extraordinary compensation. Certain amounts that are excluded from taxable wages, such as amounts sheltered under a Section 125 plan or amounts picked up by the employer under IRC Section 414(h), are not excluded from salary.
8. Employer Contributions: For state employees, the state contributes an actuarially determined percentage of the member's salary. For teachers, the state contributes 40% of the employer contribution rate and the city, town or other local employer contributes the remaining 60%. (This basic 40-60 split is further adjusted, since the state bears the cost of repaying certain amounts taken from the trust in the early 1990's.) Contributions determined in a given actuarial valuation go into effect two years after the actuarial valuation.
9. Service: Employees receive credit for service while a member. In addition, a member may purchase credit for certain periods, such as time spent teaching at a public school in another state, by making an additional contribution to purchase the additional service. Special rules and limits govern the purchase of additional service and the contribution required.
10. Final Average Compensation (FAC): The average of the member's highest three consecutive annual salaries. Monthly benefits are based on one-twelfth of this amount.
11. Retirement
  - a. Eligibility: All members are eligible for retirement on or after age 60 if they have credit for 10 years of service, or at any age if they have credit for 28 years of service. Correctional officers are also eligible for retirement if they have reached age 50 and have credit for 20 years of service. Members of the General Assembly who elect to participate are eligible for retirement if they have reached age 55 and have credit for 8 years of service, or at any age if they have credit for 20 years of service.
  - b. Monthly Benefit: For most state employees and for all teachers, the retirement benefit is a percentage of the member's monthly FAC. This percentage is a function of the member's service, determined using the following schedule:

For Service In:	Years	Benefit Percentage Earned
The first 10 years of service	1 – 10	1.7% per year
The next 10 years of service	11 – 20	1.9% per year
The next 14 years of service	21 – 34	3.0% per year
The next 1 year of service	35	2.0% per year

The maximum benefit is 80% of FAC.

Correctional Officers receive a benefit computed under a different formula:

For Service In:	Years	Benefit Percentage Earned
The first 30 years of service	1 – 30	2.0% per year
The next 1 year of service	31	6.0% per year
The next 1 year of service	32	5.0% per year
The next 1 year of service	33	4.0% per year
The next 1 year of service	34	3.0% per year
The next 14 years of service	35	2.0% per year

The maximum benefit for correctional officers is also 80% of FAC.

Finally, members of the General Assembly who elect to participate receive \$50 per month for each year of service, up to a maximum benefit of \$1,000 per month, i.e., a maximum of 20 years of service.

- c. Payment Form: Benefits are paid as a monthly life annuity. Optional forms of payment are available; see below.

- d. **Death benefit:** After retirement, death benefits are based on the form of annuity elected. If no option is elected, i.e., if payments are made as a life annuity, there is a minimum death benefit equal to the sum of the member's contributions without interest, less the sum of the monthly benefit payments made before the member's death. In addition, a lump-sum death benefit is payable upon the death of any retired member, regardless of option elected. This lump sum is equal to a percentage of the lump-sum death benefit that was available to the member at the time of retirement. The percentage is 100% in the first year of retirement, 75% in the second year, 50% in the third year, and 25% in the fourth and subsequent years of retirement. However, in no event will the lump sum death benefit be less than \$4,000.

## 12. Disability Retirement

- a. **Eligibility:** A member is eligible provided he/she has credit for at least five years of service or if the disability is work-related.
- b. **Ordinary Disability Benefit:** The benefit payable under the retirement formula, using FAC and service at the time of disability, but not less than 10 years of service.
- c. **Occupational Disability Benefit:** An annual annuity equal to two-thirds of salary at the time of disability.
- d. **Payment Form:** The disability benefit commences immediately upon the member's retirement. Benefits cease upon recovery or reemployment. Disability benefits are payable as a monthly life annuity with a guarantee that, at the member's death, the sum of the member's contributions plus interest as of the date of retirement will be paid in a lump-sum to the member's beneficiary. All alternative forms of payment except for the Social Security Option are permitted in the case of disability retirement.

## 13. Deferred Termination Benefit

- a. **Eligibility:** A member with at least ten years of service (eight years for members of the general Assembly) is vested. A vested member who does not withdraw his/her contributions from the fund is eligible for a deferred termination benefit.

- b. **Monthly Benefit:** The monthly benefit is based on the retirement formula described above. Both FAC and service are determined at the time the member leaves active employment. Benefits may commence at age 60 or at such earlier age that the member has met the requirements for a retirement benefit.
- c. **Payment Form:** The same as for Retirement above.
- d. **Death Benefit before retirement:** A member who dies after leaving active service but before retiring is entitled to receive a benefit as described below in item 15.
- e. **Death Benefit after Retirement:** The same as for Retirement above.

14. Withdrawal (Refund) Benefit

- a. **Eligibility:** All members leaving covered employment with less than ten years of service are eligible. Optionally, vested members (those with ten or more years of service) may withdraw their accumulated contributions in lieu of the deferred benefits otherwise due.
- b. **Benefit:** The member who withdraws receives a lump-sum payment of equal to the sum of his/her employee contributions. No interest is credited on these contributions.

15. Death Benefit of Active or Inactive Members

- a. **Eligibility:** Death must have occurred while an active or an inactive, non-retired member.
- b. **Basic Benefit:** Upon the death of a nonvested member, or upon the death of an inactive, vested member, or upon the death of an active, unmarried member, a refund of the member's contributions (without interest) is paid. Upon the death of a vested, married, active member, the spouse may elect (i) the refund benefit described above, or (ii) a life annuity paid to the spouse or beneficiary. The amount of the annuity is equal to the amount which would have been paid had the member retired at the time of his death and elected the Joint and 100% Survivor option. If the member was not eligible for retirement, the annuity benefit is reduced 6% per year from the date at which the member would have been eligible had he or she remained in service.

- c. Lump-sum Benefit: \$800 per year of service, with a maximum benefit of \$16,000 and a minimum of \$4,000.
  - d. Accidental Duty-related Death Benefit: If a member dies as the result of an accident while in the course of his or her duties, in lieu of the above benefits the member's spouse may elect to receive (i) a refund of all contributions made (including interest), and (ii) an annual life annuity equal to 50% of the member's salary at the time of death. The annuity benefit stops when the spouse remarries or dies, although it may be continued to any children under age 18 or to any dependent parents.
16. Optional Forms of Payment: In addition to a life annuity, ERSRI offers members these optional forms of payment on an actuarially equivalent basis:
- a. Option 1 (Joint and 100% Survivor) - A life annuity payable while either the participant or his beneficiary is alive.
  - b. Option 2 (Joint and 50% Survivor) - A life annuity payable to the member while both the member and beneficiary are alive, reducing to 50% of this amount if the member predeceases the beneficiary.
  - c. Social Security Option – An annuity paid at one amount prior to age 62, and at a reduced amount after age 62, designed to provide a level total income when combined with the member's age 62 Social Security benefit. Benefits cease upon the member's death.

Actuarial equivalence is based on tables adopted by the Employees' Retirement Board.

17. Post-retirement Benefit Increase: Members receive a 3% compound increase in their retirement benefit each year, beginning in January of the year in which the member reaches the third anniversary of retirement. This increase is not tied in any way to actual increases in the cost of living.