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July, 2004

Teachers' Retirement Board
California State Teachers' Retirement System

Re: Defined Benefit Program
Actuarial Valuation as of June 30, 2003

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Defined Benefit Program of the State Teachers' Retirement Plan as of June 30, 2003. Details about the actuarial valuation are contained in the following report.

I certify that the information included in this report is complete and accurate to the best of my knowledge and belief. All calculations have been prepared in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the applicable Standards of Practice adopted by the American Academy of Actuaries.

Milliman has been engaged by CalSTRS as an independent actuary. The undersigned is a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries, and an Enrolled Actuary, and is experienced in performing actuarial valuations for large public employee retirement systems.

Any distribution of this report must be in its entirety unless prior written consent is obtained from Milliman, Inc.

Respectfully submitted,

Mark O. Johnson, F.S.A., M.A.A.A., E.A.
Principal and Consulting Actuary

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Section 1
Summary of the Findings

The primary purpose of the actuarial valuation is to analyze the sufficiency of future contributions from members, employers, and the State, to meet the current and future obligations of the Defined Benefit (DB) Program. By using the actuarial methods and assumptions adopted by the Teachers' Retirement Board, this actuarial valuation provides the best estimate of the long-term financing of the DB Program.

Our findings indicate that, as of June 30, 2003, the future revenue for the DB Program is not expected to be sufficient to finance its obligations. This is due primarily to investment return experience during the current and prior two years less than the long-term actuarial assumption of 8% per year. Based on the current Actuarial Value of Assets and all future experience emerging as assumed the Unfunded Actuarial Obligation will not be amortized over the next thirty years. Our projections from 2001 indicated it would take 29 years to amortize the Unfunded Actuarial Obligation, but actuarial losses incurred over the last two years have had a negative impact on the ability of the current revenue stream to finance the current benefit structure.

There is a statutory requirement to separately track the funding level of the benefits that were in effect as of July 1, 1990. Therefore, the presentation of our results shows liabilities separately for both the entire Program and for the benefits in effect as of July 1, 1990 (the 1990 Benefit Structure).

The key findings of this Actuarial Valuation are:

- **Investment Returns** — CalSTRS, like virtually every other major pension fund, has experienced significant investment losses over the last several years. The net investment losses are measured against the long-term assumption of 8% per year.

- **Experience Study** — The Board adopted the recommendations contained in the 2003 Actuarial Experience Analysis. The key results of the study, dated February 25, 2004, were as follows:

  1) All previous actuarial methods were retained.
  2) The net investment return assumption was retained at 8% per year.
  3) Several demographic assumptions were revised, the most significant of which was a change in the expected service retirement rates.

- **Legislation** — There were no legislative changes since the 2001 Actuarial Valuation that had a material impact on this valuation.

♦ **Funding Progress**

The Funded Status of a retirement plan is equal to the difference between its Actuarial Value of Assets and its Actuarial Obligation. The Funded Ratio is equal to the Actuarial Value of Assets divided by the Actuarial Liabilities.

($Millions)	2003 Valuation	2001 Valuation
Actuarial Obligation	$ 131,777	$ 109,881
Actuarial Value of Assets	108,667	107,654
Unfunded Actuarial Obligation	$ 23,110	$ 2,227
Funded Ratio	82%	98%

The following table shows a history of the Funded Status of the DB Program.

($Millions) YE	Actuarial Obligation	Actuarial Value of Assets	Funded Ratio
1975	$ 12,834	$ 3,775	29%
1977	15,203	5,019	33%
1979	17,971	6,488	36%
1981	22,545	9,345	41%
1983	26,553	15,023	57%
1985	28,401	17,457	61%
1987	34,637	24,401	70%
1989	40,266	29,327	73%
1991	47,100	36,001	76%
1993	53,581	45,212	84%
1995	63,391	55,207	87%
1997	69,852	67,980	97%
1998	74,234	77,290	104%
1999	86,349	90,001	104%
2000	93,124	102,225	110%
2001	109,881	107,654	98%
2003	131,777	108,667	82%

♦ **Supplemental Contributions**

The Legislature has established a test for the funded status of the benefit structure in effect in 1990. Under State law EC 22955(b), additional funds are required to be contributed by the State if at least one of the following two separate conditions is met.

1. Additional funding is required if the sum of the 8% contribution from the members and the 8% contribution from the employers is not sufficient to pay the Normal Cost of the benefits in effect as of July 1, 1990.

2. Additional funding is required if the Actuarial Value of Assets associated with the benefit provisions in effect as of July 1, 1990 is less than the Actuarial Obligation for those benefits.

We found that revenue is sufficient to finance the Normal Costs associated with the 1990 Benefit Structure, but there was an Unfunded Actuarial Obligation as of June 30, 2003.

	2003 Valuation	2001 Valuation
Normal Cost Deficit – 1990 Benefit Structure		
Normal Cost Rate – 1990 Benefits	14.274%	14.054%
Revenue for 1990 Benefits	16.000	16.000
Normal Cost Deficit	0.000%	0.000%
($Millions)		
Funded Status – 1990 Benefit Structure		
Actuarial Obligation	$ 110,220	$ 94,262
Actuarial Value of Assets	110,102	106,758
Unfunded Actuarial Obligation	$ 118	$ (12,496)
Funded Ratio	100%	113%

The Unfunded Actuarial Obligation for the 1990 Benefit Structure triggers an additional State contribution equal to 0.524% of credited compensation from the fiscal year ending in the prior calendar year. Our interpretation of EC 22955(b), supported by your legal counsel, is that an additional annual contribution of 0.524% will be payable quarterly commencing on October 1, 2004 based on credited compensation from the 2002-03 fiscal year.

The funded status of the 1990 Benefit Structure in future years is difficult to predict with certainly because the Actuarial Value of Assets for the 1990 Benefit Structure includes adjustments for contributions and benefits paid in excess of those in place in 1990. The benefits paid can vary considerably depending on demographic experience. In addition, the Actuarial Obligation can only be assessed

accurately when current census data is evaluated. Based on information available at this time, we believe the 1990 Benefit Structure will continue to have an Unfunded Actuarial Obligation as of June 30, 2004.

♦ **Funding Sufficiency**

Based on the results of this valuation, including all of the actuarial methods and assumptions documented in this report, we determined the current projected revenue stream is not sufficient to amortize the Unfunded Actuarial Obligation. The results as of 2003 and 2001 are shown in the following table.

	2003 Valuation	2001 Valuation
Funded Status ***($Millions)***		
Actuarial Obligation	$ 131,777	$ 109,881
Actuarial Value of Assets	108,667	107,654
Unfunded Actuarial Obligation	$ 23,110	$ 2,227
Funded Ratio	82%	98%
Level Contributions Rate over 30 Years	17.384%	17.117%
Amortization Period		
Total Level Rate over the Amortization Period	17.384%	17.117%
Normal Cost Rate	16.838	16.497
Amortization Rate	0.546%	0.620%
Amortization Period (Based on current revenue projections)	*Does not amortize*	*29 years*
30-Year Funding Period		
Normal Cost Rate	16.838%	16.497%
Amortization Rate	4.984	0.585
Total Level Rate over the Amortization Period	21.822%	17.082%
Estimated Additional Revenue Needed *(Based on current valuation assumptions)*	4.438%	0.000%

♦ **Further Information**

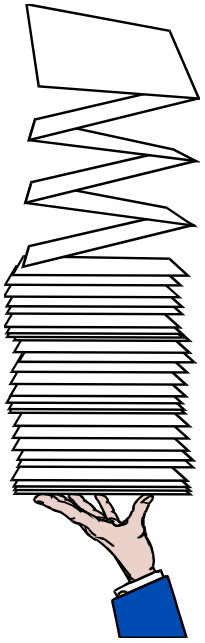
Details of our findings are included in later sections of this report. The Appendices include supporting documentation on the benefit and eligibility provisions used to project future benefits, the actuarial methods and assumptions used to value the projected benefits, and the underlying census data provided by CalSTRS for this valuation.

A summary of the key results of this actuarial valuation is shown on the next page.

Summary of Key Valuation Results

		2003 Valuation	2001 Valuation	Percentage Change
1.	**Total Membership**			
	A. Active Members	448,478	428,741	4.6%
	B. Inactive Members	104,617	87,146	20.0%
	C. Retired Members and Beneficiaries	181,868	170,972	6.4%
	D. Total Membership	734,963	686,859	7.0%
2.	**Earned Salaries as of Valuation Date**			
	A. Annual Total *($Millions)*	$ 23,867	$ 20,494	16.5%
	B. Annual Average per Active Member	$ 53,219	$ 47,801	11.3%
3.	**Average Allowance Payable**			
	A. Service Retirement	$ 28,068	$ 24,396	15.1%
4.	**Actuarial Obligation *($Millions)***			
	A. Active Members	$ 77,220	$ 66,288	16.5%
	B. Inactive Members	2,429	2,080	16.8%
	C. Retired Members and Beneficiaries	52,128	41,513	25.6%
	D. Total	$131,777	$109,881	19.9%
5.	**Value of System Assets *($Millions)***			
	A. Fair Value	$ 99,031	$102,915	(3.8)%
	B. Smoothing Reserve	12,573	5,656	122.3%
	C Actuarial Value	$111,604	$108,571	2.8%
	D. Ratio of Actuarial Value to Fair Value	*113%*	*105%*	
	E. Less SBMA Reserve	(1,719)	(917)	
	F. Less Health Benefit Allocation	(1,218)	(0)	
	G Net Actuarial Value	$108,667	$107,654	0.9%
6.	**Funded Status**			
	A. Unfunded Actuarial Obligation *($Millions)*	$ 23,110	$ 2,227	937.7%
	B. Funded Ratio *(5G ÷ 4D)*	82%	98%	
7.	**Contribution Rates *(percent of salaries)***			
	A. 30-Year Projected Revenue	17.384%	17.117%	1.6%
	B. Normal Cost Rate	16.838	16.497	2.1%
	C. Available for Amortization of UAO *(7A – 7B)*	0.546%	0.620%	(11.9)%
	D. Period to Amortize	N/A	29 years	
	E. Projected 30-Year Level Funding Rate	21.822%	17.082%	27.7%
	F. Projected Shortfall (Surplus)	4.438%	(0.035)%	

Section 2
Scope of the Report



This report presents the actuarial valuation of the Defined Benefit Program of the State Teachers' Retirement Plan as of June 30, 2003.

In reading our Actuarial Certification in Section 3, please pay particular attention to the guidelines employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings depend. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the key results of this valuation was presented in the previous section. The remainder of this report is arranged as follows.

Section 4 describes the benefit obligations of CalSTRS including the development of the Normal Cost and the Actuarial Obligation.

Section 5 outlines the Fair Value of Assets of the DB Program and the determination of the Actuarial Value of Assets as of June 30, 2003. All of the assets of the Program are available to finance future benefits and expenses.

Section 6 shows the relationship between the Actuarial Value of Assets and the Actuarial Obligation, also called the Funded Status.

Section 7 discusses the calculations used to determine if a supplemental contribution is required from the State in accordance with EC 22955(b). The key elements of this calculation pertain to an evaluation of the assets and obligations associated with the benefits in effect in 1990.

The funding sufficiency of the current projected revenue stream for the DB Program is tested in Section 8.

This report includes several appendices:

Appendix A — A summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2003.

Appendix B — A summary of the actuarial methods and assumptions used to estimate liabilities and the funding sufficiency.

In our opinion, the assumptions used in the valuation are reasonably related to the past experience of the DB Program, are internally consistent, and represent our best estimate of future conditions affecting the Program. Nevertheless, the emerging costs of the Program will vary from those presented in this report to the extent that actual experience differs from that projected by the actuarial assumptions.

Appendix C — Schedules of valuation data classified by various categories of plan members. We relied upon the membership and beneficiary data supplied by CalSTRS. We compared the data for this and the prior valuation and tested for reasonableness. Based on these tests, we believe the data to be sufficient for the purposes of our calculations.

Appendix D — A glossary of actuarial terms used in this report.

Section 3
Actuarial Certification

The major findings of the 2003 Actuarial Valuation are contained in this report. This report reflects the benefit provisions in effect as of the valuation date. To the best of our knowledge and belief, this report is complete and accurate and contains sufficient information to fully and fairly disclose the funded condition of the Defined Benefit Program as of June 30, 2003.

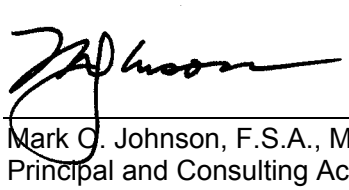
In preparing the valuation, we relied upon the financial and membership data furnished by the System. Although we did not audit this data, we compared the data for this and the prior valuation and tested for reasonableness. Based on these tests, we believe the data to be sufficiently accurate for the purposes of our calculations.

The Teachers' Retirement Board has sole authority to determine the actuarial assumptions and methods used for the valuation of the DB Program. The Board adopted all of the actuarial methods and assumptions used in the 2003 valuation.

The findings have been determined according to actuarial assumptions and methods that were chosen on the basis of recent experience of the DB Program and of current expectations concerning future economic conditions. In our opinion, the assumptions used in the actuarial valuation are appropriate for purposes of the valuation, are internally consistent, and reflect reasonable expectations. The assumptions represent our best estimate of future conditions affecting the DB Program. Nevertheless, the emerging costs of the DB Program will vary from those presented in this report to the extent that actual experience differs from that projected by the assumptions.

On the basis of the foregoing, I hereby certify that, to the best of my knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with principles prescribed by the Actuarial Standards Board and the code of Professional conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries. In addition, the assumptions and methods used meet the parameters set by Governmental Accounting Standards Board Statement No. 25 for financial statement disclosures.

The undersigned is an independent actuary, a Fellow of the Society of Actuaries, a Member of the American Academy of Actuaries, an Enrolled Actuary, and experienced in performing valuations for large public employee retirement systems.



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Section 4
Actuarial Obligation

In this section, the discussion will focus on the commitments of CalSTRS for retirement benefits, which are referred to as its actuarial obligation.

In an active system, the actuarial obligation, or liabilities, will generally exceed the actuarial assets. This deficiency has to be provided by future contributions and investment returns. An actuarial valuation method sets out a schedule of future contributions and determines if they will amortize any deficiency in an orderly fashion.

Normal Cost

The **Normal Cost** represents the cost assigned to an average member for a given year such that it would meet the continuing costs of a particular benefit if contributed each year starting with the date of membership. The Entry Age Actuarial Cost Method is designed to produce a Normal Cost that remains a level percentage of salaries, so it is best expressed as a rate.

The following chart shows the Normal Cost has increased from 16.497% to 16.838% since the last valuation. The Normal Cost Rate increased by 0.291% of salaries due to the revised actuarial assumptions and methods adopted earlier this year. There was an additional increase of 0.050% due to demographic changes in the membership. **Table 1** provides more details on the calculation of the Normal Cost and Normal Cost Rates.

	Amount ***($Millions)***	**Percent of Earned Salaries**
2001 Actuarial Valuation		
Using 2001 Assumptions	$ 3,396	16.497%
Using Revised Assumptions	3,439	16.788%
2003 Actuarial Valuation	4,018	16.838%

The Normal Cost Rate is expected to remain fairly stable as a percentage of Earned Salaries as long as the benefit provisions are not amended, membership experience emerges as assumed, and the demographic characteristics

of the membership remain reasonably consistent. The change in the Normal Cost Rate reported in this valuation is well within expected levels of fluctuation.

Actuarial Obligation

The next step in the actuarial valuation process is to project all future DB Program benefit payments for current members and retirees. The level of benefits currently being paid is known, but assumptions are needed to estimate how long they will be paid, and the amount and timing of the payment of future benefits for active and inactive members who are not currently receiving payments. The summation of the discounted values of all of the projected benefit payments for all current members at the assumed rate of return is called the **Actuarial Present Value of Projected Benefits**.

Details are shown in **Table 2** and summarized below.

($Millions)	2003 Valuation	2001 Valuation	
		Revised Assumption Set	Prior Assumption Set
Benefits Being Paid	$ 52,128	$ 41,513	$ 41,513
Inactive Deferred Benefits	2,429	2,080	2,080
Active Members' Benefits	125,651	109,777	106,963
Present Value of Projected Benefits	$ 180,208	$ 153,370	$ 150,556
Present Value of Future Normal Costs	48,431	41,215	40,675
Actuarial Obligation	$ 131,777	$ 112,155	$ 109,881

The **Actuarial Present Value of Future Normal Costs** is the value of all remaining Normal Costs expected to be received over the future working lifetime of current active members. The **Actuarial Obligation** is the difference between the Actuarial Present Value of Projected Benefits and the Actuarial Present Value of Future Normal Costs. The Actuarial Obligation is equal to the assets that would exist if the current Normal Cost Rate had been paid for all members since entry into the Program, and if all experience had emerged as assumed.

Table 1 Normal Cost

($Millions)	2003 Valuation	2001 Valuation	
		Revised Assumptions	Prior Assumptions
Estimated Annual Earned Salaries [1]	$ 23,862	$ 20,485	$ 20,585
Present Value of Future Normal Costs for Current Active Members	$ 48,431	$ 41,215	$ 40,675
Present Value of Future Earned Salaries for Current Active Members	$287,629	$245,502	$246,548
Normal Cost			
Retirement	$ 3,670	$ 3,133	$ 3,052
Disability	136	113	153
Death	63	55	54
Withdrawal	149	138	137
Total Normal Cost	$ 4,018	$ 3,439	$ 3,396
Normal Cost Rate Percent of Earned Salaries			
Retirement	15.380%	15.294%	14.826%
Disability	0.570	0.552	0.743
Death	0.264	0.268	0.262
Withdrawal	0.624	0.674	0.666
Total Normal Cost	**16.838%**	**16.788%**	**16.497%**

Note:

[1] Annual rate of Earned Salaries for active members on the valuation date, excluding active members over age 70 on the valuation date who are assumed to retire immediately and, therefore, do not generate a Normal Cost.

Table 2 Actuarial Obligation

($Millions)	2003 Valuation	2001 Valuation	
		Revised Assumptions	Prior Assumptions
Present Value of Projected Benefits to All Current Members			
Benefits Currently Being Paid			
Service Retirement	$ 47,684	$ 37,699	$ 37,699
Disability	1,697	1,408	1,408
Survivors	2,747	2,406	2,406
Total	52,128	41,513	41,513
Benefits to Inactive Members	2,429	2,080	2,080
Benefits to Active Members			
Retirement	121,001	105,571	102,262
Disability	2,497	2,110	2,563
Death	1,470	1,379	1,495
Withdrawal	683	717	643
Total	125,651	109,777	106,963
Total Present Value of Benefits	$180,208	$153,370	$150,556
Present Value of Future Normal Costs	48,431	41,215	40,675
Actuarial Obligation	**$131,777**	**$112,155**	**$109,881**

Section 5
Valuation Assets

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is June 30, 2003. On that date, the assets available for the payment of retirement benefits are appraised.

The next step in the valuation process is to calculate the **Actuarial Value of Assets** that will be used to determine the funding status of the Program. As shown in **Table 3**, the market value of assets was reported as $99,031 million as of June 30, 2003, down from $102,915 million as of June 30, 2001. **Table 4** shows the asset changes for the period.

Because the underlying calculations in the actuarial valuation are long-term in nature, it is advantageous to use an asset smoothing method to lessen the impact of short-term fluctuations in the value of assets. The asset smoothing method projects an Expected Value of Assets from the Actuarial Value of Assets as of the previous year. The projection uses the assumed rate of investment return, then recognizes only one-third of the difference between the Expected Value and the Market Value to arrive at the Actuarial Value of Assets. The calculation of the Actuarial Value of Assets is shown in **Table 5** and summarized below.

($Millions)	June 30, 2003	June 30, 2001
Fair Market Value	$ 99,031	$ 102,915
Actuarial Value of Assets	$ 111,604	$ 108,571
Ratio of AVA to FMV	113%	105%

Table 6 shows a history of the Actuarial Value of Assets compared to the Fair Market Value of Assets.

Due to the asset smoothing method, there are $12.6 billion of investment losses that have not yet been recognized (the difference between the Actuarial and Fair Market Value of Assets). Absent investment returns significantly above the assumed rate in the next few years to offset the unrecognized investment losses, the current losses will

gradually be reflected in the Actuarial Value of Assets. To illustrate the magnitude of the current difference between the Actuarial Value and Fair Market Value of Assets, a fair market return of over 20% in 2003-04 would be required to equal a return of 8% on the Actuarial Value of Assets. As the current unrecognized losses flow through the smoothing method, the valuation will show an actuarial loss. The result will be a decline in the DB Program's funded status.

Table 3 Statement of Program Assets

($Millions)	June, 2003	June, 2002	June, 2001
Invested Assets			
Short-term	$ 2,436	$ 2,379	$ 2,344
Debt Securities	27,734	27,220	28,815
Equity	59,012	56,754	61,283
Alternative	5,067	4,255	4,490
Real Estate	5,779	5,203	5,273
Total Investments [(1)]	$ 100,028	$ 95,811	$ 102,205
Cash and Cash Equivalents	162	70	5
Receivables	2,108	1,982	3,849
Liabilities [(1)]	(3,267)	(1,835)	(3,144)
Fair Market Value of Net Assets	**$ 99,031**	**$ 96,028**	**$ 102,915**

Note:

(1) Excludes offsetting entries from Securities Lending Collateral and Obligation

Table 4 Statement of Changes in Program Assets

($Millions)	June, 2003	June, 2002	June, 2001
Contributions			
Members	$ 1,558	$ 1,382	$ 1,630
Employers	1,892	1,721	1,881
State of California	1,015	916	946
Total Contributions	4,465	4,019	4,457
Benefits and Expenses			
Retirement, Death, and Survivors	(4,716)	(4,244)	(3,765)
Refunds of Member Contributions	(62)	(69)	(77)
Purchasing Power Benefits	(234)	(257)	(189)
Administrative Expenses	(72)	(63)	(55)
Total Benefits and Expenses	(5,084)	(4,633)	(4,086)
Net Cash Flow	**$ (619)**	**$ (614)**	**$ 371**
Investment Income			
Realized Income	$ 3,048	$ 3,064	$ 3,244
Unrealized Gains or Losses	591	(9,342)	(13,457)
Net Securities Lending Income	64	90	70
Investment Expenses	(81)	(80)	(85)
Other (Expense) Income / Adjustment	0	(5)	1
Net Investment Return	3,622	(6,273)	(10,227)
Net Increase	**$ 3,003**	**$ (6,887)**	**$ (9,856)**
Fair Market Value of Net Assets			
Beginning of Year	96,028	102,915	112,771
End of Year	**$ 99,031**	**$ 96,028**	**$ 102,915**
Estimated Net Rate of Return [1]	3.8%	(6.1)%	(9.1)%

Note:

[1] Estimated return on Fair Market Value basis, net of all investment expenses and assuming uniform cash flow throughout the year

Table 5 Actuarial Value of Assets

($Millions)	June, 2003	June, 2002	June, 2001
Actuarial Value at Beginning of Year	$ 109,755	$ 108,571	$ 102,790
Contributions	4,465	4,019	4,457
Benefits and Expenses	(5,084)	(4,633)	(4,086)
Expected Return at 8%	8,755	8,661	8,238
Expected Actuarial Value End of Year	$ 117,891	$ 116,618	$ 111,399
Fair Market Value	99,031	96,028	102,915
Difference between Fair Market Value and Expected Actuarial Value	$ (18,860)	$ (20,590)	$ (8,484)
Recognition Factor	One-third	One-third	One-third
Recognized Gain or Loss	$ (6,287)	$ (6,863)	$ (2,828)
Actuarial Value at End of Year *(Expected Value plus Recognized Gain or Loss)*	**$ 111,604**	**$ 109,755**	**$ 108,571**
Ratio of Actuarial Value of Assets to Fair Market Value of Assets	*113%*	*114%*	*105%*
Estimated Net Rate of Return [(1)]	2.3%	1.7%	5.3%

Note:

(1) Estimated return on Actuarial Value basis, net of all investment expenses and assuming uniform cash flow throughout the year

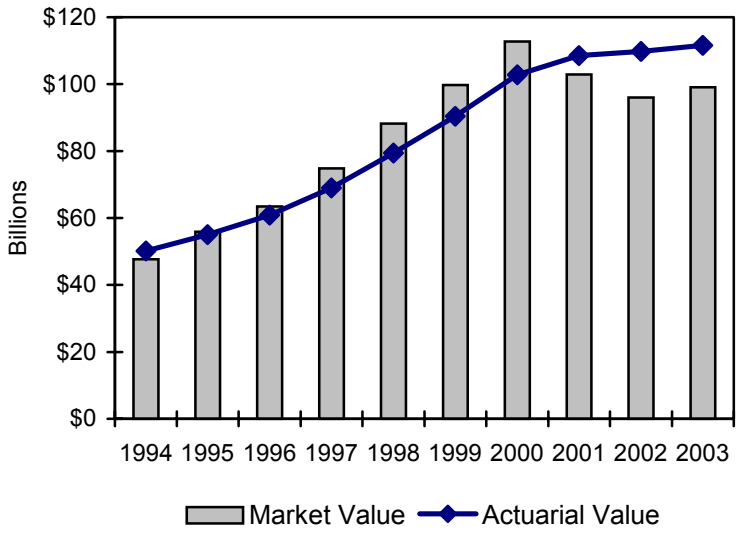
Table 6 History of Actuarial Value of Assets

($Millions) June 30 [1]	Fair Market Value	*Estimated Return* [2]	Actuarial Value	Ratio of Actuarial to Market
1994	$ 47,631	*0.3%*	$ 50,203	105%
1995	55,862	*16.9*	55,047	99
1996	63,455	*13.3*	60,876	96
1997	74,778	*17.3*	68,966	92
1998	88,198	*17.3*	79,381	90
1999	99,780	*13.4*	90,265	90
2000	112,771	*12.7*	102,790	91
2001	102,915	*(9.1)*	108,571	105
2002	96,028	*(6.1)*	109,755	114
2003	99,031	*3.8*	111,604	113

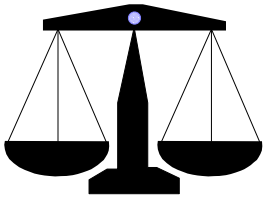
Note:

(1) Asset Method adopted for 1999 valuation with retroactive calculation to July 1, 1993

(2) Estimated return on Fair Market Value basis, net of all investment expenses and assuming uniform cash flow throughout the year



Section 6
Funded Status



The **Unfunded Actuarial Obligation** is the excess of the Actuarial Obligation over the Actuarial Value of Assets, which represents a liability that must be funded over time. Contributions in excess of the Normal Cost are used to amortize the Unfunded Actuarial Obligation. An **Actuarial Surplus** exists if the Actuarial Value of Assets exceeds the Actuarial Obligation.

The **Funded Ratio** is equal to the Actuarial Value of Assets divided by the Actuarial Liability. A Funded Ratio of 100% means the Value of Assets equals the Actuarial Liability, and the DB Program could be financed by contributions equal to the Normal Cost, if all future experience emerges as assumed.

The following is shown in **Table 7**.

($Millions)	2003 Valuation	2001 Valuation	
		Revised Assumption Set	Prior Assumption Set
Actuarial Obligation	$ 131,777	$ 112,155	$ 109,881
Actuarial Value of Assets			
From Table 5	111,604	108,571	108,571
Less SBMA Reserve	(1,719)	(917)	(917)
Less Health Benefits Allocation	(1,218)	(1,306)	(0)
Net for Funding	108,667	106,348	107,654
Unfunded Actuarial Obligation	$ 23,110	$ 5,807	$ 2,227
Funded Ratio	**82%**	**95%**	**98%**

Future benefits provided through the Supplemental Benefits Maintenance Account (SBMA) are not part of the projected benefits included in this valuation. Therefore, the SBMA Reserve is subtracted from the DB Program assets to arrive at the value available to support the benefits included in this valuation.

In addition, the Teachers' Retirement Board has established a policy of allocating funds for future costs associated with the Health Benefits Fund. By subtracting the current value of the set aside, as maintained on an accumulation basis by CalSTRS staff, the remaining DB Program assets are available to support the benefits included in this valuation.

The following table shows a history of the Funded Status of the DB Program.

$(Millions) YE	Actuarial Obligation	Actuarial Value of Assets	Unfunded Actuarial Obligation	Funded Ratio
1975	$ 12,834	$ 3,775	$ 9,059	29%
1977	15,203	5,019	10,184	33%
1979	17,971	6,488	11,483	36%
1981	22,545	9,345	13,200	41%
1983	26,553	15,023	11,530	57%
1985	28,401	17,457	10,944	61%
1987	34,637	24,401	10,236	70%
1989	40,266	29,327	10,939	73%
1991	47,100	36,001	11,099	76%
1993	53,581	45,212	8,369	84%
1995	63,391	55,207	8,184	87%
1997	69,852	67,980	1,872	97%
1998	74,234	77,290	(3,056)	104%
1999	86,349	90,001	(3,652)	104%
2000	93,124	102,225	(9,101)	110%
2001	109,881	107,654	2,227	98%
2003	131,777	108,667	23,110	82%

Actuarial Gains and Losses

Comparing the Unfunded Actuarial Obligation as of two valuation dates does not provide enough information to determine if there were actuarial gains or losses. The correct comparison is between the Unfunded Actuarial Obligation on the valuation date and the Expected Unfunded Actuarial Obligation projected from the prior valuation date using the actuarial assumptions in effect since the previous valuation.

The actuarial gains and losses since the 2001 valuation are shown in the following table and with more detail in **Table 8**.

($Millions)	Expected Results	Actual Results	(Gain) or Loss
Actuarial Obligation	$ 126,006	$ 131,777	$ 5,771
Actuarial Value of Assets	123,163	108,667	14,496
Unfunded Actuarial Obligation	$ 2,843	$ 23,110	$ 20,267
Actuarial (Gains) or Losses by Source			
Revisions to actuarial assumptions			$ 2,787
Impact of New Entrants			655
Impact of Rehired Members			218
Salaries increased greater than assumed			1,982
All other non-investment sources			129
(Gain) or Loss on the Actuarial Obligation			5,771
Investment Return on Actuarial Value of Assets			12,476
Change in the SBMA Reserve			802
Change in the Health Benefit Fund Allocation			1,218
(Gain) or Loss on the Actuarial Value of Assets			14,496
Total Actuarial (Gain) or Loss			$ 20,267

The majority of the $5,771 million net loss on the Actuarial Obligation is due to the revised assumptions adopted earlier this year, and the fact that over the two-year period salary increases exceeded the assumed rate. All other non-investment experience represents only a relatively small portion of the expected Actuarial Obligation. The relatively small loss indicates that the census is consistent from the prior period, and the actual experience (except for salaries) tracked closely with the actuarial assumptions.

On the asset side, there are three sources of the actuarial loss. The largest loss was the investment return on the Actuarial Value of Assets less than the 8% assumption. A portion of this element is due to the recognition of prior deferred investment losses, which would have occurred even if the fair market value had earned 8% for the period.

The amount allocated to the SBMA Reserve increased by $802 million to $1,719 million. In addition, this valuation recognizes the Board's allocation of funds for future costs associated with the Health Benefits Fund.

Table 7 Funded Status

($Millions)	2003 Valuation	2001 Valuation	
		Revised Assumptions	Prior Assumptions
Actuarial Obligation *(Table 2)*	$131,777	$112,155	$109,881
Actuarial Value of Assets			
Calculated *(Table 5)*	111,604	108,571	108,571
Less SBMA Reserve	(1,719)	(917)	(917)
Less Health Benefits Allocation	(1,218)	(1,306)	(0)
Program Assets	108,667	106,348	107,654
Unfunded Actuarial Obligation	**$ 23,110**	**$ 5,807**	**$ 2,227**
Funded Ratio	**82%**	**95%**	**98%**

Table 8 Actuarial Gains and Losses

($Millions)		Expected	Actual	(Gain) Loss
Actuarial Obligation				
Actuarial Obligation June 30, 2001		$109,881		
Normal Cost for 2001-03		7,082		
Benefits Paid (Excludes Purchasing Power)		(9,091)		
Expected Interest at 8%		18,134		
Actuarial Obligation June 30, 2003		**$126,006**	**$131,777**	**$ 5,771**
By Source:	*Revisions to Actuarial Assumptions*			*$ 2,787*
	New Entrants			*655*
	Rehired Members			*218*
	Salaries Increased More than Assumed			*1,982*
	All Other Non-investment Sources			*129*
	Total (Gain) Loss on the Actuarial Obligation			*$ 5,771*
Actuarial Value of Assets				
Actuarial Value of Assets June 30, 2001		$107,654		
Expected Contributions for 2001-03		6,855		
Benefits Paid (Excludes Purchasing Power)		(9,091)		
Expected Interest at 8% on A.V.A.		17,745		
Actuarial Value of Assets June 30, 2003		**$123,163**	**$108,667**	**$ 14,496**
By Source:	*Investment Return on Actuarial Value of Assets (including the recognition of prior deferred investment losses)*			*$ 12,476*
	Change in SBMA Reserve			*802*
	Change in Allocation to future Health Benefits Fund costs			*1,218*
	Total (Gain) Loss on the Actuarial Value of Assets			*$ 14,496*
Unfunded Actuarial Obligation		**$ 2,843**	**$ 23,110**	**$ 20,267**

Section 7
Supplemental Contributions

Under State law EC 22955(b), additional funds are required to be contributed by the State if at least one of the following two separate conditions is met.

1. Additional funding is required if the sum of the 8% contribution from the members and the 8% contribution from the employers is not sufficient to pay the Normal Cost of the benefits in effect as of July 1, 1990.

2. Additional funding is required if the Actuarial Value of Assets associated with the benefit provisions in effect as of July 1, 1990 is less than the Actuarial Obligation for those benefits.

Normal Cost Deficit: Since the Normal Cost Rate for the 1990 Benefit Structure is less than the 16% rate cited in the statute, there is no Normal Cost Deficit.

	2003 Valuation	2001 Valuation
Normal Cost Deficit – 1990 Benefit Structure		
Normal Cost Rate	14.274%	14.054%
Revenue for 1990 Benefits	16.000	16.000
Normal Cost Deficit	0.000%	0.000%

1990 Unfunded Actuarial Obligation: The Actuarial Obligation for the DB Program is recalculated using the benefit provisions in place during 1990. CalSTRS provides us with separate census data for this determination. The process has its limitations since we don't know, for example, if members who retired would have done so if the post-1990 benefit enhancements had not been enacted. However, we believe we are using the most reasonable process to estimate what the Actuarial Obligation would be if only the 1990 benefits were currently in place.

There were no benefit improvements enacted between 1990 and 1998 that had a material cost. All benefit enhancements enacted with effective dates from July 1,

1990 to December 31, 1998 have been presumed to be cost-neutral.

The Actuarial Obligation related to the 1990 Benefit Structure is $110,220 million. This compares to the Actuarial Obligation for the DB Program of $131,777 million.

($Millions)	2003 Valuation	2001 Valuation
Actuarial Obligation – 1990 Benefit Structure		
Value of Projected Benefits	$ 151,018	$ 128,101
Value of Future Normal Costs	40,798	33,839
Actuarial Obligation	$ 110,220	$ 94,262

The Actuarial Value of Assets needs to be adjusted to reflect the contributions started on October 1, 1998, and an estimate of the additional benefits paid out due to the post-1990 benefit increases up to June 30, 2003. This task also has some limitations since we do not have precise data regarding the portion of, or the timing of, benefit payments that would be attributable to only the 1990 benefits.

The most significant adjustments to the assets are:

- Eliminate contributions in excess of 16.00%,
- Add back the member contributions that were directed to the DBS Program,
- Add back the benefit enhancements that have been paid, and
- Adjust for interest.

See **Table 9** for the details of the asset adjustment.

($Millions)	June, 2003	June, 2001
Asset Adjustment – 1990 Benefit Structure		
Actuarial Value for DB Program	$ 108,667	$ 107,654
Adjustments per Table 9	217	(896)
Board's allocation of future resources for Health Benefits	1,218	0
Actuarial Value of Assets	$ 110,102	$ 106,758

For purposes of testing the funding sufficiency of the 1990 Benefit Structure, note we did not reserve the Board's allocation of assets for future Health Benefit Fund costs.

The following table summarizes the Funded Status of the 1990 Benefit Structure as detailed in **Table 10**. Since the 1990 Benefit Structure now has an Unfunded Actuarial Obligation instead of an Actuarial Surplus, the provision of the statute calling for additional funding from the State becomes effective.

($Millions)	2003 Valuation	2001 Valuation
Funded Status – 1990 Benefit Structure		
Actuarial Obligation	$ 110,220	$ 94,262
Actuarial Value of Assets	110,102	106,758
Unfunded Actuarial Obligation	$ 118	$ (12,496)
Funded Ratio	100%	113%

Supplemental State Contributions: The statute calls for a supplemental State contribution if one of the two conditions described above is met. The second condition, an Unfunded Actuarial Obligation associated with the 1990 Benefit Structure, is present as of June 30, 2003.

The Unfunded Actuarial Obligation triggers an additional State contribution equal to 0.524% of credited compensation from the fiscal year ending in the prior calendar year. Our interpretation of EC 22955(b), supported by your legal counsel, is that an additional annual contribution of 0.524% will be payable quarterly commencing on October 1, 2004 based on credited compensation from the 2002-03 fiscal year.

Projections based on the current actuarial assumptions indicate that the Unfunded Actuarial Obligation related to the 1990 Benefit Structure would be amortized by June 30, 2004. See **Table 11** for the details. However, please note the amortization schedule in Table 11 ***may not occur as projected*** for the following reasons:

- Valuation projections of future amortization schedules assume the Actuarial Value of Assets will earn 8% per year. The return on the Fair Market Value of Assets would need to be higher than 8% to stay on the

projected amortization schedule in Table 11 since the Actuarial Value is greater than the Fair Market Value of Assets. To illustrate the magnitude of the current difference between the Actuarial and Fair Market Value of Assets, a fair market return of over 20% in 2003-04 would be required to equal a return of 8% on the Actuarial Value of Assets.

- Due to the asset smoothing method (see Section 5), there is a significant deferral of prior investment losses that have not yet been recognized as of June 30, 2003.
- Absent investment returns significantly above the assumed rate in the next few years to offset the unrecognized investment losses, the current losses will gradually be reflected in the Actuarial Value of Assets.
- The recognition of a portion of the prior investment losses in the Actuarial Value of Assets as of June 30, 2004 is likely to more than offset the Actuarial Surplus shown in Table 11 as of June 30, 2004. To the extent some prior investment losses are still unrecognized as of June 30, 2004, future returns on the Fair Market Value of Assets will need to exceed the 8% assumption to avoid further recognition of prior losses.

The funded status of the 1990 Benefit Structure in future years is difficult to predict with certainly because the Actuarial Value of Assets for the 1990 Benefit Structure includes adjustments for contributions and benefits paid in excess of those in place in 1990. The benefits paid can vary considerably depending on demographic experience. In addition, the Actuarial Obligation can only be assessed accurately when current census data is evaluated. Based on information available at this time, we believe the 1990 Benefit Structure will continue to have an Unfunded Actuarial Obligation as of June 30, 2004.

The results for the Funding Sufficiency of the 1990 Benefits Structure shown in this report are different than those presented to the Board on June 3, 2004 for the following reasons:

- Based on further discussions with CalSTRS staff and legal counsel, we have included the assets set aside for future costs associated with the Teachers' Health Benefits Fund as available for the 1990 Benefit Structure.

- Due to the closeness of the Funding Sufficiency test, we replaced certain approximations with historical data obtained from CalSTRS staff, including revised allocations of members' 2% DBS contributions and benefits.

Table 9 Asset Adjustment for 1990 Benefit Structure

($Millions)	June, 2003	June, 2002
Assets Allocated to Post-1990 Benefit Increases		
Allocated Market Value at Beginning of Year	$ (200)	$ (849)
Retroactive adjustment to beginning balance [1]	0	234
Allocated Market Value at Beginning of Year	$ (200)	$ (615)
Contributions During the Year		
EC 22951 at 0.250% of salaries	(57)	(51)
EC 22955 at 1.975% of 2000 calendar year salaries		(385)
EC 22955 at 1.975% of 2001 calendar year salaries	(430)	
2% DBS redirection reallocated to DB Program	460	487
THBF costs reallocated to DB Program	22	19
Total Contribution Adjustment	(5)	70
Appropriations During the Year		
Post-1990 Benefits Paid During the Year	417	321
2% DBS redirection reallocated to DB Program	(17)	(5)
Total Contribution Adjustment	400	316
Estimated Investment Earnings for the Year [2]	(2)	29
Total Allocated Market Value at End of Year	**$ 193**	**$ (200)**
Ratio of Actuarial Value to Market Value [3]	112.696%	114.295%
Actuarial Value of Assets for Post-1990 Benefit Increases	**$ 217**	**$ (228)**

Note:

[1] Adjustments to replace prior estimates with more accurate determinations.

[2] Based on Fair Market Value and uniform cash flow for contributions, benefits, and expenses. Rate of return used was –6.11% for 2001-02 and 3.78% for 2002-03.

[3] Developed from Table 5

Table 10 Funding Sufficiency for 1990 Benefit Structure

($Millions)	2003 Valuation	2001 Valuation
Actuarial Obligation		
Present Value of Projected Benefits		
Benefits Currently Being Paid	$ 47,535	$ 38,854
Benefits to Inactive Members	2,379	2,053
Benefits to Active Members	101,104	87,194
Total	$151,018	$128,101
Present Value of Future Normal Costs	40,798	33,839
Actuarial Obligation	$110,220	$ 94,262
Actuarial Value of Assets		
Actuarial Value of Assets *(Table 7)*	108,667	107,654
Plus, Asset Adjustment *(Table 9)*	217	(896)
Plus, Allocation to Health Benefits	1,218	0
Net Assets Available	110,102	106,758
Funded Status		
Actuarial Obligation	$110,220	$ 94,262
Actuarial Value of Assets	110,102	106,758
Unfunded Actuarial Obligation	$ 118	$ (12,496)
Funded Ratio	100%	113%
Amortization Period		
Revenue for 1990 Benefits	16.000%	16.000%
EC 22955(b)	0.524	0.000
Normal Cost Rate	(14.274)	(14.054)
Revenue Available for Amortization	2.250%	1.946%
Amortization Period	1 year	N/A

Table 11 Amortization of 1990 Unfunded Actuarial Obligation

$(Millions)		Beginning	Amortization Payment			Interest	Ending
Year	FYE	Unfunded Act. Oblig.	Total [1] Contrib.	Normal Cost	Available Amtzn.	Charge at 8% [2]	Unfunded Act. Oblig.
1	2004	$ 118	$ 4,093	$ 3,652	$ 441	$ (8)	$ (332)
2	2005	(332)	4,361	3,807	554	(49)	(935)

Note:

[1] The amortization schedule includes the regular 16% contributions plus the 0.524% commencing on October 1 and payable through July 1, 2005. Only three of the four quarterly contributions are included above. The estimated amount for three payments in the fiscal year is about $94 million.

[2] The amortization schedule uses the assumed rate to project the Actuarial Obligation and the Actuarial Value of Assets. The Actuarial Value of Assets is currently greater than the Fair Market Value of Assets, so a return in excess of the assumed rate is needed to avoid future actuarial losses.

Please refer to the text for a further explanation. The recognition of a portion of the prior investment losses in the Actuarial Value of Assets as of June 30, 2004 is likely to more than offset the Actuarial Surplus shown above as of June 30, 2004. To the extent some prior investment losses are still unrecognized as of June 30, 2004, returns on the Fair Market Value of Assets will need to exceed the 8% assumption to avoid further recognition of prior losses.

Section 8
Funding Sufficiency

The contributions to fund the DB Program include those listed below and described in **Table 12**. Since each contribution is not paid uniformly over time as a percentage of Earned Salaries, we have calculated an equivalent rate over a 30-year period, the period used to test the sufficiency of the statutory revenue stream.

Source of Revenue	Current Rate	Equivalent Rate
Members	8.000%	8.000%
Directed to DBS Accounts	(2.000)	(0.712)
Employers	8.000	8.000
Employers	0.250	0.250
State	2.017	1.846
State – 1990 Benefit Structure	0.000	0.000
Equivalent Level Contribution Rate over 30 Years		**17.384%**

Twenty-five percent of the members' contributions are temporarily directed to the Defined Benefit Supplement Program (DBS) through December of 2010. When converted to a level percentage over a thirty-year period, this is equal to 0.712%.

The State contribution rate will be 2.017% of the second preceding fiscal year Earned Salaries, this is equivalent to a lesser percentage of current Earned Salaries. For example, the State contribution for the 2003-04 will be equal to 2.017% of the 2001-02 Earned Salaries.

As demonstrated in Tables 10 and 11, the supplemental contribution from the State may not be needed. For purposes of the test of Funding Sufficiency, we have not included the supplemental contribution from EC 22955(b).

Note that the future costs associated with the Teachers' Health Benefit Fund are set aside using a reduction to the Actuarial Value of Assets. Therefore, it is not appropriate to deduct the expected annual costs from the revenue intended to fund the DB Program benefits.

The calculation of the equivalent rates in **Table 13** results in 17.384% of Earned Salaries over a thirty-year period.

Table 14 shows the amortization of the Unfunded Actuarial Obligation on a year-by-year basis. Based on the current Actuarial Value of Assets and all future experience emerging as assumed the Unfunded Actuarial Obligation will not be amortized over the next 30 years. Our projections from 2001 indicated it would take 29 years to amortize the Unfunded Actuarial Obligation, but actuarial losses incurred or recognized over the last two years have had a negative impact on the ability of the current revenue stream to finance the current benefit structure. **Table 15** summarizes these findings.

	2003 Valuation	2001 Valuation
Normal Cost Rate	16.838%	16.497%
Amortization Rate	4.984	0.585
Total Level Rate over a 30-Year Period	21.822%	17.082%
Projected Revenue	17.384%	17.117%
Estimated Additional Revenue Needed	4.438%	0.000%

One of the future contingencies that may lessen the impact of the funding shortage is the potential growth of the active DB Program membership. The current assumption is that new teachers will replace terminating and retiring teachers and the active population will remain stable. With a growing general population and a limited class size, we would expect to see an increase in the number of covered teachers in the future. An increase in the number of active members will improve the financial condition of the DB Program because the additional revenue should exceed the expected Normal Cost Rate (the Normal Cost Rate is the expected total cost for a new member). The excess of revenue over the Normal Cost Rate will provide additional resources to finance the current Unfunded Actuarial Obligation.

We have not studied the potential growth of the active membership. However, if the growth comes from new entrants with similar demographic characteristics as the current membership, and if the growth is as much as 2% per year, the DB Program will still need additional funding based on the current actuarial assumptions.

Table 12 Contributions

		Current Rate	Equivalent Rate [1]
EC 22901	Members	8.000%	8.000%
EC 22901.5	Directed to DBS Accounts [2]	(2.000)	(0.712)
EC 22950	Employers	8.000	8.000
EC 22950 (c)	Employers for THBF [3]	*as needed*	0.000
EC 22951	Employers	0.250	0.250
EC 22955 (a)	State [4]	2.017	1.846
EC 22955 (b)	State [5]	0.000	0.000
Equivalent Level Contribution Rate over 30-Year Period			**17.384%**

Note:

[1] Equivalent level contribution rate payable over the next 30 years. See Table 13 for details.

[2] 25% of Member Contributions will be directed to Defined Benefit Supplement Accounts through December 31, 2010.

[3] The Teachers' Health Benefit Fund is financed by a redirection of employer contributions. The Teachers' Retirement Board has set aside DB Program assets to finance these future costs. See Table 7.

[4] The State's contribution of 2.017% is paid quarterly based on second prior fiscal year salaries.

[5] Additional funding is provided only if the Normal Cost Rate is greater than 16.000% of salaries for benefits in effect on July 1, 1990 or there is an Unfunded Actuarial Obligation (related to the 1990 Benefit Structure). The 1990 Benefit Structure is not adequately funded as of this valuation. See Tables 10 and 11.

Table 13 30-Year Projection of Contributions

($Millions) FYE	Projected Salaries	Member *22901*	Member DBS *22901.5*	Employer *22950 & 22951*	State *22955(a)*	State *22955(b)*	Total Contrib.
2004	$ 25,582	$ 2,047	$ (512)	$ 2,110	$ 438	$ 0	$ 4,083
2005	26,669	2,134	(533)	2,200	481	0	4,282
2006	27,802	2,224	(556)	2,294	516	0	4,478
2007	28,984	2,319	(580)	2,391	538	0	4,668
2008	30,216	2,417	(604)	2,493	561	0	4,867
2009	31,500	2,520	(630)	2,599	585	0	5,074
2010	32,839	2,627	(657)	2,709	609	0	5,288
2011	34,234	2,739	(342)	2,824	635	0	5,856
2012	35,689	2,855	0	2,944	662	0	6,461
2013	37,206	2,976	0	3,069	691	0	6,736
2014	38,787	3,103	0	3,200	720	0	7,023
2015	40,436	3,235	0	3,336	750	0	7,321
2016	42,154	3,372	0	3,478	782	0	7,632
2017	43,946	3,516	0	3,626	816	0	7,958
2018	45,813	3,665	0	3,780	850	0	8,295
2019	47,760	3,821	0	3,940	886	0	8,647
2020	49,790	3,983	0	4,108	924	0	9,015
2021	51,906	4,153	0	4,282	963	0	9,398
2022	54,112	4,329	0	4,464	1,004	0	9,797
2023	56,412	4,513	0	4,654	1,047	0	10,214
2024	58,810	4,705	0	4,852	1,091	0	10,648
2025	61,309	4,905	0	5,058	1,138	0	11,101
2026	63,915	5,113	0	5,273	1,186	0	11,572
2027	66,631	5,330	0	5,497	1,237	0	12,064
2028	69,463	5,557	0	5,731	1,289	0	12,577
2029	72,415	5,793	0	5,974	1,344	0	13,111
2030	75,493	6,039	0	6,228	1,401	0	13,668
2031	78,701	6,296	0	6,493	1,461	0	14,250
2032	82,046	6,564	0	6,769	1,523	0	14,856
2033	85,533	6,843	0	7,056	1,587	0	15,486
PV [1]	$463,367	$ 37,069	$ (3,299)	$ 38,228	$ 8,552	$ 0	$ 80,550
Level Rate [2]		**8.000%**	**(0.712)%**	**8.250%**	**1.846%**	**0.000%**	**17.384%**

Note:

[1] Present Value as of the valuation date, of 30-year series of contributions and appropriations.

[2] Equivalent level rate payable over the 30-year period.

Table 14 Amortization of Unfunded Actuarial Obligation

$(Millions) Year	FYE	Beginning Unfunded Act. Oblig.	Amortization Payment: Total Contrib.	Amortization Payment: Normal Cost	Amortization Payment: Available Amtzn.	Interest Charge at 8%	Ending Unfunded Act. Oblig.
1	2004	$ 23,110	$ 4,083	$ 4,307	$ (224)	$ 1,858	$ 25,192
2	2005	25,191	4,282	4,490	(208)	2,024	27,423
3	2006	27,424	4,478	4,681	(203)	2,202	29,829
4	2007	29,830	4,668	4,880	(212)	2,395	32,437
5	2008	32,437	4,867	5,088	(221)	2,604	35,262
6	2009	35,262	5,074	5,304	(230)	2,830	38,322
7	2010	38,322	5,288	5,529	(241)	3,075	41,638
8	2011	41,638	5,856	5,764	92	3,327	44,873
9	2012	44,874	6,461	6,009	452	3,572	47,994
10	2013	47,993	6,736	6,265	471	3,821	51,343
11	2014	51,342	7,023	6,531	492	4,088	54,938
12	2015	54,938	7,321	6,809	512	4,375	58,801
13	2016	58,800	7,632	7,098	534	4,683	62,949
14	2017	62,948	7,958	7,400	558	5,014	67,404
15	2018	67,404	8,295	7,714	581	5,369	72,192
16	2019	72,192	8,647	8,042	605	5,751	77,338
17	2020	77,338	9,015	8,384	631	6,162	82,869
18	2021	82,868	9,398	8,740	658	6,603	88,813
19	2022	88,814	9,797	9,111	686	7,078	95,206
20	2023	95,205	10,214	9,499	715	7,588	102,078
21	2024	102,078	10,648	9,902	746	8,136	109,468
22	2025	109,468	11,101	10,323	778	8,726	117,416
23	2026	117,417	11,572	10,762	810	9,361	125,968
24	2027	125,968	12,064	11,219	845	10,044	135,167
25	2028	135,167	12,577	11,696	881	10,778	145,064
26	2029	145,064	13,111	12,193	918	11,568	155,714
27	2030	155,714	13,668	12,711	957	12,419	167,176
28	2031	167,176	14,250	13,252	998	13,334	179,512
29	2032	179,513	14,856	13,815	1,041	14,319	192,791
30	2033	192,792	15,486	14,402	1,084	15,380	207,088

Table 15 Funding Sufficiency

($Millions)	June, 2003	June, 2001
Funded Status ***(Table 7)***		
Actuarial Obligation	$ 131,777	$ 109,881
Actuarial Value of Assets	108,667	107,654
Unfunded Actuarial Obligation	$ 23,110	$ 2,227
Funded Ratio	82%	98%
Level Contributions over 30 Years ***(Table 12)***	17.384%	17.117%
Amortization Period		
Total Level Rate over the Amortization Period	17.384%	17.117%
Normal Cost Rate	16.838	16.497
Amortization Rate	0.546%	0.620%
Amortization Period (Based on current revenue projections)	*Does not amortize*	*29 years*
30-Year Funding Period		
Normal Cost Rate	16.838%	16.497%
Amortization Rate	4.984	0.585
Total Level Rate over the Amortization Period	21.822%	17.082%
Estimated Additional Revenue Needed *(Based on current valuation assumptions)*	4.438%	0.000%

Appendix A
Provisions of Governing Law

All of the actuarial calculations contained in this report are based upon our understanding of the Defined Benefit (DB) Program of the State Teachers' Retirement Plan as contained in Part 13 of the California Education Code. The provisions used in this valuation are summarized below for reference purposes.

Normal Retirement

Eligibility Requirement:	Age 60 with five years of credited service.
Allowance:	Two percent of final compensation for each year of credited service.
Final Compensation:	Average salary earnable for the highest three consecutive years of credited service for one position. For members with 25 years of service, the calculation is based on the highest average compensation earnable in a consecutive 12-month period.
Credited Service:	For each year of membership, credited service is granted based on the ratio of salary earned to full-time salary earnable for one position.
Sick Leave Service Credit:	Credited service is granted for unused sick leave at the time of retirement. Sick Leave Service Credit can not be used for eligibility for One-Year Final Compensation, the Career Bonus, nor the Longevity Bonus.
Career Bonus:	If a member has thirty years of credited service, the age factor is increased by 0.2%. However, the maximum age factor is 2.4%.
Longevity Bonus:	For members attaining 30 years of service by January 1, 2011, a longevity bonus of $200 per month is added to the unmodified allowance. The bonus is increased to $300 per month with 31 years of service, and $400 per month with 32 or more years of service.
IRC Section 415:	Benefits are subject to limits imposed under Internal Revenue Code (IRC) Section 415. However, no limits are imposed in the valuation of the DB Program in order to address the potential pay-as-you-go funding needs of the Teachers' Replacement Benefits Program Fund.
IRC Section 401(a)(17):	Compensation is limited under IRC Section 401(a)(17) and assumed to increase at the rate of inflation.

Early Retirement

Eligibility Requirement:	Age 55 with five years of credited service, or age 50 with 30 years of credited service.
Benefit Reduction:	A 1/2% reduction in the normal retirement allowance for each full month or partial month the member is younger than age 60, plus a reduction of 1/4% for each full month or partial month the member is younger than age 55.

Late Retirement

Allowance:	Members continue to earn additional service credit after age 60. The 2% age factor increases by 0.033% for each quarter year of age that the member is over age 60, up to a maximum of 2.4%.

Deferred Retirement

Allowance:	Any time after satisfying the minimum service requirement, a member may cease active service, leave the accumulated contributions on deposit, and later retire upon attaining the minimum age requirement.

Post-Retirement Benefit Adjustment

Benefit Improvement:	Two percent simple increase on September 1 following the first anniversary of the effective date of the allowance, applied to all continuing allowances.

Disability Allowance - Coverage A

Eligibility Requirement:	Member has five years of credited California service and has not attained age 60.
Allowance:	Fifty percent of final compensation or 5% of final compensation for each year of service credit if over age 45 with less than 10 years of service credit.
Children's Benefit:	10% for each eligible dependent child, up to a maximum of 40% of final compensation. The increment for each eligible child continues until the child marries or attains age 22.

Offsets:	Allowance, including children's increment, is reduced by disability benefits payable under Social Security, Workers' Compensation and district-paid income protection plan.

Disability Allowance - Coverage B

Eligibility Requirement:	Member has five years of credited California service.
Allowance:	Fifty percent of final compensation, regardless of age and service credit.
Children's Benefit:	10% for each eligible child up to four children, for a maximum of 40% of final compensation. The increment for each child continues until the child attains age 21, regardless of student, marital, or employment status.
Offsets:	The member's allowance is reduced by disability benefits payable under Workers' Compensation.

Death Before Retirement - Coverage A

Eligibility Requirement:	One or more years of service credit for active members or members receiving a disability allowance.
Lump Sum Payment:	$6,163 lump sum to the designated beneficiary. If there is no surviving spouse, domestic partner or eligible children, the contributions and interest are paid to the designated beneficiary.
Allowance:	The surviving spouse or domestic partner with eligible children will receive a family benefit of 40% of final compensation for as long as there is at least one eligible child. An additional 10% of final compensation is payable for each eligible child up to a maximum benefit of 90%. If there is no surviving spouse or domestic partner, an allowance of 10% of final compensation is payable to eligible children up to a maximum benefit of 50%. When there are no eligible children, the spouse or domestic partner may elect to receive one half of a 50% joint and survivor allowance projected to age 60, or take a lump sum payment of the remaining contributions and interest.

Death Before Retirement - Coverage B

Eligibility:	One or more years of service credit for active members.
Lump Sum Payment:	$24,652 lump sum to the designated beneficiary. If there is no surviving spouse or domestic partner, the contributions and interest are paid to the designated beneficiary.
Allowance:	A lump sum payment of the contributions and interest. or One half of a 50% joint and survivor allowance, beginning on the member's 60th birthday, or immediately with a reduction based on the member and spouse's (or domestic partner's) age at the time the benefit begins. If the surviving spouse or domestic partner elects a monthly allowance, each eligible child would receive 10% of the member's final compensation, with a maximum benefit of 50%.

Death After Retirement

Lump Sum Payment:	$6,163 lump sum to the designated beneficiary.
Annuity Form:	If the retirant had elected one of the joint and survivor options, the retirement allowance would be modified in accordance with the option selected. If no option had been elected, payment of the unpaid contributions and interest, if any, remaining in the retirant's account.

Termination from the Program

Refund:	Refund of contributions with interest as credited to the member's account to date of withdrawal. A refund terminates membership and all rights to future benefits from the System.
Re-entry After Refund:	Former members who re-enter the System, may redeposit all amounts previously refunded plus regular interest. The member must earn one year of credited service after re-entry before becoming eligible for System benefits.

Appendix B
Actuarial Methods and Assumptions

This section of the report discloses the actuarial methods and assumptions used in this Actuarial Valuation. These methods and assumptions have been chosen on the basis of recent experience of the DB Program and on current expectations as to future economic conditions.

The assumptions are intended to estimate the future experience of the members of the DB Program and of the DB Program itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in estimated costs of the DB Program's benefits.

Table B.1 on the next page includes a list of all of the major methods and assumptions used in this actuarial valuation. A brief description of the methods and selective illustrations of assumptions follows later in this section.

Please refer to the 2003 Actuarial Experience Analysis for further information on the revisions made to the actuarial assumptions. The following method and assumptions were revised since the last valuation:

Actuarial Methods

- None

Economic Assumptions

- Annual inflation rate from 3.50% to 3.25% per year
- Real wage growth rate from 0.75% to 1.00% per year

Demographic Assumptions

- Pre-1972 Disabled mortality rates
- Rates of service retirement by age, gender, and service
- Rates of disablement for Coverage B
- Rates of withdrawal
- Probability of refund for terminating member

Actuarial Cost Method

The accruing costs of all benefits are measured by the Entry Age Actuarial Cost Method. The projected revenue in excess of the Normal Cost is tested for sufficiency to amortize the Unfunded Actuarial Obligation created by this method. Amortization is calculated on a level percentage of salary including general wage inflation but no increase or decrease in the number of active members.

Method: The actuarial present value of projected benefits for each individual member included in the valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Normal Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future Normal Costs is called the Actuarial Obligation. The excess of the Actuarial Obligation over the Actuarial Value of Assets is called the Unfunded Actuarial Obligation. If the Actuarial Value of Assets exceeds the Actuarial Obligation, the difference is called the Actuarial Surplus.

Entry Age: The ages at entry of future active members are assumed to average the same as the entry ages of the present active members they replace. If the number of active members should increase (or decrease), it is further assumed that the average entry age of the larger (or smaller) group will be the same, from an actuarial standpoint, as that of the present active group. Under these assumptions, the Normal Cost Rate will not vary with the termination of the present active membership, or with an expansion or contraction of the active membership.

Asset Valuation Method

The assets are valued using a method that delays recognition of investment gains or losses. The expected actuarial value is the prior year's actuarial value increased with net cash flow of funds, and all increased with interest during the past year at the expected investment return assumption. One-third of the difference between the expected actuarial value of assets and the Fair Market Value of assets is added to the expected actuarial value of assets to arrive at the Actuarial Value of Assets.

The asset smoothing method was adopted for the 1999 actuarial valuation and is effective for the investment experience beginning in July of 1993.

Actuarial Assumptions

The Actuarial Standards Board has adopted Actuarial Standard of Practice No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*. This Standard provides guidance on selecting economic assumptions under defined benefit retirement

programs such as the System. In our opinion, the economic assumptions have been developed in accordance with the Standard.

The Actuarial Standards Board has adopted Actuarial Standard of Practice No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*. This Standard provides guidance on selecting demographic assumptions under defined benefit retirement programs such as the System. In our opinion, the demographic assumptions have been developed in accordance with the Standard.

The assumptions are intended to estimate the future experience of the members of the DB Program and of the System itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in estimated costs of the Program's benefits.

The demographic assumptions are listed in **Table B.1** and illustrated at selected ages and duration combinations in **Tables B.2** – **B.7**.

Table B.1 List of Major Valuation Assumptions

I. Economic Assumptions

A.	Investment Return (net of investment and administrative expenses)	8.00%	
B.	Interest on Member Accounts	6.00%	
C.	Wage Growth	4.25%	
D.	Inflation	3.25%	

II. Demographic Assumptions

A.	Mortality			
	(1) Active	- Male	1999 CalSTRS Retired – M (-2 years)	Table B.2
		- Female	1999 CalSTRS Retired – F (-2 years)	Table B.2
	(2) Retired *	- Male	1999 CalSTRS Retired – M	Table B.2
		- Female	1999 CalSTRS Retired – F	Table B.2
	(3) Beneficiary *	- Male	1999 CalSTRS Beneficiary – M	Table B.2
		- Female	1999 CalSTRS Beneficiary – F	Table B.2
	(4) Disabled *	- Male	1994 GAM-M (minimum 2.5% with select rates in first three years)	Table B.2
		- Female	1994 GAM-F (minimum 2.2% with select rates in first three years)	Table B.2

* *Future retirees and beneficiaries are valued with a 2-year age setback*

B.	Service Retirement	Experience Tables	Table B.3
C.	Disability Retirement	Experience Tables	Table B.4
D.	Withdrawal	Experience Tables	Table B.5
	Probability of Refund	Experience Tables	Table B.6
E.	Merit Salary Increases	Experience Tables	Table B.7

Table B.2 Mortality

	Active Members	
Age	Male	Female
25	0.051%	0.029%
30	0.066	0.029
35	0.080	0.037
40	0.085	0.051
45	0.107	0.077
50	0.158	0.103
55	0.258	0.157
60	0.443	0.256
65	0.798	0.509

	Retired Members *		Beneficiaries *		Disabled (After Year 3) *	
Age	Male	Female	Male	Female	Male	Female
50	0.190%	0.121%	0.233%	0.121%	2.500%	2.200%
55	0.321	0.191	0.398	0.191	2.500	2.200
60	0.558	0.336	0.709	0.336	2.500	2.200
65	1.015	0.668	1.294	0.668	2.500	2.200
70	1.803	1.176	2.173	1.176	2.848	2.200
75	2.848	1.834	3.405	1.834	4.517	2.533
80	5.021	3.778	5.586	3.778	7.553	4.395
85	9.419	6.503	8.961	6.503	11.567	7.535
90	14.754	11.627	14.754	11.627	18.228	12.875
95	23.361	18.621	23.361	18.621	26.882	20.254

Select rates for disability:		
First year of disablement	11.4%	6.0%
Second year of disablement	7.7	3.8
Third year of disablement	6.2	3.0

* *Future retirees and beneficiaries are valued with a 2-year age setback*

Table B.3 Service Retirement

	Only for the1990 Benefit Structure		For the DB Program			
			Under 30 Years		30 or More Years	
Age	Male	Female	Male	Female	Male	Female
50	0.0%	0.0%	0.0%	0.0%	1.5%	1.5%
51	0.0	0.0	0.0	0.0	1.5	1.5
52	0.0	0.0	0.0	0.0	1.5	1.5
53	0.0	0.0	0.0	0.0	2.0	1.5
54	1.5	1.5	0.0	0.0	2.0	2.0
55	5.8	7.0	3.0	5.0	6.0	8.0
56	3.9	4.5	2.0	3.5	6.0	8.0
57	4.9	4.5	2.0	3.5	8.0	10.0
58	6.8	7.0	3.0	4.5	12.0	15.0
59	17.5	14.0	5.0	6.0	16.0	18.0
60	25.0	22.0	7.0	10.0	25.0	30.0
61	16.5	15.0	7.0	10.0	40.0	35.0
62	16.5	15.0	9.0	12.0	35.0	32.0
63	15.0	15.0	13.0	18.0	27.0	30.0
64	17.5	18.0	12.0	15.0	27.0	27.0
65	20.0	18.0	14.0	16.0	27.0	27.0
66	16.0	18.0	10.0	15.0	27.0	27.0
67	16.0	18.0	10.0	15.0	27.0	27.0
68	16.0	16.0	10.0	15.0	27.0	27.0
69	16.0	16.0	10.0	15.0	27.0	27.0
70	100.0	100.0	100.0	100.0	100.0	100.0

Table B.4 Disability Retirement

Coverage A

Age	Male	Female
25	0.021%	0.021%
30	0.030	0.030
35	0.051	0.060
40	0.081	0.090
45	0.111	0.111
50	0.159	0.219
55	0.210	0.279

Coverage B

	Entry Ages - Male		Entry Ages - Female	
Age	Under 40	40 and Up	Under 40	40 and Up
25	0.021%		0.030%	
30	0.030		0.030	
35	0.051		0.051	
40	0.120		0.090	
45	0.150	0.118%	0.141	0.139%
50	0.195	0.202	0.231	0.252
55	0.270	0.312	0.318	0.367
60	0.329	0.477	0.390	0.530
65	0.370	0.853	0.458	0.916

Table B.5 Withdrawal

	Entry Ages - Male					
Year	Under 25	25 - 29	30 - 34	35 - 39	40 - 44	45 & Up
1	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
2	7.7	7.7	7.7	7.7	7.7	8.6
3	6.3	5.4	5.4	5.4	5.4	6.3
4	4.4	4.4	4.4	4.4	4.4	4.4
5	3.9	3.0	3.0	3.0	3.0	3.6
10	2.0	2.0	2.0	2.0	2.4	
15	1.1	1.1	1.1	1.2		
20	0.6	0.6	0.6			
25	0.5	0.5				
30	0.0					

	Entry Ages - Female					
Year	Under 25	25 - 29	30 - 34	35 - 39	40 - 44	45 & Up
1	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
2	8.3	7.2	7.2	7.2	7.2	7.2
3	7.7	6.3	5.8	5.3	4.9	4.9
4	7.1	5.8	5.4	4.9	3.9	3.9
5	5.5	5.8	4.2	2.9	2.5	2.5
10	2.3	2.0	1.7	1.4	1.6	
15	1.1	0.9	1.0	0.9		
20	0.6	0.7	0.9			
25	0.6	0.6				
30	0.0					

Table B.6 Probability of Refund

	Entry Ages - Male				
Year	Under 25	25 - 29	30 - 34	35 - 39	40 and Up
Under 5	100%	100%	100%	100%	100%
10	50	50	42	45	45
15	42	42	36	30	
20	34	36	27		
25	24	27			
30	0				

	Entry Ages - Female				
Year	Under 25	25 - 29	30 - 34	35 - 39	40 and Up
Under 5	100%	100%	100%	100%	100%
10	40	35	36	36	35
15	30	30	30	30	
20	25	20	20		
25	15	10			
30	0				

Table B.7 Merit Salary Increases

	Entry Age - Annual Increase in Salaries Due to Merit					
Yr.	Under 25	25 - 29	30 - 34	35 - 39	40 - 44	45 & up
1	5.7%	5.3%	5.1%	4.9%	4.9%	3.5%
2	5.6	5.2	4.9	4.7	4.7	3.3
3	5.6	5.0	4.8	4.6	4.6	3.0
4	5.5	4.9	4.6	4.4	4.4	2.9
5	5.5	4.8	4.5	3.8	3.8	2.6
10	3.2	3.0	2.7	2.3	2.2	1.6
15	1.5	1.5	1.4	1.1	1.1	0.8
20	1.3	1.2	1.1	0.8	0.8	0.6
25	1.1	1.0	0.9	0.6	0.6	
30	0.9	0.7	0.6	0.5		
35	0.8	0.7	0.6			
40	0.8	0.7				
45	0.8					

Appendix C
Valuation Data

The membership data for this actuarial valuation was supplied by the System and accepted without audit. We have examined the data for reasonableness and consistency with prior valuations and periodic reports from the CalSTRS staff to the Teachers' Retirement Board.

In preparing this report, we relied upon the membership data furnished by the System. Although we did not audit this data, we compared the data for this and the prior valuation and tested for reasonableness. Based on these tests, we believe the data to be sufficiently accurate for the purposes of this valuation.

Tables C.1 – C.6 summarize the census data used in this valuation.

Table C.1 Summary of Statistical Information

	June 30, 2003	June 30, 2001
Number of Members		
Active Members [1]	448,478	428,741
Inactive Members [1]	104,617	87,146
Retirees and Beneficiaries		
Service Retirants	159,172	149,727
Disabilitants	6,949	6,477
Survivors	15,747	14,768
Total	181,868	170,972
Total Membership in Valuation	734,963	686,859
Active Member Statistics		
Earned Salaries	$23,867 million	$20,494 million
Average Salary	$ 53,219	$ 47,801
Average Age	44.3 years	44.3 years
Average Service	10.5 years	10.7 years

Note:

[1] Some active members were reported with no Earnable Salaries, in which case their liabilities, if any, were included with inactive members

Table C.2 Age and Service Distribution Active Male Members

	Service					
Age	Under 1	1 - 5	6 – 10	11 - 15	16 - 20	21 - 25
Under 25	418	743				
25 to 30	1,319	9,058	422			
30 to 35	1,054	10,500	5,964	105		
35 to 40	762	6,429	5,885	2,684	70	
40 to 45	786	4,951	3,768	3,742	2,053	65
45 to 50	783	4,469	3,071	3,012	3,085	1,957
50 to 55	739	4,318	3,024	2,874	2,822	3,117
55 to 60	686	3,559	2,170	2,014	1,986	1,882
60 to 65	302	1,720	984	877	825	624
65 to 70	128	657	307	255	227	131
70 & Up	87	372	152	82	63	49
Unknown	1	10	5			
Total	7,065	46,786	25,572	15,645	11,131	7,825

	Service					
Age	26 - 30	31 - 35	36 - 40	41 - 45	Over 45	Total
Under 25						1,161
25 to 30						10,799
30 to 35						17,623
35 to 40						15,830
40 to 45						15,365
45 to 50	153					16,530
50 to 55	4,285	350				21,529
55 to 60	4,350	4,833	285			21,765
60 to 65	1,015	1,620	1,024	15		9,006
65 to 70	179	197	202	105	6	2,394
70 & Up	60	49	48	38	31	1,031
Unknown						16
Total	10,042	7,049	1,559	158	37	133,049

Table C.3 Age and Service Distribution
Active Female Members

	Service					
Age	Under 1	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25
Under 25	1,695	3,296	2			
25 to 30	3,275	31,811	1,853			
30 to 35	1,780	23,696	17,953	448		
35 to 40	1,505	12,665	12,441	7,311	347	
40 to 45	1,540	11,422	8,775	8,142	5,461	224
45 to 50	1,402	11,510	9,025	7,575	6,537	4,940
50 to 55	1,145	9,973	9,162	9,022	7,480	6,628
55 to 60	748	6,120	5,671	6,854	6,710	5,035
60 to 65	275	2,348	1,994	2,325	2,695	2,290
65 to 70	86	695	478	498	542	595
70 & Up	51	388	167	161	167	142
Unknown	8	221	138			
Total	13,510	114,145	67,659	42,336	29,939	19,854

	Service					
Age	26 - 30	31 - 35	36 - 40	41 - 45	Over 45	Total
Under 25						4,993
25 to 30						36,939
30 to 35						43,877
35 to 40						34,269
40 to 45						35,564
45 to 50	379					41,368
50 to 55	6,844	637	1			50,892
55 to 60	5,705	6,996	528			44,367
60 to 65	2,113	1,889	1,358	47		17,334
65 to 70	477	320	203	100	4	3,998
70 & Up	136	110	71	36	32	1,461
Unknown						367
Total	15,654	9,952	2,161	183	36	315,429

Table C.4 Age and Service Distribution All Active Members

	Service					
Age	Under 1	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25
Under 25	2,113	4,039	2			
25 to 30	4,594	40,869	2,275			
30 to 35	2,834	34,196	23,917	553		
35 to 40	2,267	19,094	18,326	9,995	417	
40 to 45	2,326	16,373	12,543	11,884	7,514	289
45 to 50	2,185	15,979	12,096	10,587	9,622	6,897
50 to 55	1,884	14,291	12,186	11,896	10,302	9,745
55 to 60	1,434	9,679	7,841	8,868	8,696	6,917
60 to 65	577	4,068	2,978	3,202	3,520	2,914
65 to 70	214	1,352	785	753	769	726
70 & Up	138	760	319	243	230	191
Unknown	9	231	143			
Total	20,575	160,931	93,411	57,981	41,070	27,679

	Service					
Age	26 - 30	31 - 35	36 - 40	41 - 45	Over 45	Total
Under 25						6,154
25 to 30						47,738
30 to 35						61,500
35 to 40						50,099
40 to 45						50,929
45 to 50	532					57,898
50 to 55	11,129	987	1			72,421
55 to 60	10,055	11,829	813			66,132
60 to 65	3,128	3,509	2,382	62		26,340
65 to 70	656	517	405	205	10	6,392
70 & Up	196	159	119	74	63	2,492
Unknown						383
Total	25,696	17,001	3,720	341	73	448,478

Table C.5 Inactive Members

Fiscal Year Ending June 30	Number Vested	Total Number	Male % of Total	Female % of Total
1994	12,318	53,222	27.2	72.8
1995	12,724	54,159	26.7	73.3
1996	13,261	56,424	26.8	73.2
1997	13,925	59,385	27.2	72.8
1998	14,038	61,848	27.4	72.6
1999	15,421	69,112	27.7	72.3
2000	16,211	75,580	27.8	72.2
2001	18,469	87,146	28.1	71.9
2002	19,703	96,159	28.0	72.0
2003	20,627	104,617	28.3	71.7

Fiscal Year Ending June 30	Average Account on Deposit	Average Age	Average Service Credit	Average Years Inactive
1994	$ 9,607	47.9	3.5	8.2
1995	10,282	47.4	3.6	8.0
1996	10,931	47.2	3.5	8.0
1997	11,431	47.3	3.5	8.2
1998	11,731	47.5	3.4	8.3
1999	12,105	47.1	3.3	8.0
2000	12,325	46.8	3.2	7.8
2001	12,889	50.7	3.2	8.2
2002	12,997	46.0	3.1	7.3
2003	12,691	46.0	3.0	7.4

Table C.6 Service Retirants

Fiscal Year Ending June 30	Total	Male % of Total	Female % of Total
1994	126,476	37.9	62.1
1995	130,576	38.1	61.9
1996	133,764	38.2	61.8
1997	135,809	38.3	61.7
1998	139,193	38.3	61.7
1999	142,309	38.3	61.7
2000	145,415	38.1	61.9
2001	149,727	38.0	62.0
2002	154,884	37.8	62.2
2003	159,172	37.6	62.4

Fiscal Year Ending June 30	Average Age at Retirement	Average Years of Service Credit	Final Average Compensation	Average Current Allowance Payable
1994	60.9	24.5	$ 2,532	$ 1,369
1995	60.9	24.6	2,637	1,434
1996	60.9	24.7	2,743	1,502
1997	60.8	24.8	2,837	1,566
1998	60.8	24.7	2,945	1,638
1999	60.7	24.8	3,057	1,729
2000	60.7	25.0	3,175	1,824
2001	60.7	25.4	3,356	2,033
2002	60.7	25.7	3,539	2,183
2003	60.7	25.9	3,735	2,339

Appendix D
Glossary

The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases, the definitions have been modified for specific applicability to this System. Defined terms are capitalized throughout this Appendix.

Actuarial Assumptions: Assumptions as to the occurrence of future events affecting pension costs, such as mortality, withdrawal, disablement, and retirement, changes in compensation, rates of investment earnings and asset appreciation or depreciation, procedures used to determine the Actuarial Value of Assets, and other relevant items.

Actuarial Cost Method: A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Obligation.

Actuarial Gain or Loss: A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

Actuarial Obligation: That portion, as determined by a particular Actuarial Cost method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial Present Value: The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

Actuarial Surplus: The excess, if any, of the Actuarial Value of Assets over the Actuarial Obligation.

Actuarial Valuation: The determination, as of a Valuation Date, of the Normal Cost, Actuarial Obligation, Actuarial Value

	of Assets, and related Actuarial Present Values for a pension plan.
Actuarial Value of Assets:	The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.
Actuarial Equivalent:	Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.
Entry Age Cost Method:	An actuarial cost method under which the Actuarial Present Value of Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Obligation.
Normal Cost:	The portion of the Actuarial Present Value of Projected Benefits which is allocated to a valuation year by the Actuarial Cost Method.
Unfunded Actuarial Obligation:	The excess, if any, of the Actuarial Obligation over the Actuarial Value of Assets.
Valuation Date:	June 30, 2003.