



**Milliman** USA  
Consultants and Actuaries

111 SW Fifth Avenue, Suite 2900  
Portland, OR 97204-3690  
**Tel** +1 503 227.0634  
**Fax** +1 503 227.7956  
www.milliman.com

May 15, 2003

Retirement Board  
California State Teachers' Retirement System

**Re: Defined Benefit Supplement Program  
Actuarial Valuation as of June 30, 2002**

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Defined Benefit Supplement Program of the State Teachers' Retirement Plan as of June 30, 2002. 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 USA 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.

Respectfully submitted,

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

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# California State Teachers' Retirement System

## Defined Benefit Supplement Program - 2002 Actuarial Valuation

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# California State Teachers' Retirement System

## Defined Benefit Supplement Program - 2002 Actuarial Valuation

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### SECTION 1 EXECUTIVE SUMMARY

The Defined Benefit Supplement (DBS) Program was established on January 1, 2001. All contributing members of the Defined Benefit Program participate in the DBS Program.

Date of Valuation	Number of Members		Accumulated Account Balances
	Active	Total	
June 30, 2001	428,741	428,741	\$ 213,168,807
June 30, 2002	442,208	474,980	711,439,790

The actuarial value of assets for this valuation is the Fair Market Value as certified to us by CalSTRS.

<i>(\$Thousands)</i>	Year Ended June 30, 2002	Year Ended June 30, 2001
<b>Additions</b>		
Contributions	\$ 487,185	\$ 210,205
Earnings	<u>(27,703)</u>	<u>(3,176)</u>
Total Additions	\$ 459,482	\$ 207,029
<b>Deductions</b>		
Benefits	\$ 4,982	\$ 0
Expenses	<u>255</u>	<u>113</u>
Total Deductions	\$ 5,237	\$ 113
<b>Net Increase (Decrease)</b>	\$ 454,245	\$ 206,916
<b>Net Assets</b>		
Beginning of Year	\$ 206,916	\$ 0
Accounting Adjustments	(1,013)	0
Net Increase (Decrease)	<u>454,245</u>	<u>206,916</u>
End of Year	\$ 660,148	\$ 206,916



## California State Teachers' Retirement System Defined Benefit Supplement Program - 2002 Actuarial Valuation

As of June 30, 2002, the Actuarial Obligation of the DBS Program exceeded the Fair Market Value of Assets by \$51,292,000. If the experience had emerged as assumed, the Unfunded Actuarial Obligation was expected to grow from \$6,253,000 to \$6,753,000.

The difference between the actual and expected Unfunded Actuarial Obligation is the actuarial loss for the year. There was an actuarial loss of \$64,812,000 due to investment returns less than 8%, and an actuarial gain of \$20,273,000 due to interest credits less than 8% during the year. The net actuarial loss was \$44,539,000.

(\$Thousands)	June 30, 2002	June 30, 2001
<b>Actuarial Balance Sheet</b>		
Actuarial Obligation	\$ 711,440	\$ 213,169
Actuarial Value of Assets	<u>660,148</u>	<u>206,916</u>
Unfunded Actuarial Obligation	\$ 51,292	\$ 6,253
Additional Earnings Credit	*	0
Additional Annuity Credit	<u>0</u>	<u>0</u>
Final Unfunded Actuarial Obligation	\$ *	\$ 6,253
<b>Actuarial (Gain) or Loss</b>		
Investment Return on Assets	\$ 64,812	\$ 7,061
Interest Credits on Accounts	<u>(20,273)</u>	<u>(808)</u>
Actuarial (Gain) or Loss	\$ 44,539	\$ 6,253
Expected UAO (Surplus) at End of Year	<u>6,753</u>	<u>0</u>
Total Unfunded Actuarial Obligation	\$ 51,292	\$ 6,253
* To be determined by the Teachers' Retirement Board after the actuarial valuation.		

If no Additional Earnings Credit is adopted, the ending balance in the Gain and Loss Reserve will be a negative balance of \$51,292,000. This negative balance will need to be offset by investment earnings in excess of the Minimum Interest Rate before future Additional Earnings Credits will be recommended.

**Recommendation: Because the DBS Program currently has an Unfunded Actuarial Obligation, we recommend that no Additional Earnings Credit be granted at this time.**



# California State Teachers' Retirement System

## Defined Benefit Supplement Program - 2002 Actuarial Valuation

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### SECTION 2

#### FINDINGS OF THE ACTUARIAL VALUATION

An actuarial valuation is performed as of June 30 of each year, the last day of the Program's plan year. The primary purpose of the valuation is to determine the financial condition of the DBS Program through the measurement of the Gain and Loss Reserve. We also describe recent changes in the Program's financial condition and provide certain disclosure information in accordance with the Governmental Accounting Standards Board Statement No. 25.

The findings have been determined according to actuarial assumptions that were adopted on the basis of recent experience and current expectations of future experience. In our opinion, the assumptions used in the valuation are reasonably related to the past experience of the DBS Program 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.

#### ACTUARIAL VALUE OF ASSETS

The actuarial value of assets for this valuation is the Fair Market Value as reported by CalSTRS. A Statement of Program Assets for the last two plan years is shown in **TABLE 1**, and the Statement of Change in Program Assets is shown in **TABLE 2**.

#### ACTUARIAL BALANCE SHEET

Under the Traditional Unit Credit Actuarial Cost Method, when the assumed investment return is equal to the assumed interest crediting rate, the Actuarial Obligation is equivalent to the current sum of the Members' Account Balances. **TABLE 3** shows the Actuarial Obligation for this and the prior valuation.

The excess of the Actuarial Obligation over the Actuarial Value of Assets is called the Unfunded Actuarial Obligation. If the Assets exceed the Actuarial Obligation, the difference is called the Actuarial Surplus.

Under normal conditions, the DBS Program should have an Actuarial Surplus. In order to retain an Actuarial Surplus, the investment returns over a long period of time must exceed the combination of the Minimum Interest Rates, the Additional Earnings Credits, and the Additional Annuity Credits. Although we expect this to be the case, the investment performance for the past several years was significantly below the long-term assumption.



## California State Teachers' Retirement System Defined Benefit Supplement Program - 2002 Actuarial Valuation

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### ACTUARIAL GAINS AND LOSSES

The Minimum Interest Rate for last year was 6.0% and the Board did not adopt an Additional Earnings Credit. Since the assumed total earnings rate is 8% per year, the Actuarial Obligation was less than expected by about \$20,273,000.

The assumed earnings rate on the invested assets is 8% per year. The actual return for the year was about -6.2% (assuming uniform cash flow though the year), which produced an investment loss of \$64,812,000.

The net actuarial loss due to these causes was \$44,539,000 as shown in **TABLE 4**.

### GAIN AND LOSS RESERVE

**TABLE 5** shows the derivation of the Gain and Loss Reserve. After each actuarial valuation, the Teachers' Retirement Board decides on the adjustment to the prior year's Gain and Loss Reserve and the Additional Earnings Credit, if any.

- After the 2001 actuarial study, the Board did not adopt an Additional Earnings Credit. The entire unallocated loss of \$6,253,000 was distributed to the Gain and Loss Reserve, bringing the end of the year Gain and Loss Reserve to \$(6,253,000).
- After the adoption of the 2002 actuarial valuation, the Board will decide how to allocate this actuarial loss. If no Additional Earnings Credit is adopted, the end of the year Gain and Loss Reserve will be equal to \$(51,292,000).

### ACCOUNTING DISCLOSURES

The Governmental Accounting Standards Board (GASB) has issued Statement No. 25 that describes the information to be disclosed in the System's financial reports. The required actuarial disclosures are shown in **TABLES 6, 7, AND 8**.

### REMAINDER OF THE REPORT

The remainder of this report includes a summary of the benefit and eligibility provisions of the DBS Program in **SECTION 3**, the Outline of the Provisions of Governing Law.

A description of the actuarial methods and assumptions is included in **SECTION 4**. The assumptions are intended to estimate the future experience of the Members of the DBS 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



## California State Teachers' Retirement System Defined Benefit Supplement Program - 2002 Actuarial Valuation

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from these assumptions will result in corresponding changes in estimated costs of the Program's benefits.

A summary of the participant data is shown in **SECTION 5**. The membership data for this actuarial valuation was supplied by CalSTRS and accepted without audit. We believe the membership data to be sufficient for the purposes of this valuation.

And finally, **SECTION 6** is the Glossary of Actuarial Terminology.



**California State Teachers' Retirement System**  
**Defined Benefit Supplement Program - 2002 Actuarial Valuation**

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**TABLE 1**  
**STATEMENT OF PROGRAM ASSETS**

<i>(\$Thousands)</i>	<b>June 30, 2002</b>	<b>June 30, 2001</b>
<b>Invested Assets</b>		
Short-term investments	\$ 8,716	\$ 0
Pooled Domestic Securities	191,299	66,957
Pooled Domestic Equity	<u>417,771</u>	<u>140,072</u>
Total Investments	\$ 617,786	\$ 207,029
<b>Receivables</b>	52,801	0
<b>Liabilities</b>	<u>(10,439)</u>	<u>(113)</u>
<b>Fair Market Value of Net Assets</b>	\$ 660,148	\$ 206,916





**California State Teachers' Retirement System**  
**Defined Benefit Supplement Program - 2002 Actuarial Valuation**

**TABLE 2**  
**STATEMENT OF CHANGE IN PROGRAM ASSETS**

<i>(\$Thousands)</i>	<b>Year Ended June 30, 2002</b>	<b>Year Ended June 30, 2001</b>
<b>Additions</b>		
Contributions		
Members	\$ 487,185	\$ 210,205
Employers	<u>0</u>	<u>0</u>
Total Contributions	487,185	210,205
Net Earnings	<u>(27,703)</u>	<u>(3,176)</u>
Total Additions	\$ 459,482	\$ 207,029
<b>Deductions</b>		
Benefit Payments		
Retirement, death, and survivor	\$ 36	\$ 0
Refunds of Member contributions	<u>4,946</u>	<u>0</u>
Total Benefits	4,982	0
Expenses	<u>255</u>	<u>113</u>
Total Deductions	\$ 5,237	\$ 113
<b>Net Increase (Decrease)</b>	\$ 454,245	\$ 206,916
<b>Fair Market Value of Net Assets</b>		
Beginning of Year	\$ 206,916	\$ 0
Accounting Adjustments	(1,013)	0
Net Increase (Decrease)	<u>454,245</u>	<u>206,916</u>
<b>End of Year</b>	<b>\$ 660,148</b>	<b>\$ 206,916</b>
<b>Estimated Net Rate of Return</b> (assuming uniform cash flow through the year)	-6.2%	-3.0%



**California State Teachers' Retirement System**  
**Defined Benefit Supplement Program - 2002 Actuarial Valuation**

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**TABLE 3**  
**ACTUARIAL BALANCE SHEET**

<i>(\$Thousands)</i>	<b>June 30, 2002</b>	<b>June 30, 2001</b>
<b>Total Requirements</b>		
Actuarial Obligation		
Retirees and Beneficiaries	\$ 0	\$ 0
Inactive Members	25,568	0
Active Members	<u>685,872</u>	<u>213,169</u>
Total Requirements	\$ 711,440	\$ 213,169
<b>Total Resources</b>		
Actuarial Value of Assets	\$ 660,148	\$ 206,916
Unfunded Actuarial Obligation	<u>51,292</u>	<u>6,253</u>
Total Resources	\$ 711,440	\$ 213,169
<b>Funded Ratio</b>	93%	97%



**California State Teachers' Retirement System**  
**Defined Benefit Supplement Program - 2002 Actuarial Valuation**

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**TABLE 4**  
**ACTUARIAL GAINS AND LOSSES**

<i>(\$Thousands)</i>	<b>Actuarial Obligation</b>	<b>Actuarial Value of Assets</b>	<b>Unfunded Actuarial Obligation</b>
<b>Balance at June 30, 2001</b>	\$ 213,169	\$ 206,916	\$ 6,253
<b>Expected Changes</b>			
Actual Contributions	487,185	487,185	0
Actual Benefits Paid	(4,982)	(4,982)	0
Expected Earnings / Credits	<u>36,341</u>	<u>35,841</u>	<u>500</u>
<b>Expected Balance at June 30, 2002</b>	\$ 731,713	\$ 724,960	\$ 6,753
<b>Actuarial Gains or Losses</b>			
(Gain) on Actuarial Obligation	(20,273)		(20,273)
(Loss) on Assets		(64,812)	<u>64,812</u>
Net (Gain) or Loss			44,539
<b>Actual Balance at June 30, 2002</b>	\$ 711,440	\$ 660,148	\$ 51,292



**California State Teachers' Retirement System**  
**Defined Benefit Supplement Program - 2002 Actuarial Valuation**

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**TABLE 5**  
**GAIN AND LOSS RESERVE**

<i>(\$Thousands)</i>	<b>June 30, 2002</b>	<b>June 30, 2001</b>
<b>Unfunded Actuarial Obligation</b>	\$ 51,292	\$ 6,253
<b>Gain and Loss Reserve</b>		
Beginning of Year	\$ (6,253)	\$ 0
Additional Earnings Credit	(1)	0
Additional Annuity Credit	0	0
Allocated to Funding	(1)	(6,253)
End of Year Gain and Loss Reserve	\$ (6,253)	\$ (6,253)
<b>Unallocated Gains and (Losses)</b>	\$ (45,039)	\$ 0

<i>(\$Thousands)</i>	<b>Available Reserves and Unallocated Gains (Losses)</b>	<b>Additional Earnings Credit Adopted</b>	<b>Final Gain and Loss Reserve</b>
<b>Valuation Date</b>			
June 30, 2001	\$ (6,253)	\$ 0	(6,253)
June 30, 2002	(51,292)	(1)	(1)

Notes:

(1) To be determined by the Teachers' Retirement Board after the adoption of this Actuarial Valuation.



**California State Teachers' Retirement System**  
**Defined Benefit Supplement Program - 2002 Actuarial Valuation**

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**TABLE 6**  
**HISTORY OF CASH FLOW**

<i>(\$Thousands)</i>							
<b>Year End</b>	<b>Contributions for the Year</b>	<b>Expenditures During the Year</b>				<b>External Cash Flow</b>	<b>Fair Market Value of Assets</b>
		<b>Benefit Payments</b>	<b>Contribution Refunds</b>	<b>Expenses</b>	<b>Total</b>		
2001	\$ 210,205	\$ 0	\$ 0	\$ 113	\$ 113	\$ 210,092	\$ 206,916
2002	487,185	0	4,982	255	5,237	481,948	660,148



**California State Teachers' Retirement System**  
**Defined Benefit Supplement Program - 2002 Actuarial Valuation**

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**TABLE 7**  
**SCHEDULE OF FUNDING PROGRESS**

<i>(\$Thousands)</i>						
<b>Year End</b>	<b>Actuarial Value of Assets</b>	<b>Actuarial Accrued Liability</b>	<b>Unfunded Actuarial Accrued Liability</b>	<b>Funded Ratio Assets/AAL</b>	<b>Estimated Covered Payroll</b>	<b>Coverage Ratio UAAL/Pay</b>
2001	\$206,916	\$ 213,169	\$ 6,253	97%	\$ 20,494,152	0%
2002	660,148	711,440	51,292	93%	21,731,775	0%



**California State Teachers' Retirement System**  
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**TABLE 8**  
**SCHEDULE OF EMPLOYER CONTRIBUTIONS**

*(\$Thousands)*

<b>Year End</b>	<b>Annual Required Contribution</b>	<b>Contributed by Employers</b>	<b>Contributed by the State</b>	<b>Total Contributed</b>	<b>Percentage Contributed</b>
2001	\$ 0	\$ 0	\$ 0	\$ 0	100%
2002	0	0	0	0	100%



# California State Teachers' Retirement System

## Defined Benefit Supplement Program - 2002 Actuarial Valuation

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### SECTION 3

#### OUTLINE OF THE PROVISIONS OF GOVERNING LAW

All of the actuarial calculations contained in this report are based upon our understanding of the Defined Benefit Supplement (DBS) 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.

#### MEMBERSHIP

- Eligibility Requirement: All members of the Defined Benefit Program who perform creditable service and earn creditable compensation after December 31, 2000, have a DBS Account.
- Member: An eligible employee with creditable service subject to coverage, who has contributions credited in the Program or is receiving an annuity from the Program.

#### ACCOUNT BALANCE

- Account Balance: Nominal accounts established for the purpose of determining benefits payable to the Member. Accounts are credited with Contributions, Minimum Interest Rate, and Additional Earnings Credits.
- Contributions: One-quarter (2% of compensation) of the Member contributions on creditable compensation is allocated to the Member's DBS Account through December 31, 2010.
- Minimum Interest Rate: Annual rate determined for the plan year by the Retirement Board in accordance with federal laws and regulations. The Minimum Interest Rate is equal to the average of the yields on 30-year Treasuries for the twelve months ending in February preceding the beginning of the plan year, rounded to the next highest 0.25%.
- Additional Earnings Credit: Annual rate determined for the plan year by the Retirement Board based on the actual earnings during the plan year, but only to the extent the earnings are sufficient to credit the Minimum





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Interest Rate and provide any additions to the Gain and Loss Reserve deemed warranted by the Board.

Additional Annuity Credit: Annual rate determined for the plan year by the Retirement Board based on the actual earnings during the plan year, but only to the extent the earnings are sufficient to credit the Minimum Interest Rate and provide any additions to the Gain and Loss Reserve deemed warranted by the Board.

### **NORMAL RETIREMENT**

Eligibility Requirement: Receipt of a corresponding benefit under the DB Program.

Benefit: The DBS Account Balance at the benefit effective date subject to limits imposed under Internal Revenue Code Section 415.

Form of Payment: The normal form of payment is a lump sum distribution. Annuity options are available if the DBS Account equals or exceeds \$3,500.

### **EARLY RETIREMENT**

Eligibility Requirement: Same as Normal Retirement.

Benefit and Form: Same as Normal Retirement.

### **LATE RETIREMENT**

Benefit and Form: Same as Normal Retirement.

Contributions and earnings continue to be credited to the Account Balances until distributed.

### **DEFERRED RETIREMENT**

Benefit: A Member must receive a DBS benefit when the corresponding benefit is received under the DB Program.

### **DISABILITY BENEFIT**

Eligibility Requirement: Receipt of a corresponding benefit under the DB Program.



## California State Teachers' Retirement System Defined Benefit Supplement Program - 2002 Actuarial Valuation

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Benefit: The DBS Account Balance at the date the disability benefit becomes payable. An annuity benefit is discontinued upon the termination of the corresponding DB Program benefit.

Form of Payment: Same as Normal Retirement.

### **DEATH BEFORE RETIREMENT**

Eligibility Requirement: Deceased Member has a DBS Account Balance.

Benefit: The DBS Account Balance at the date of death payable to the designated beneficiary.

Form of Payment: Same as Normal Retirement.

### **DEATH AFTER RETIREMENT**

Eligibility Requirement: The deceased Member was receiving an annuity.

Benefit: According to the terms of the annuity elected by the Member.

### **TERMINATION FROM THE PROGRAM**

Eligibility Requirement: Termination of all CalSTRS-covered employment.

Benefit: Lump sum distribution of the DBS Account Balance as of the date of distribution. The benefit is payable one year from the termination of creditable service.



# California State Teachers' Retirement System

## Defined Benefit Supplement Program - 2002 Actuarial Valuation

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### SECTION 4

#### ACTUARIAL METHODS AND ASSUMPTIONS

This section of the report describes the actuarial methods and assumptions used in this valuation. These procedures and assumptions have been chosen by the Teachers' Retirement Board based on our recommendations. The Board has the sole authority to select the methods and assumptions used in this actuarial valuation.

In our opinion, the current actuarial methods and actuarial assumptions are reasonable and appropriate for the DBS Program. The assumptions are intended to estimate the future experience of the Members of the DBS 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 illustrated at selected ages and duration combinations in Tables 10 through 14.

#### STANDARDS OF PRACTICE

- ◆ The economic assumptions have been developed in accordance with the Actuarial Standard of Practice No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*.
- ◆ The demographic assumptions adopted for this program were developed from the experience of the DB Program. The demographic assumptions have been developed in accordance with the Actuarial Standard of Practice No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*.
- ◆ We relied on the membership data furnished by the System. Although we did not audit this data, we compared the data for this and prior reports and tested for reasonableness. Based on these tests, we believe the data to be sufficiently accurate for the purposes of our calculations. Our review of the data was performed in accordance with the Actuarial Standard of Practice No. 23, *Data Quality*.
- ◆ Methods and assumptions have been developed in conformance with the Actuarial Standard of Practice No. 4, *Recommendations for Measuring Pension Obligations*.



**California State Teachers' Retirement System**  
**Defined Benefit Supplement Program - 2002 Actuarial Valuation**

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**TABLE 9**  
**OUTLINE OF METHODS AND ASSUMPTIONS**

**I. Actuarial Methods**

- |                           |                         |
|---------------------------|-------------------------|
| A. Cost Method            | Traditional Unit Credit |
| B. Asset Valuation Method | Fair Market Value       |

**II. Economic Assumptions**

- |   |       |
|---|-------|
| A. Investment Return<br>(net of investment and administrative expenses) | 8.00% |
| B. Interest on Member Accounts  | 8.00% |
| C. Wage Growth  | 4.25% |
| D. Inflation  | 3.50% |

**III. Demographic Assumptions**

- |                           |          |   |          |
|---------------------------|----------|---|----------|
| A. Mortality              |          |   |          |
| (1) Active                | - Male   | 1999 CalSTRS Retired – M (-2 years)                                 | Table 10 |
|                           | - Female | 1999 CalSTRS Retired – F (-2 years)                                 | Table 10 |
| (2) Retired               | - Male   | 1999 CalSTRS Retired – M  | Table 10 |
|                           | - Female | 1999 CalSTRS Retired – F  | Table 10 |
| (3) Beneficiary           | - Male   | 1999 CalSTRS Beneficiary – M  | Table 10 |
|                           | - Female | 1999 CalSTRS Beneficiary – F  | Table 10 |
| (4) Disabled              | - Male   | 1994 GAM-M (minimum 2.5% with<br>select rates in first three years) | Table 10 |
|                           | - Female | 1994 GAM-F (minimum 2.2% with<br>select rates in first three years) | Table 10 |
| B. Service Retirement     |          | Experience Tables   | Table 11 |
| C. Disability Retirement  |          | Experience Tables   | Table 12 |
| D. Withdrawal             |          | Experience Tables   | Table 13 |
| E. Merit Salary Increases |          | Experience Tables   | Table 14 |



**California State Teachers' Retirement System**  
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**TABLE 10**  
**MORTALITY RATES**

<u>Active Members</u>		
<u>Age</u>	<u>Male</u>	<u>Female</u>
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

<u>Age</u>	<u>Retired Members</u>		<u>Beneficiaries</u>		<u>Disabled (After Year 3)</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
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	2.500	2.200
75	2.848	1.834	3.405	1.834	3.721	2.269
80	5.021	3.778	5.586	3.778	6.203	3.940
85	9.419	6.503	8.961	6.503	9.724	6.774
90	14.754	11.627	14.754	11.627	15.293	11.627
95	23.361	18.621	23.361	18.621	23.361	18.621
<b>Select rates for disability:</b>						
First year of disablement					11.4%	6.0%
Second year of disablement					7.7	3.8
Third year of disablement					6.2	3.0



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**TABLE 11**  
**SERVICE RETIREMENT**

<u>Age</u>	<u>Male</u>	<u>Female</u>
54	1.5%	1.5%
55	5.0	6.0
56	3.5	4.0
57	4.0	4.0
58	6.0	6.0
59	15.0	9.0
60	20.0	12.0
61	14.0	13.0
62	14.0	17.0
63	25.0	25.0
64	25.0	25.0
65	20.0	19.0
66	16.0	16.0
67	16.0	16.0
68	16.0	16.0
69	16.0	16.0
70	100.0	100.0



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**TABLE 12**  
**DISABILITY RETIREMENT**

<u>Age</u>	<u>Entry Ages - Male</u>		<u>Entry Ages - Female</u>	
	<u>Under 40</u>	<u>40 and Up</u>	<u>Under 40</u>	<u>40 and Up</u>
25	0.021%		0.030%	
30	0.030		0.030	
35	0.051		0.051	
40	0.120		0.090	
45	0.150	0.196%	0.141	0.231%
50	0.195	0.288	0.231	0.360
55	0.270	0.390	0.318	0.459
60	0.330	0.529	0.390	0.588
65	0.380	0.852	0.459	0.915



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**TABLE 13**  
**WITHDRAWAL**

<u>Year</u>	<u>Entry Ages - Male</u>				
	<u>Under 25</u>	<u>25 - 29</u>	<u>30 - 34</u>	<u>35 - 39</u>	<u>40 and Up</u>
1	12.5%	12.5%	12.5%	12.5%	12.5%
2	9.5	9.5	9.2	9.2	9.5
3	7.7	6.8	6.8	6.8	7.2
4	5.8	5.8	5.8	5.8	6.2
5	5.0	4.2	4.2	4.2	4.2
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	0.3				
35	0.3				
40	0.3				

  

<u>Year</u>	<u>Entry Ages - Female</u>				
	<u>Under 25</u>	<u>25 - 29</u>	<u>30 - 34</u>	<u>35 - 39</u>	<u>40 and Up</u>
1	10.0%	10.0%	10.0%	10.0%	10.0%
2	8.3	8.3	8.3	7.5	6.8
3	7.7	7.3	6.5	5.5	5.3
4	7.1	7.1	5.6	4.5	4.0
5	5.5	5.8	4.2	3.5	3.0
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	0.3				
35	0.3				
40	0.3				





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**TABLE 14**  
**MERIT SALARY INCREASES**

Yr.	Entry Age - Annual Increase in Salaries Due to Merit					
	<u>Under 25</u>	<u>25 - 29</u>	<u>30 - 34</u>	<u>35 - 39</u>	<u>40 - 44</u>	<u>45 &amp; up</u>
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					



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### SECTION 5

#### VALUATION DATA

The membership data for this actuarial valuation was supplied by CalSTRS 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.

We believe the membership data to be sufficient for the purposes of this valuation.

Tables 15 and 16 summarize the census data used in this valuation.



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**TABLE 15**  
**SUMMARY OF STATISTICAL INFORMATION**

	June 30, 2002	June 30, 2001
<b>Number of Members</b>		
Active Members	442,208	428,741
Inactive Members	32,772	0
Retirees and Beneficiaries	<u>0</u>	<u>0</u>
Total Number of Members	474,980	428,741
<b>Accumulated Account Balances</b>		
Member Contributions	\$ 711,439,790	\$ 213,168,807
Employer Contributions	<u>0</u>	<u>0</u>
	\$ 711,439,790	\$ 213,168,807
<b>Active Member Statistics</b>		
Annualized Salaries	\$21.7 billion	\$20.5 billion
Average Salary	\$ 49,144	\$ 47,801
Average Age	44.3 years	44.3 years
Average Service in DB Program	10.5 years	10.7 years

**TABLE 16**  
**ACTIVE MEMBERS BY AGE GROUP AND YEARS OF SERVICE**

Age Group	Service in the DB Program								Total
	0-1	1-5	6-10	11-15	16-20	21-25	26-30	Over 30	
Under 25	2,247	4,334							6,581
25 – 29	4,734	41,773	1,730						48,237
30 – 34	3,029	35,303	20,247	607					59,186
35 – 39	2,460	19,399	15,578	10,043	475				47,955
40 – 44	2,497	16,930	11,264	11,609	7,147	336			49,783
45 – 49	2,406	16,845	11,466	11,109	9,360	7,880	574		59,640
50 – 54	2,072	14,939	11,192	12,514	9,807	10,196	12,097	1,323	74,140
55 – 59	1,433	9,064	6,749	8,644	7,749	6,795	9,855	12,971	63,260
60 – 64	600	3,657	2,406	2,992	3,046	2,837	2,852	5,982	24,372
65 – 69	217	1,303	678	747	708	690	661	1,149	6,153
70 & Over	134	788	293	223	216	196	183	457	2,490
Unknown	12	310	89						411
Total	21,841	164,645	81,692	58,488	38,508	28,930	26,222	21,882	442,208



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### SECTION 6

#### GLOSSARY OF ACTUARIAL TERMINOLOGY

<b>Account Balance:</b>	The nominal account amount of an individual's benefit as of a specific date, determined in accordance with the terms of the plan. The Account Balance is accumulated with contributions and interest.
<b>Actuarial Assumptions:</b>	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.
<b>Actuarial Cost Method:</b>	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.
<b>Actuarial Gain or Loss:</b>	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.
<b>Actuarial Obligation:</b>	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.
<b>Actuarial Present Value:</b>	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.
<b>Actuarial Surplus:</b>	The excess, if any, of the Actuarial Value of Assets over the Actuarial Obligation.



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<b>Actuarial Valuation:</b>	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.
<b>Actuarial Value of Assets:</b>	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.
<b>Actuarial Equivalent:</b>	Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.
<b>Normal Cost:</b>	The actuarial present value of benefits expected to accrue in the plan year subsequent to the valuation date. The Normal Cost is equivalent to the expected Member and Employer contributions for the next year.
<b>Traditional Unit Credit Actuarial Cost Method:</b>	A method under which the Actuarial Obligation is equal to the actuarial present value of benefits for service accrued to the valuation date.
<b>Unfunded Actuarial Obligation:</b>	The excess, if any, of the Actuarial Obligation over the Actuarial Value of Assets.
<b>Valuation Date:</b>	June 30, 2002.