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August 14, 2008

Teachers' Retirement Board  
California State Teachers' Retirement System

**Re: Defined Benefit Program  
Actuarial Valuation as of June 30, 2007**

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, 2007. The major findings of the actuarial valuation are contained in the following report, which reflects the benefit provisions and contribution rates in effect as of the valuation date.

We certify that the information included in this report is complete and accurate to the best of our knowledge and belief. Please refer to Section 3 of this report for our full actuarial certification statement.

Milliman's work product was prepared exclusively for CalSTRS for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning CalSTRS operations, and uses CalSTRS data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

Milliman has been engaged by CalSTRS as an independent actuary. Any distribution of this report must be provided in its entirety including this cover letter, unless prior written consent is obtained from Milliman.

We would like express our appreciation to the CalSTRS staff who gave substantial assistance in supplying the data on which this report is based.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Mark O. Johnson".

Mark O. Johnson, FSA, MAAA  
Consulting Actuary

A handwritten signature in black ink, appearing to read "Nick J. Collier".

Nick J. Collier, ASA, EA, MAAA  
Consulting Actuary

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
DEFINED BENEFIT PROGRAM - 2007 ACTUARIAL VALUATION**

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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.

The key findings of this Actuarial Valuation are:

- ◆ **Funding Sufficiency** Our findings indicate that, as of June 30, 2007, the future revenue from contributions and appropriations for the DB Program is **not** expected to be sufficient to finance its obligations. This is consistent with our projections in all of the Actuarial Valuations since 2003.

The projected revenue shortfall is due primarily to investment return experience for the fiscal years ending in 2001, 2002, and 2003 that was significantly 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 any future period.

<i>(Percent of Earned Salaries)</i>	<b>2007 Valuation</b>	<b>2006 Valuation</b>
<b>Amortization Period based on Current Revenues</b>		
Total Level Rate over the Amortization Period	17.745%	17.656%
Normal Cost Rate	<u>17.285</u>	<u>16.820</u>
Amortization Rate	0.460%	0.836%
<i>Amortization Period (Based on current revenue projections)</i>	<i>Does not amortize</i>	<i>Does not amortize</i>
<b>Calculated Contribution Rate for 30-Year Funding Period</b>		
Normal Cost Rate	17.285%	16.820%
Amortization Rate	<u>4.071</u>	<u>4.168</u>
Total Level Rate over the Amortization Period	21.356%	20.988%
Estimated Additional Revenue Needed <i>(Based on current valuation assumptions)</i>	3.611%	3.332%

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Based on the current valuation results, the actuarial value of assets and assumptions about future experience, we find that a level contribution rate of 21.356% will amortize the Unfunded Actuarial Obligation over a thirty-year period. This is equivalent to an **increase of 3.611% of Earned Salaries** for a period of thirty years from the valuation date.

The above calculation is based on the June 30, 2007 actuarial value of assets. This value does not reflect the current deferred gains or any investment losses that have occurred since that date.

The excess of the expected total contribution over the current Normal Cost Rate represents a relatively small margin to finance the Unfunded Actuarial Obligation. Due primarily to the revised actuarial assumptions described later, the level of contributions available to fund the Unfunded Actuarial Obligation has decreased since the last valuation.

### ◆ 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 and there was an Actuarial Surplus as of June 30, 2007 related only to the 1990 Benefit Structure. Therefore, no additional supplemental contributions are called for at this time under the current law with respect to the benefit structure in effect in 1990.

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◆ **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 Obligation.

<i>(\$Millions)</i>	<b>2007 Valuation</b>	<b>2006 Valuation</b>
<b>Actuarial Obligation</b>	\$ 167,129	\$ 150,872
<b>Actuarial Value of Assets</b>	<u>146,419</u>	<u>131,237</u>
<b>Unfunded Actuarial Obligation</b>	\$ 20,710	\$ 19,635
<b>Funded Ratio</b>	88%	87%

Overall, the DB Program has a slightly better funded status than one year ago as measured by the Funded Ratio as of June 30, 2007.

Based on the 2006 Actuarial Valuation, the Unfunded Actuarial Obligation was expected to grow from \$19.6 billion to \$21.4 billion by June 30, 2007. The actual Unfunded Actuarial Obligation of \$20.7 billion was determined including the impact of a net actuarial gain of \$690 million from the expected level. A brief summary of the actuarial gains and losses for the year is shown below and described more fully in Section 6 of this report.

<i>(\$Millions)</i>	<b>2007 Valuation</b>
<b>Unfunded Actuarial Obligation</b>	
Amount on July 1, 2006	\$ 19,635
Increase due to interest and under-funding	<u>1,765</u>
Expected Amount on July 1, 2007	\$ 21,400
<b>Actuarial (Gains) and Losses by Source</b>	
Investment return on the Actuarial Value of Assets, including recognition of prior deferred investment losses	\$ (8,184)
Revisions to Actuarial Assumptions & Methods	5,097
Salary increases more than assumed	1,558
Change in SBMA and THBF Reserves	813
All other sources combined	<u>26</u>
<b>Net Actuarial (Gains) and Losses</b>	\$ (690)
<b>Unfunded Actuarial Obligation July 1, 2007</b>	\$ 20,710

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◆ **Changes since the 2006 Valuation**

There were no legislative changes since the prior report that had an impact on this valuation.

The actuarial assumptions and actuarial methods used in this valuation were revised based on the 2007 Actuarial Experience Analysis adopted by the Board on April 3, 2008.

Note there was an additional change to the calculation methods used to determine the Actuarial Obligation for inactive members. Currently, the present value of benefits for inactive members is calculated as a multiple of the member's contribution balance. This is because there is insufficient earnings information supplied on the data to directly calculate benefits for this group. Based on our review of the most recent data, we found that this multiplier should be increased. This change was the primary factor in the increase in the Actuarial Obligation for inactive members shown in line 4 of the Summary of Key Valuation Results.

◆ **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.

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**Summary of Key Valuation Results**

	<b>2007 Valuation</b>	<b>2006 Valuation</b>	<b>Percentage Change</b>
<b>1. Total Membership</b>			
A. Active Members	455,693	453,365	0.5%
B. Inactive Members	141,450	133,601	5.9%
C. Retired Members and Beneficiaries	<u>215,641</u>	<u>207,846</u>	3.8%
D. Total Membership	812,784	794,812	2.3%
<b>2. Earned Salaries as of Valuation Date (All Members)</b>			
A. Annual Total (\$Millions)	\$ 25,906	\$ 24,240	6.9%
B. Annual Average per Active Member	\$ 56,849	\$ 53,466	6.3%
<b>3. Average Annual Allowance Payable</b>			
A. Service Retirement	\$ 34,536	\$ 32,892	5.0%
<b>4. Actuarial Obligation (\$Millions)</b>			
A. Active Members	\$ 86,999	\$ 79,120	10.0%
B. Inactive Members	4,518	2,978	51.7%
C. Retired Members and Beneficiaries	<u>75,612</u>	<u>68,774</u>	9.9%
D. Total	\$ 167,129	\$ 150,872	10.8%
<b>5. Value of System Assets (\$Millions)</b>			
A. Fair Value	\$ 166,903	\$ 140,192	19.1%
B. Smoothing Reserve	<u>(15,076)</u>	<u>(4,360)</u>	245.8%
C. Actuarial Value	\$ 151,827	\$ 135,832	11.8%
D. Ratio of Actuarial Value to Fair Value	91%	97%	
E. Less SBMA Reserve	(3,400)	(2,908)	16.9%
F. Less THBF Allocation	<u>(2,008)</u>	<u>(1,687)</u>	19.0%
G. Net Actuarial Value	\$ 146,419	\$ 131,237	11.6%
<b>6. Funded Status</b>			
A. Unfunded Actuarial Obligation (\$Millions)	\$ 20,710	\$ 19,635	5.5%
B. Funded Ratio ( 5G ÷ 4D )	88%	87%	
<b>7. Contribution Rates (percent of salaries)</b>			
A. 30-Year Projected Revenue	17.745%	17.656%	0.5%
B. Normal Cost Rate	<u>17.285</u>	<u>16.820</u>	2.8%
C. Available for Amortization of UAO ( 7A – 7B )	0.460%	0.836%	(45.0)%
D. Period to Amortize	Does not amortize	Does not amortize	
E. Projected 30-Year Level Funding Rate	21.356%	20.988%	1.8%
F. Projected Shortfall (Surplus) ( 7E – 7A )	3.611%	3.332%	8.4%

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### 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, 2007.

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, 2007. All of the assets of the Program are available to finance future benefits and expenses, except those allocated for the Supplemental Benefit Maintenance Account (SBMA) and the Teachers' Health Benefits Fund (THBF).

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.

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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, 2007.

Appendix B A summary of the actuarial methods and assumptions used to estimate actuarial obligations 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.

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**Section 3**  
**Actuarial Certification**

The major findings of the 2007 Actuarial Valuation are contained in this report. This report reflects the benefit provisions and contribution rates 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, 2007.

In preparing the valuation report, we relied without audit on information furnished by CalSTRS. 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. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

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. 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 2007 valuation.

Future actuarial measurements of the DB Program will vary from those presented in this report due to such factors as the following: actual experience differs from that projected by the assumptions, actuarial assumptions are revised in the future, or changes are made to the benefit or contribution provisions in the applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

On the basis of the foregoing, we hereby certify that, to the best of our 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 Actuarial Standards of Practice promulgated by the Actuarial Standards Board and applicable Guides to Professional Conduct, amplifying Opinions, and supporting Recommendations of the American Academy of Actuaries.

I, Mark Johnson, am a member of the American Academy of Actuaries and a Fellow of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

I, Nick Collier, am a member of the American Academy of Actuaries and an Associate of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

  
Mark O. Johnson, FSA, MAAA  
Consulting Actuary

  
Nick J. Collier, ASA, EA, MAAA  
Consulting Actuary

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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 with new entrants, the actuarial obligation, or liabilities, will generally exceed the actuarial value of assets. This deficiency has to be provided by future contributions, net actuarial gains due to experience more favorable than assumed or, to some extent, net growth in the number of active members. 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 Earned Salaries, so it is best expressed as a rate.

The following chart shows the Normal Cost Rate has increased from 16.820% to 17.285% since the last valuation. The Normal Cost Rate was expected to increase to 17.405% of Earned Salaries based on the adopted actuarial assumptions contained in the 2007 Actuarial Experience Analysis report. The subsequent decrease is due to further software refinements and demographic changes in the membership. **Table 1** provides more details on the calculation of the Normal Cost and Normal Cost Rates.

<i>(\$Millions)</i>			
	<b>Earned Salaries</b>	<b>Normal Cost</b>	<b>Normal Cost Rate</b>
June 30, 2006	\$ 24,263		
Prior Assumptions		\$ 4,081	16.820%
Revised Assumptions		\$ 4,223	17.405%
June 30, 2007	\$ 26,202	\$ 4,529	17.285%

The Normal Cost Rate is expected to remain fairly stable as a percentage of Earned Salaries as long as the benefit

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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.

<i>(\$Millions)</i>	<b>2007 Valuation</b>	<b>2006 Valuation</b>
Benefits Being Paid	\$ 75,612	\$ 68,774
Inactive Deferred Benefits	4,518	2,978
Active Members' Benefits	<u>140,703</u>	<u>128,080</u>
Present Value of Projected Benefits	\$ 220,833	\$ 199,832
Present Value of Future Normal Costs	<u>53,704</u>	<u>48,960</u>
Actuarial Obligation		
Prior Assumptions		\$ 150,872
Current Assumptions	\$167,129	\$ 155,000

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.

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**Table 1      Normal Cost**

<i>(\$Millions)</i>	<b>2007</b>	<b>2006</b>
Estimated Annual Earned Salaries <sup>(1)</sup>	\$ 26,202	\$ 24,263
Present Value of Future Normal Costs for Current Active Members	\$ 53,704	\$ 48,960
Present Value of Future Earned Salaries for Current Active Members	\$310,698	\$291,080
 <b>Normal Cost</b>		
Retirement	\$ 4,139	\$ 3,731
Disability	187	139
Death	55	64
Withdrawal	<u>148</u>	<u>147</u>
Total Normal Cost	\$ 4,529	\$ 4,081
 <b>Normal Cost Rate Percent of Earned Salaries</b>		
Retirement	15.796%	15.377%
Disability	0.714	0.573
Death	0.210	0.264
Withdrawal	<u>0.565</u>	<u>0.606</u>
Total Normal Cost <sup>(2)</sup>	<b>17.285%</b>	<b>16.820%</b>

Note:

- (1) Annual rate of Earned Salaries for active members on the valuation date, excluding active members over age 70 on the valuation date that are assumed to retire immediately and, therefore, do not generate a Normal Cost.
- (2) After revising the actuarial assumptions as adopted by the Board pursuant to the 2007 Actuarial Experience Analysis, the 2006 Normal Cost Rate was estimated to be 17.405%. The subsequent decrease is due to further software refinements and demographic changes in the membership.

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**Table 2 Actuarial Obligation**

<i>(\$Millions)</i>	<b>2007</b>	<b>2006</b>
Present Value of Projected Benefits to All Current Members		
Benefits Currently Being Paid		
Service Retirement	\$ 69,836	\$ 63,360
Disability	2,048	1,981
Survivors	<u>3,728</u>	<u>3,433</u>
Total	75,612	68,774
Benefits to Inactive Members	4,518	2,978
Benefits to Active Members		
Retirement	135,723	123,353
Disability	3,177	2,586
Death	1,228	1,476
Withdrawal	<u>575</u>	<u>665</u>
Total	140,703	128,080
Total Present Value of Benefits	\$220,833	\$199,832
Present Value of Future Normal Costs	<u>53,704</u>	<u>48,960</u>
<b>Actuarial Obligation <sup>(1)</sup></b>	<b>\$167,129</b>	<b>\$150,872</b>

Note:

- (1) After revising the actuarial assumptions as adopted by the Board pursuant to the 2007 Actuarial Experience Analysis, the 2006 Actuarial Obligation was estimated to be \$155,000 million.

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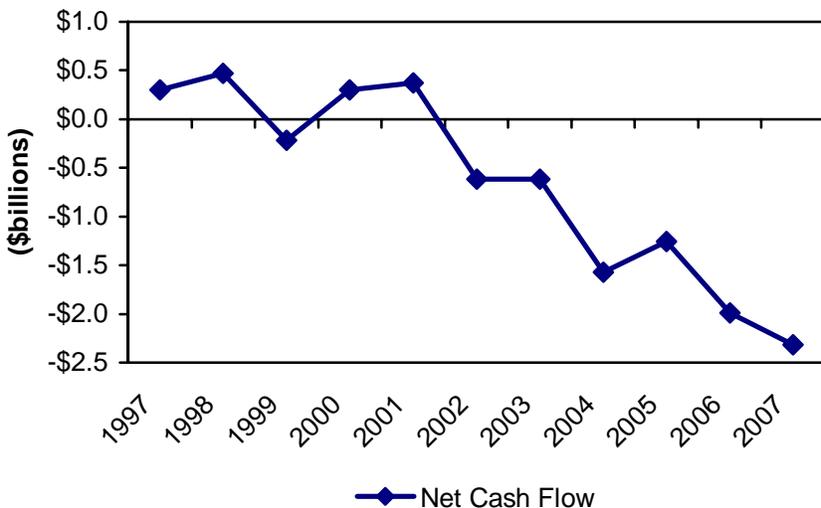
## Section 5 Valuation Assets



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, 2007. 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 Fair Market Value of assets was reported as \$166,903 million as of June 30, 2007, up from \$140,192 million as of June 30, 2006. **Table 4** shows the asset changes for the period.

As shown in Table 4, the net cash flow (contributions less benefits and expenses) continues to be negative. As illustrated in the following graph, 2004 was inconsistent with the trend over the last few years, which was due to a \$500 million reduction in the State's contribution to the SBMA.



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 Actuarial Value of Assets from the Actuarial Value of Assets as of the previous year. The projection uses the assumed rate of investment return, then

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recognizes only one-third of the difference between the expected value and the Fair Market Value to arrive at the Actuarial Value of Assets. The calculation of the Actuarial Value of Assets is shown in **Table 5** and the result is shown below.

<i>(\$Millions)</i>	<b>June, 2007</b>	<b>June, 2006</b>
<b>Fair Market Value</b>	\$ 166,903	\$ 140,192
<b>Actuarial Value of Assets</b>	\$ 151,827	\$ 135,832
<b>Deferred Investment Gains or (Losses)</b>	\$ 15,076	\$ 4,360
Ratio of AVA to FMV	91%	97%

Due to the asset smoothing method, there are investment gains of \$15,076 million that have not yet been recognized (the difference between the Actuarial and Fair Market Value of Assets). This means the relatively large investment gains incurred over the last four fiscal years have not been fully recognized as of this time, and a portion of these recent investment gains is set aside for the contingency of future investment losses. Absent investment returns in future years less than the assumed rate to offset the deferred investment gains, the current gains will gradually be reflected in the Actuarial Value of Assets.

If the future returns on the Fair Market Value of Assets are 8% each year, then as the current deferred gains flow through the smoothing method and are recognized, future valuations will show an actuarial gain. The result will be a slow increase in the DB Program's funded status, ultimately decreasing the Unfunded Actuarial Obligation by the \$15,076 million of currently deferred investment gains.

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

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**Table 3 Statement of Program Assets**

<i>(\$Millions)</i>	June, 2007	June, 2006
<b>Invested Assets</b>		
Short-term	\$ 1,718	\$ 1,496
Debt Securities	34,096	31,300
Equity	101,876	88,247
Alternative	12,635	8,610
Real Estate	<u>18,013</u>	<u>11,792</u>
Total Investments <sup>(1)</sup>	\$ 168,338	\$ 141,445
<b>Cash and Cash Equivalents</b>	425	309
<b>Receivables</b>	4,037	3,227
<b>Liabilities</b> <sup>(1)</sup>	<u>(5,897)</u>	<u>(4,789)</u>
<b>Fair Market Value of Net Assets</b>	<b>\$ 166,903</b>	<b>\$ 140,192</b>

Note:

<sup>(1)</sup> Excludes offsetting entries from Securities Lending Collateral and Obligation

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**Table 4 Statement of Changes in Program Assets**

<i>(\$Millions)</i>	<b>June, 2007</b>	<b>June, 2006</b>
<b>Contributions</b>		
Members	\$ 1,691	\$ 1,626
Employers	2,168	2,094
State of California	<u>1,084</u>	<u>1,019</u>
Total Contributions	4,943	4,739
<b>Benefits and Expenses</b>		
Retirement, Death, and Survivors	(6,840)	(6,334)
Refunds of Member Contributions	(87)	(83)
Purchasing Power Benefits	(230)	(215)
Administrative Expenses	<u>(103)</u>	<u>(94)</u>
Total Benefits and Expenses	(7,260)	(6,726)
<b>Net Cash Flow</b>	<b>\$ (2,317)</b>	<b>\$ (1,987)</b>
<b>Investment Income</b>		
Realized Income	\$ 4,670	\$ 3,911
Net Appreciation	24,424	11,867
Net Securities Lending Income	80	67
Investment Expenses	(146)	(113)
Other (Expense) Income	<u>(0)</u>	<u>(0)</u>
Net Investment Return	29,028	15,732
<b>Net Increase</b>	<b>\$ 26,711</b>	<b>\$ 13,745</b>
<b>Fair Market Value of Net Assets</b>		
Beginning of Year	<u>140,192</u>	<u>126,447</u>
<b>End of Year</b>	<b>\$ 166,903</b>	<b>\$ 140,192</b>
Estimated Net Rate of Return <sup>(1)</sup>	20.9%	12.5%

Note:

<sup>(1)</sup> Estimated return on Fair Market Value basis, net of all investment expenses and assuming uniform cash flow throughout the year

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**Table 5 Actuarial Value of Assets**

<i>(\$Millions)</i>	<b>June, 2007</b>	<b>June, 2006</b>
<b>Actuarial Value at Beginning of Year</b>	\$ 135,832	\$ 125,665
Contributions	4,943	4,739
Benefits and Expenses	(7,260)	(6,726)
Expected Return at 8%	<u>10,774</u>	<u>9,974</u>
<b>Expected Actuarial Value End of Year</b>	\$ 144,289	\$ 133,652
<b>Fair Market Value</b>	<u>166,903</u>	<u>140,192</u>
<b>Difference between Fair Market Value and Expected Actuarial Value</b>	\$ 22,614	\$ 6,540
Recognition Factor	One-third	One-third
Recognized Gain or Loss	\$ 7,538	\$ 2,180
<b>Actuarial Value at End of Year</b>	<b>\$ 151,827</b>	<b>\$ 135,832</b>
<b>Deferred Investment Gains or (Losses)</b>	<b>\$ 15,076</b>	<b>\$ 4,360</b>
<i>Ratio of Actuarial Value of Assets to Fair Market Value of Assets</i>	<i>91%</i>	<i>97%</i>
Estimated Net Rate of Return <sup>(1)</sup>	13.6%	9.7%

Note:

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

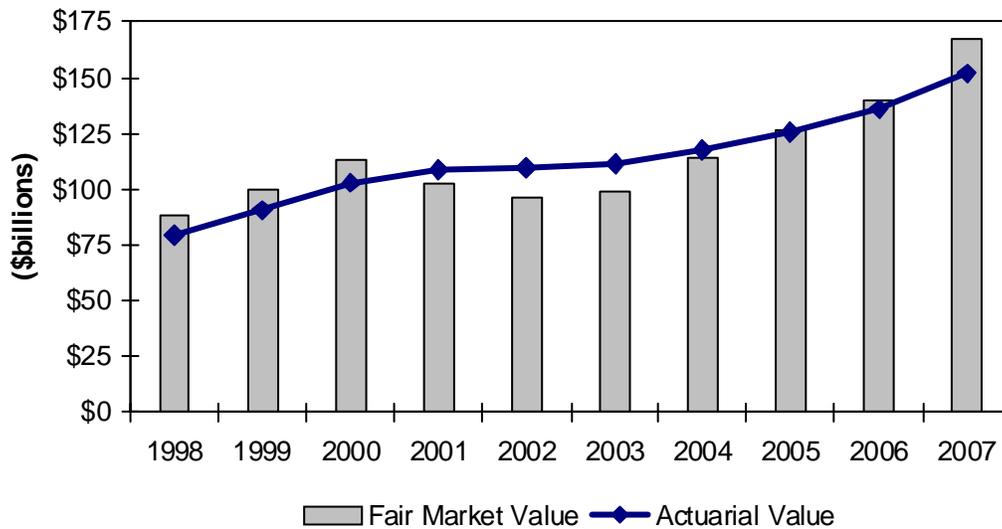
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**Table 6 History of Actuarial Value of Assets**

<i>(\$Millions)</i>				
June 30 <sup>(1)</sup>	Fair Market Value	Estimated Return <sup>(2)</sup>	Actuarial Value	Ratio of Actuarial to Market
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
2004	113,815	16.6	117,206	103
2005	126,447	12.3	125,665	99
2006	140,192	12.5	135,832	97
2007	166,903	20.9	151,827	91

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



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**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 Obligation. A Funded Ratio of 100% means the Value of Assets equals the Actuarial Obligation, and the DB Program could be financed by contributions equal to the Normal Cost, if all future experience emerges as assumed. The Funded Ratio is shown below and in **Table 7**.

<i>(\$Millions)</i>	<b>2007 Valuation</b>	<b>2006 Valuation</b>
Actuarial Obligation	\$ 167,129	\$ 150,872
Actuarial Value of Assets		
From Table 5	151,827	135,832
Less SBMA Reserve	(3,400)	(2,908)
Less THBF Allocation	<u>(2,008)</u>	<u>(1,687)</u>
Net for Funding	146,419	131,237
Unfunded Actuarial Obligation	\$ 20,710	\$ 19,635
<b>Funded Ratio (on A.V.A.)</b>	<b>88%</b>	<b>87%</b>
<i>Alternate Funded Ratio (based on Fair Market Value)</i>	<i>97%</i>	<i>90%</i>

Overall, the DB Program is in a slightly better financial condition than one year ago as measured by the Funded Ratio as of June 30, 2007. However, due to the significant investment gains for the 2006-07 year, the Alternate Funded Ratio using the Fair Market Value of assets has increased even more.

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

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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 Teachers' Health Benefits Fund (THBF). 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.

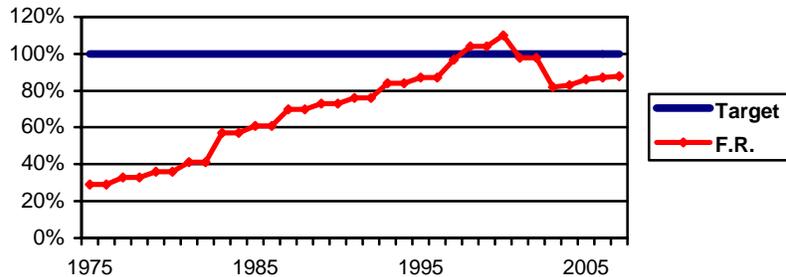
The following table shows a history of the Funded Status of the DB Program.

<i>(\$Millions)</i>				
YE	Actuarial Obligation	Actuarial Value of Assets	Unfunded Actuarial Obligation	Funded Ratio
<b>1975</b>	<b>\$ 12,834</b>	<b>\$ 3,775</b>	<b>\$ 9,059</b>	<b>29%</b>
<b>1977</b>	15,203	5,019	10,184	33%
<b>1979</b>	17,971	6,488	11,483	36%
<b>1981</b>	22,545	9,345	13,200	41%
<b>1983</b>	26,553	15,023	11,530	57%
<b>1985</b>	<b>28,401</b>	<b>17,457</b>	<b>10,944</b>	<b>61%</b>
<b>1987</b>	34,637	24,401	10,236	70%
<b>1989</b>	40,266	29,327	10,939	73%
<b>1991</b>	47,100	36,001	11,099	76%
<b>1993</b>	53,581	45,212	8,369	84%
<b>1995</b>	<b>63,391</b>	<b>55,207</b>	<b>8,184</b>	<b>87%</b>
<b>1997</b>	69,852	67,980	1,872	97%
<b>1998</b>	74,234	77,290	(3,056)	104%
<b>1999</b>	86,349	90,001	(3,652)	104%
<b>2000</b>	93,124	102,225	(9,101)	110%
<b>2001</b>	109,881	107,654	2,227	98%
<b>2003</b>	131,777	108,667	23,110	82%
<b>2004</b>	138,254	114,094	24,160	83%
<b>2005</b>	<b>142,193</b>	<b>121,882</b>	<b>20,311</b>	<b>86%</b>
<b>2006</b>	150,872	131,237	19,635	87%
<b>2007</b>	167,129	146,419	20,710	88%

The historical Funded Ratios are plotted in the following graph. In years in which a valuation was not performed, the Funded Ratio from the previous year is used.

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**Historical Funded Ratio**



**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 last report are summarized in the following table and shown in **Table 8**.

<b>(\$Millions)</b>	<b>Expected Results</b>	<b>Actual Results</b>	<b>(Gain) or Loss</b>
Actuarial Obligation	\$ 160,290	\$ 167,129	\$ 6,839
Act. Value of Assets	<u>138,890</u>	<u>146,419</u>	<u>(7,529)</u>
Unfunded Act. Oblig.	\$ 21,400	\$ 20,710	\$ (690)
<b>Actuarial (Gains) or Losses by Source</b>			
Revised actuarial assumptions and methods			\$ 5,097
Salaries increased more than assumed			1,558
All other non-investment sources			<u>184</u>
(Gain) or Loss on the Actuarial Obligation			6,839
Investment Return on Actuarial Value of Assets			(8,184)
Contributions in excess of assumed			(158)
Change in the SBMA Reserve			492
Change in the Health Benefit Fund Allocation			<u>321</u>
(Gain) or Loss on the Actuarial Value of Assets			(7,529)
Total Actuarial (Gain) or Loss			\$ (690)

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<i>(\$Millions)</i>	<b>(Gain) or Loss</b>	
<b>Actuarial (Gains) or Losses on the Actuarial Obligation</b>		<b>Percent of Act. Oblig.</b>
Revised actuarial assumptions	\$ 5,097	3.1%
Salaries increased less than assumed	1,558	0.9
All other non-investment sources	<u>184</u>	<u>0.1</u>
(Gain) or Loss on the Actuarial Obligation	\$ 6,839	4.1%
<b>Actuarial (Gains) or Losses on the Actuarial Value of Assets</b>		<b>Percent of AVA</b>
Return on Actuarial Value of Assets	\$ (8,184)	(5.6)%
Contributions in excess of assumed	(158)	(0.1)
Change in the SBMA Reserve	492	0.3
Change in the THBF Allocation	<u>321</u>	<u>0.2</u>
(Gain) or Loss on the Actuarial Value of Assets	\$ (7,529)	(5.2)%

These gains and losses are within a reasonable range for variances in a single year.

Based on the 2006 Actuarial Valuation, the Unfunded Actuarial Obligation was expected to increase to \$21,400 million (See Table 14, 2006 report). The actual Unfunded Actuarial Obligation of \$20,710 million represents a net actuarial gain of \$690 million.

- The 2007 Actuarial Experience Analysis report adopted by the Board recommended a series of revisions to the actuarial assumptions. The net impact of these changes was to increase the Actuarial Obligation by \$4,128 million as of June of 2006 and \$4,606 as of June of 2007. In addition, we updated two procedures in our valuation: the timing of future monthly benefits and the method used to estimate future monthly benefits for current inactive members. The net impact of these two changes was to increase the Actuarial Obligation by \$491 million as of June of 2007.
- Salaries increased more than the previous actuarial assumptions, causing the Actuarial Obligation to increase by \$1,558 million more than expected. As history has shown, salary increases greater than those assumed are

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often offset in future years by actual salary increases less than those assumed. There was a corresponding \$690 million actuarial gain in the 2006 actuarial valuation. We expect to continue to see these fluctuations from year to year.

- All other non-investment experience represents only a relatively small portion of the expected Actuarial Obligation. These relatively minor net gains and losses indicate that the census is consistent from the prior period, and the actual experience tracked closely with the actuarial assumptions.
- On the asset side, there are a number of sources of the actuarial gain or loss. First, we identified an investment return on the Actuarial Value of Assets greater than the 8% assumption. Although the return on Fair Market Value was estimated at 20.9%, the return on the Actuarial Value of Assets was estimated at only 13.6% due to the recognition of only a portion of the current investment gains.
- We do not predict future changes in the SBMA Reserve and the THBF allocation in the DB Program valuation. The amount allocated to the SBMA Reserve increased by \$492 million over the year. The Board's allocation of funds for future costs associated with the THBF increased by \$321 million due to investment credits greater than the sum of all payments in the year. Any increase in these values results in an actuarial loss in the subsequent DB Program valuation.

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**Table 7      Funded Status**

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<i>(\$Millions)</i>	<b>2007</b>	<b>2006</b>
<b>Actuarial Obligation</b> <i>(Table 2)</i>	\$167,129	\$150,872
<b>Actuarial Value of Assets</b>		
Calculated <i>(Table 5)</i>	151,827	135,832
Less SBMA Reserve	(3,400)	(2,908)
Less THBF Allocation	<u>(2,008)</u>	<u>(1,687)</u>
Program Assets	146,419	131,237
<b>Unfunded Actuarial Obligation</b>	<b>\$ 20,710</b>	<b>\$ 19,635</b>
<b>Funded Ratio</b>	<b>88%</b>	<b>87%</b>

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Table 8 Actuarial Gains and Losses**

<i>(\$Millions)</i>	<b>Expected</b>	<b>Actual</b>	<b>(Gain) Loss</b>
<b>Actuarial Obligation</b>			
Actuarial Obligation June 30, 2006	\$150,872		
Normal Cost for 2006-07	4,375		
Benefits Paid (Excludes Purchasing Power)	(6,927)		
Expected Interest at 8%	<u>11,970</u>		
<b>Actuarial Obligation June 30, 2007</b>	<b>\$160,290</b>	<b>\$167,129</b>	<b>\$ 6,839</b>
<i>By Source:</i>			
<i>Actuarial Assumptions:</i>	<i>2007 Actuarial Experience Analysis as of June, 2007</i>		\$ 4,606
	<i>Updated Actuarial Methods</i>		491
<i>Rehired Members</i>			125
<i>Retiree Mortality</i>			(172)
<i>Active Member Mortality</i>			(4)
<i>Service Retirements</i>			283
<i>Terminations</i>			0
<i>Disablement</i>			88
<i>Salary increases more than assumed</i>			1,558
<i>All Other Non-investment Sources</i>			<u>(136)</u>
<i>Total (Gain) Loss on the Actuarial Obligation</i>			\$ 6,839
<b>Actuarial Value of Assets</b>			
Actuarial Value of Assets June 30, 2006	\$131,237		
Expected Contributions for 2006-07	4,188		
Benefits Paid (Excludes Purchasing Power)	(6,927)		
Expected Interest at 8% on A.V.A.	<u>10,392</u>		
<b>Actuarial Value of Assets June 30, 2007</b>	<b>\$138,890</b>	<b>\$146,419</b>	<b>\$ (7,529)</b>
<i>By Source: Investment Return on Actuarial Value of Assets (including the recognition of prior deferred investment gains and losses)</i>			
			\$ (8,184)
<i>Contributions in excess of assumed (including service purchases)</i>			
			(158)
<i>Change in SBMA Reserve</i>			
			492
<i>Change in Allocation for future THBF costs</i>			
			<u>321</u>
<i>Total (Gain) Loss on the Actuarial Value of Assets</i>			\$ (7,529)
<b>Unfunded Actuarial Obligation</b>	<b>\$ 21,400</b>	<b>\$ 20,710</b>	<b>\$ (690)</b>

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**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.

	<b>2007 Valuation</b>	<b>2006 Valuation</b>
<b>Normal Cost Deficit – 1990 Benefit Structure</b>		
Normal Cost Rate	14.590%	14.273%
Revenue for 1990 Benefits	<u>16.000</u>	<u>16.000</u>
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 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 a 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. Due to the enhanced retirement benefits enacted since 1990, we are

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using a separate set of retirement probabilities to evaluate the 1990 Benefit Structure.

The Actuarial Obligation related to the 1990 Benefit Structure is \$138.2 billion. This compares to the Actuarial Obligation for the DB Program of \$167.1 billion.

<i>(\$Millions)</i>	<b>2007 Valuation</b>	<b>2006 Valuation</b>
<b>Actuarial Obligation – 1990 Benefit Structure</b>		
Value of Projected Benefits	\$ 183,686	\$ 167,084
Value of Future Normal Costs	<u>45,498</u>	<u>41,288</u>
Actuarial Obligation	\$ 138,188	\$ 125,796

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, 2007. 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.

<i>(\$Millions)</i>	<b>June, 2007</b>	<b>June, 2006</b>
<b>Asset Adjustment – 1990 Benefit Structure</b>		
Actuarial Value for DB Program	\$ 146,419	\$ 131,237
Adjustments per Table 9	3,155	2,163
Board's THBF allocation	<u>2,008</u>	<u>1,687</u>
Actuarial Value of Assets	\$ 151,582	\$ 135,087

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 THBF costs because it was established subsequent to 1990.

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The following table summarizes the Funded Status of the 1990 Benefit Structure as detailed in **Table 10**. The 1990 Benefit Structure has an Actuarial Surplus.

<i>(\$Millions)</i>	<b>2007 Valuation</b>	<b>2006 Valuation</b>
<b>Funded Status – 1990 Benefit Structure</b>		
Actuarial Obligation	\$ 138,188	\$ 125,796
Actuarial Value of Assets	<u>151,582</u>	<u>135,087</u>
Unfunded Actuarial Obligation	\$ (13,394)	\$ (9,291)
Funded Ratio	110%	107%

**Supplemental State Contributions:** The statute calls for a supplemental State contribution if one of the two conditions described above is met. Since neither triggering condition is met in the 2007 Actuarial Valuation, additional funding from the State under this statutory provision is not required at this time.

The funded status of the 1990 Benefit Structure in future years is difficult to predict with certainty 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 may 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, and if experience is consistent with the actuarial assumptions, we believe the 1990 Benefit Structure will continue to have an Actuarial Surplus.

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**Table 9      Asset Adjustment for 1990 Benefit Structure**

<i>(\$Millions)</i>	<b>2007</b>	<b>2006</b>
<b>Assets Allocated to Post-1990 Benefit Increases</b>		
Allocated Market Value at Beginning of Year	\$ 2,232	\$ 1,330
Contributions During the Year		
EC §22951 at 0.250% of Earned Salaries	(66)	(62)
EC §22955 at 2.017% of second preceding fiscal year Earned Salaries <sup>(1)</sup>	(481)	(348)
2% DBS redirection reallocated to DB Program	555	521
THBF costs reallocated to DB Program	<u>32</u>	<u>30</u>
Total Adjustment to Contributions	40	141
Benefits Paid During the Year		
Post-1990 Benefits Paid During the Year	784	677
2% DBS redirection reallocated to DB Program	<u>(115)</u>	<u>(112)</u>
Total Adjustment to Benefits Paid	669	565
Estimated Investment Earnings for the Year <sup>(2)</sup>	<u>527</u>	<u>196</u>
<b>Total Allocated Market Value at End of Year</b>	<b>\$ 3,468</b>	<b>\$ 2,232</b>
Ratio of Actuarial Value to Market Value <sup>(3)</sup>	90.967%	96.890%
<b>Actuarial Value of Assets for Post-1990 Benefit Increases</b>	<b>\$ 3,155</b>	<b>\$ 2,163</b>

Note:

- (1) Includes a 2006 adjustment for an overpayment of \$121 million due to a recalculation of creditable earnings for prior years.
- (2) Based on Fair Market Value and uniform cash flow for contributions, benefits, and expenses. The rates of return used in these calculations were 12.54% for 2005-06 and 20.88% for 2006-07.
- (3) Developed from Table 5

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**Table 10 Funding Sufficiency for 1990 Benefit Structure**

(\$Millions)	2007	2006
<b>Actuarial Obligation</b>		
Present Value of Projected Benefits		
Benefits Currently Being Paid	\$ 66,161	\$ 61,208
Benefits to Inactive Members	4,387	2,838
Benefits to Active Members	<u>113,138</u>	<u>103,038</u>
Total	\$183,686	\$167,084
Present Value of Future Normal Costs	<u>45,498</u>	<u>41,288</u>
Actuarial Obligation	\$138,188	\$125,796
<b>Actuarial Value of Assets</b>		
Actuarial Value of Assets (Table 7)	\$146,419	\$131,237
Plus, Asset Adjustment (Table 9)	3,155	2,163
Plus, Allocation to Health Benefits	<u>2,008</u>	<u>1,687</u>
Net Assets Available	\$151,582	\$135,087
<b>Funded Status</b>		
Actuarial Obligation	\$138,188	\$125,796
Actuarial Value of Assets	<u>151,582</u>	<u>135,087</u>
Unfunded Actuarial Obligation (Surplus)	\$ (13,394)	\$ (9,291)
Funded Ratio	110%	107%
<b>Amortization Period</b>		
Revenue for 1990 Benefits	16.000%	16.000%
Normal Cost Rate for 1990 Benefits	(14.590)	(14.273)
EC 22955(b)	<u>0.000</u>	<u>0.000</u>
Revenue Available for Amortization	1.410%	1.727%
Amortization Period	<i>Amortization Not Required</i>	<i>Amortization Not Required</i>

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**Table 11      Amortization of 1990 Unfunded Actuarial Obligation**

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<i>(\$Millions)</i>		Beginning Unfunded Act. Oblig.	Amortization Payment			Interest Charge at 8%	Ending Unfunded Act. Oblig.
Year	FYE		16% Contrib.	Normal Cost	Available Amtzn.		
1	2008	\$(13,394)	\$ 4,494	\$ 4,098	\$ 396	\$ (1,087)	\$(14,877)
2	2009	(14,877)					

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**Section 8  
Funding Sufficiency**



The contributions to fund the DB Program include those listed below and described in **Table 12**, including reference to the appropriate section of the California Education Code. 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.

<b>Source of Revenue</b>	<b>Current Rate</b>	<b>Equivalent Rate</b>
Members	8.000%	8.000%
Directed to DBS Accounts	(2.000)	(0.356)
Employers	8.000	8.000
Employers	0.250	0.250
State	2.017	1.851
State – 1990 Benefit Structure	0.000	<u>0.000</u>
Equivalent Level Contribution Rate over 30 Years		<b>17.745%</b>

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 a reduction in the value of contributions of only 0.356% of future salaries.

The State contribution rate will be 2.017% of the second preceding fiscal year Earned Salaries which is equivalent to a lesser percentage of current Earned Salaries. For example, the State contribution for the 2007-08 will be equal to 2.017% of the 2005-06 Earned Salaries. Based on two years of known future contributions and projections for the other years, the equivalent rate for the thirty-year period is 1.851% of current Earned Salaries.

As demonstrated in Tables 10 and 11, the supplemental contribution from the State for the 1990 benefit structure is not needed at this time.

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

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The calculation of the equivalent rates in **Table 13** results in 17.745% 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. This is consistent with our projections from the previous four valuations. **Table 15** summarizes these findings.

	<b>2007 Valuation</b>	<b>2006 Valuation</b>
Normal Cost Rate	17.285%	16.820%
Amortization Rate	<u>4.071</u>	<u>4.168</u>
Total Level Rate over a 30-Year Period	21.356%	20.988%
Projected Revenue	17.745%	17.656%
Estimated Additional Revenue Needed	3.611%	3.332%

The DB Program has a slightly better funded status than one year ago. However, the future thirty-year funding requirement is somewhat higher as a percentage of future salaries. It is clear that based on the current data, methods, and assumptions, the projected revenue for the DB Program is not sufficient.

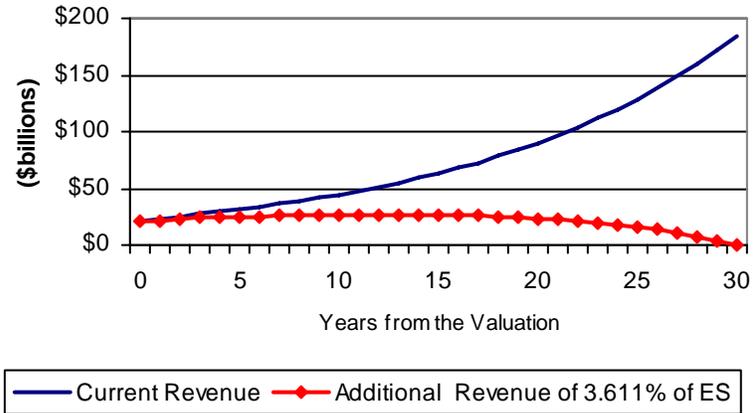
**Table 16** (in the same format as Table 14) shows the amortization of the Unfunded Actuarial Obligation over a thirty-year period **IF contribution revenue is increased by 3.611% of current year Earned Salaries**. We did not address the source of the additional revenue as it is not relevant to the amortization schedule.

The following graph illustrates the expected amortization of the Unfunded Actuarial Obligation with and without the additional revenue stream.

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Projected Unfunded Actuarial Obligation**



One of the future contingencies that may lessen the impact of the funding shortage is the potential growth of the active DB Program membership. 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 for additional members will provide added resources to finance the current Unfunded Actuarial Obligation. However, as the total current contribution rate is only slightly greater than the Normal Cost Rate, an increasing active population will not have a significant impact.

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**Table 12      Contributions**

		<b>Current Rate</b>	<b>Equivalent Rate <sup>(1)</sup></b>
EC 22901	Members	8.000%	8.000%
EC 22901.5	Directed to DBS Accounts <sup>(2)</sup>	(2.000)	(0.356)
EC 22950 & 22951	Employers	8.250	8.250
EC 22950 (c)	Employers for THBF <sup>(3)</sup>	<i>as needed</i>	0.000
EC 22955 (a)	State <sup>(4)</sup>	2.017	1.851
EC 22955 (b)	State <sup>(5)</sup>	0.000	<u>0.000</u>
<b>Equivalent Level Contribution Rate over 30-Year Period</b>			<b>17.745%</b>

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 was adequately funded as of June 30, 2007.

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**Table 13 30-Year Projection of Contributions**

<i>(\$Millions)</i>							
<b>FYE</b>	<b>Projected Salaries</b>	<b>Member 22901</b>	<b>Member DBS 22901.5</b>	<b>Employer 22950 &amp; 22951</b>	<b>State 22955(a)</b>	<b>State 22955(b)</b>	<b>Total Contrib.</b>
2008	\$ 28,088	\$ 2,247	\$ (562)	\$ 2,318	\$ 501	\$ 0	\$ 4,504
2009	29,282	2,343	(586)	2,415	536	0	4,708
2010	30,527	2,442	(611)	2,519	567	0	4,917
2011	31,824	2,546	(318)	2,625	591	0	5,444
2012	33,177	2,654	0	2,737	616	0	6,007
2013	34,587	2,767	0	2,853	642	0	6,262
2014	36,056	2,885	0	2,974	669	0	6,528
2015	37,589	3,007	0	3,101	698	0	6,806
2016	39,186	3,135	0	3,233	727	0	7,095
2017	40,852	3,268	0	3,371	758	0	7,397
2018	42,588	3,407	0	3,514	790	0	7,711
2019	44,398	3,552	0	3,663	824	0	8,039
2020	46,285	3,703	0	3,818	859	0	8,380
2021	48,252	3,860	0	3,980	896	0	8,736
2022	50,303	4,024	0	4,150	934	0	9,108
2023	52,441	4,195	0	4,327	973	0	9,495
2024	54,669	4,374	0	4,509	1,015	0	9,898
2025	56,993	4,559	0	4,702	1,058	0	10,319
2026	59,415	4,753	0	4,902	1,103	0	10,758
2027	61,940	4,955	0	5,110	1,150	0	11,215
2028	64,573	5,166	0	5,327	1,198	0	11,691
2029	67,317	5,385	0	5,554	1,249	0	12,188
2030	70,178	5,614	0	5,790	1,302	0	12,706
2031	73,160	5,853	0	6,035	1,358	0	13,246
2032	76,270	6,102	0	6,292	1,415	0	13,809
2033	79,511	6,361	0	6,559	1,476	0	14,396
2034	82,890	6,631	0	6,839	1,538	0	15,008
2035	86,413	6,913	0	7,129	1,604	0	15,646
2036	90,086	7,207	0	7,432	1,672	0	16,311
2037	93,914	7,513	0	7,748	1,743	0	17,004
<b>PV <sup>(1)</sup></b>	<b>\$508,773</b>	<b>\$ 40,702</b>	<b>\$ (1,809)</b>	<b>\$ 41,974</b>	<b>\$ 9,416</b>	<b>\$ 0</b>	<b>\$ 90,283</b>
<b>Level Rate <sup>(2)</sup></b>		<b>8.000%</b>	<b>(0.356)%</b>	<b>8.250%</b>	<b>1.851%</b>	<b>0.000%</b>	<b>17.745%</b>

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.

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**Table 14 Amortization of Unfunded Actuarial Obligation <sup>(1)</sup>**

(\$Millions)		Beginning Unfunded Act. Oblig.	Amortization Payment			Interest Charge at 8%	Ending Unfunded Act. Oblig.
Year	FYE		Total Contrib.	Normal Cost	Available Amtzn.		
1	2008	\$20,710	\$4,504	\$4,855	\$(351)	\$1,671	\$22,732
2	2009	22,732	4,708	5,061	(353)	1,832	24,917
3	2010	24,917	4,917	5,277	(360)	2,008	27,285
4	2011	27,285	5,444	5,501	(57)	2,185	29,527
5	2012	29,527	6,007	5,735	272	2,351	31,606
6	2013	31,606	6,262	5,978	284	2,517	33,839
7	2014	33,839	6,528	6,232	296	2,696	36,239
8	2015	36,239	6,806	6,497	309	2,887	38,817
9	2016	38,817	7,095	6,773	322	3,093	41,588
10	2017	41,588	7,397	7,061	336	3,315	44,567
11	2018	44,567	7,711	7,361	350	3,552	47,769
12	2019	47,769	8,039	7,674	365	3,807	51,211
13	2020	51,211	8,380	8,000	380	4,082	54,913
14	2021	54,913	8,736	8,340	396	4,378	58,895
15	2022	58,895	9,108	8,695	413	4,695	63,177
16	2023	63,177	9,495	9,064	431	5,038	67,784
17	2024	67,784	9,898	9,450	448	5,404	72,740
18	2025	72,740	10,319	9,851	468	5,801	78,073
19	2026	78,073	10,758	10,270	488	6,227	83,812
20	2027	83,812	11,215	10,706	509	6,686	89,989
21	2028	89,989	11,691	11,161	530	7,178	96,637
22	2029	96,637	12,188	11,636	552	7,709	103,794
23	2030	103,794	12,706	12,130	576	8,281	111,499
24	2031	111,499	13,246	12,646	600	8,896	119,795
25	2032	119,795	13,809	13,183	626	9,558	128,727
26	2033	128,727	14,396	13,744	652	10,272	138,347
27	2034	138,347	15,008	14,328	680	11,041	148,708
28	2035	148,708	15,646	14,937	709	11,868	159,867
29	2036	159,867	16,311	15,571	740	12,761	171,888
30	2037	171,888	17,004	16,233	771	13,721	184,838

Note:

<sup>(1)</sup> Based on the actuarial value of assets.

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**Table 15      Funding Sufficiency**

<i>(\$Millions)</i>	<b>June, 2007</b>	<b>June, 2006</b>
<b>Funded Status (Table 7)</b>		
Actuarial Obligation	\$ 167,129	\$ 150,872
Actuarial Value of Assets	<u>146,419</u>	<u>131,237</u>
Unfunded Actuarial Obligation	\$ 20,710	\$ 19,635
Funded Ratio	88%	87%
<b>Level Contributions over 30 Years (Table 12)</b>	17.745%	17.656%
<b>Amortization Period based on Current Revenues</b>		
Total Level Rate over the Amortization Period	17.745%	17.656%
Normal Cost Rate	<u>17.285</u>	<u>16.820</u>
Amortization Rate	0.460%	0.836%
<i>Amortization Period (Based on current revenue projections)</i>	<i>Does not amortize</i>	<i>Does not amortize</i>
<b>Calculated Contribution Rate for 30-Year Funding Period</b>		
Normal Cost Rate	17.285%	16.820%
Amortization Rate	<u>4.071</u>	<u>4.168</u>
Total Level Rate over the Amortization Period	21.356%	20.988%
Estimated Additional Revenue Needed <i>(Based on current valuation assumptions)</i>	3.611%	3.332%

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**Table 16 Amortization of Unfunded Actuarial Obligation <sup>(1)</sup>  
Including Sufficient Additional Contributions <sup>(2)</sup>**

(\$Millions)		Beginning Unfunded Act. Oblig.	Amortization Payment			Interest Charge at 8%	Ending Unfunded Act. Oblig.
Year	FYE		Total <sup>(2)</sup> Contrib.	Normal Cost	Available Amtzn.		
1	2008	\$20,710	\$5,518	\$4,855	\$663	\$1,631	\$21,678
2	2009	21,678	5,766	5,061	705	1,707	22,680
3	2010	22,680	6,019	5,277	742	1,785	23,723
4	2011	23,723	6,593	5,501	1,092	1,855	24,486
5	2012	24,486	7,205	5,735	1,470	1,902	24,918
6	2013	24,918	7,511	5,978	1,533	1,933	25,318
7	2014	25,318	7,830	6,232	1,598	1,963	25,683
8	2015	25,683	8,163	6,497	1,666	1,990	26,007
9	2016	26,007	8,510	6,773	1,737	2,013	26,283
10	2017	26,283	8,871	7,061	1,810	2,031	26,504
11	2018	26,504	9,249	7,361	1,888	2,047	26,663
12	2019	26,663	9,642	7,674	1,968	2,057	26,752
13	2020	26,752	10,051	8,000	2,051	2,059	26,760
14	2021	26,760	10,479	8,340	2,139	2,058	26,679
15	2022	26,679	10,924	8,695	2,229	2,047	26,497
16	2023	26,497	11,388	9,064	2,324	2,029	26,202
17	2024	26,202	11,872	9,450	2,422	2,000	25,780
18	2025	25,780	12,377	9,851	2,526	1,964	25,218
19	2026	25,218	12,903	10,270	2,633	1,914	24,499
20	2027	24,499	13,451	10,706	2,745	1,853	23,607
21	2028	23,607	14,023	11,161	2,862	1,777	22,522
22	2029	22,522	14,619	11,636	2,983	1,684	21,223
23	2030	21,223	15,240	12,130	3,110	1,576	19,689
24	2031	19,689	15,888	12,646	3,242	1,448	17,895
25	2032	17,895	16,563	13,183	3,380	1,300	15,815
26	2033	15,815	17,267	13,744	3,523	1,126	13,418
27	2034	13,418	18,001	14,328	3,673	930	10,675
28	2035	10,675	18,766	14,937	3,829	703	7,549
29	2036	7,549	19,563	15,571	3,992	448	4,005
30	2037	4,005	20,395	16,233	4,162	157	0

Note:

<sup>(1)</sup> Based on the actuarial value of assets.

<sup>(2)</sup> An additional contribution of 3.611% of Earned Salaries is included for each of the thirty years. This schedule is for illustrative purposes only since any legislated increase in contributions would likely be effective after the valuation date.

# CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

## DEFINED BENEFIT PROGRAM - 2007 ACTUARIAL VALUATION

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### Appendix A

#### Provisions of Governing Law

All of the actuarial calculations contained in this report are based upon our understanding of the CalSTRS DB Program 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 up to 0.2 years of Credited Service may be used for eligibility for One-Year Final Compensation or to attain the Career Factor or the Longevity Bonus.
Career Factor:	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.

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### 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%.
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### 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.
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### 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.
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### 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.

## CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM DEFINED BENEFIT PROGRAM - 2007 ACTUARIAL VALUATION

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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.

# CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

## DEFINED BENEFIT PROGRAM - 2007 ACTUARIAL VALUATION

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### 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.

Please refer to the 2007 Actuarial Experience Analysis report for further information on the revisions made to the actuarial assumptions for this valuation.

**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 Normal Cost is based on the benefit structure available to new entrants on the valuation date. 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.

# CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

## DEFINED BENEFIT PROGRAM - 2007 ACTUARIAL VALUATION

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### 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**.

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Table B.1 List of Major Valuation Assumptions**

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**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	2007 CalSTRS Retired – M (-2 years)	Table B.2
		- Female	2007 CalSTRS Retired – F (-2 years)	Table B.2
	(2) Retired & Beneficiary *	- Male	2007 CalSTRS Retired – M	Table B.2
		- Female	2007 CalSTRS Retired – F	Table B.2
	(3) Disabled *	- Male	RP 2000-M (minimum 2.5% with select rates in first three years)	Table B.2
		- Female	RP 2000-F (minimum 2.0% 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
F.	Supplemental Assumptions			Table B.8

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Table B.2      Mortality**

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<b><u>Active Members</u></b>					
	<b><u>Age</u></b>	<b><u>Male</u></b>	<b><u>Female</u></b>		
	25	0.032%	0.019%		
	30	0.037	0.020		
	35	0.039	0.024		
	40	0.063	0.039		
	45	0.096	0.060		
	50	0.130	0.094		
	55	0.186	0.143		
	60	0.292	0.221		
	65	0.527	0.392		
	<b><u>Retired Members and Beneficiaries *</u></b>		<b><u>Disabled Members (After Year 3) *</u></b>		
<b><u>Age</u></b>	<b><u>Male</u></b>	<b><u>Female</u></b>	<b><u>Male</u></b>	<b><u>Female</u></b>	
50	0.151%	0.112%	2.500%	2.000%	
55	0.214	0.168	2.500	2.000	
60	0.362	0.272	2.500	2.000	
65	0.675	0.506	2.500	2.000	
70	1.274	0.971	2.728	2.067	
75	2.384	1.674	4.691	3.411	
80	4.355	3.257	8.049	5.629	
85	7.958	6.164	13.604	9.634	
90	14.262	11.915	21.661	15.762	
95	23.366	18.280	29.985	21.524	
<b>Select rates for disability:</b>					
	First year of disablement		6.0%	3.5%	
	Second year of disablement		4.8	3.0	
	Third year of disablement		3.5	2.5	

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

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Table B.3 Service Retirement**

<u>Age</u>	<u>Only for the 1990 Benefit Structure</u>		<u>For the DB Program</u>			
	<u>Male</u>	<u>Female</u>	<u>Under 30 Years *</u>		<u>30 or More Years</u>	
			<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
50	0.0%	0.0%	0.0%	0.0%	1.5%	2.5%
51	0.0	0.0	0.0	0.0	1.5	2.5
52	0.0	0.0	0.0	0.0	1.5	2.5
53	0.0	0.0	0.0	0.0	2.0	2.5
54	1.5	1.5	0.0	0.0	2.0	3.0
55	5.8	7.0	2.7	4.5	8.0	9.0
56	3.9	4.5	1.8	3.2	8.0	9.0
57	4.9	4.5	1.8	3.2	10.0	11.0
58	6.8	7.0	2.7	4.1	14.0	16.0
59	17.5	14.0	4.5	5.4	18.0	19.0
60	25.0	22.0	6.3	9.0	27.0	31.0
61	16.5	15.0	6.3	9.0	43.0	40.0
62	16.5	15.0	10.8	10.8	38.0	37.0
63	15.0	15.0	11.7	16.2	30.0	35.0
64	17.5	18.0	10.8	13.5	30.0	32.0
65	20.0	18.0	13.5	14.4	30.0	32.0
66	16.0	18.0	10.8	13.5	30.0	32.0
67	16.0	18.0	10.8	13.5	30.0	32.0
68	16.0	16.0	10.8	13.5	30.0	32.0
69	16.0	16.0	10.8	13.5	30.0	32.0
70	100.0	100.0	100.0	100.0	100.0	100.0

\* If service is equal to or greater than 25 but less than 28 years, the assumed retirement rates shown above for members with less than 30 years of service are increased by 50%. For members with 28 but less than 30 years, the assumed retirement rates shown above for members with less than 30 years of service are increased by 10%.

The assumptions shown above are for retirement from active status. We assume that all vested terminated members retire at age 60.

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Table B.4    Disability Retirement**

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**Coverage A**

<u>Age</u>	<u>Male</u>	<u>Female</u>
25	0.021%	0.021%
30	0.030	0.030
35	0.051	0.060
40	0.081	0.090
45	0.111	0.110
50	0.159	0.220
55	0.210	0.280

**Coverage B**

<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	0.012%		0.021%	
30	0.018		0.021	
35	0.036		0.042	
40	0.090		0.078	
45	0.123	0.118%	0.126	0.139%
50	0.171	0.202	0.219	0.252
55	0.252	0.312	0.318	0.367
60	0.204	0.477	0.243	0.529
65	0.144	0.853	0.168	0.916

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**Table B.5      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 - 44</u>	<u>45 &amp; Up</u>
0	15.3%	15.3%	15.3%	15.3%	15.3%	18.0%
1	13.0	12.5	13.0	13.0	13.0	14.0
2	9.0	7.7	9.0	9.0	9.0	10.0
3	6.0	6.0	6.5	6.5	6.5	7.0
4	4.4	4.8	5.0	5.0	5.0	4.0
5	3.9	3.6	3.0	3.0	3.0	3.0
10	2.0	2.0	2.0	2.0	2.0	
15	1.1	1.1	1.1	1.1		
20	0.6	0.6	0.6			
25	0.4	0.5				
30	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 - 44</u>	<u>45 &amp; Up</u>
0	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%
1	10.0	11.0	11.0	11.0	10.5	10.5
2	7.2	8.5	8.5	7.5	7.0	7.0
3	6.3	7.0	6.5	6.0	5.5	5.5
4	5.8	6.0	5.5	4.5	4.0	3.0
5	5.5	5.3	4.5	3.8	3.3	2.5
10	2.3	1.8	1.6	1.3	1.3	
15	1.0	0.9	0.9	0.9		
20	0.5	0.5	0.5			
25	0.3	0.4				
30	0.3					

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Table B.6 Probability of Refund**

<u>Entry Ages - Male</u>					
<u>Year</u>	<u>Under 25</u>	<u>25 - 29</u>	<u>30 - 34</u>	<u>35 - 39</u>	<u>40 and Up</u>
Under 5	100%	100%	100%	100%	100%
10	46	46	38	36	36
15	38	38	31	21	
20	28	31	15		
25	15	15			
30	10				

<u>Entry Ages - Female</u>					
<u>Year</u>	<u>Under 25</u>	<u>25 - 29</u>	<u>30 - 34</u>	<u>35 - 39</u>	<u>40 and Up</u>
Under 5	100%	100%	100%	100%	100%
10	34	32	32	29	29
15	27	24	24	24	
20	19	14	14		
25	10	10			
30	10				

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Table B.7 Merit Salary Increases**

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Yr.	<b>Entry Age - Annual Increase in Salaries Due to Merit</b>					
	<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	5.6%	5.3%	5.1%	4.8%	4.8%	3.5%
2	5.6	5.1	4.9	4.7	4.7	3.3
3	5.6	5.0	4.8	4.6	4.6	3.0
4	5.5	4.8	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	1.1	1.1	0.8	0.8	0.6
25	1.1	0.9	0.8	0.5	0.5	
30	0.9	0.7	0.6	0.5		
35	0.8	0.7	0.6			
40	0.8	0.6				
45	0.8					

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Table B.8 Supplemental Assumptions**

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<b>Unused Sick Leave:</b>	Credited Service is increased by 2.1%				
<b>Optional Forms:</b>	Active & Inactive: Based on single life annuity assumed Retirees and Beneficiaries: Based on optional form in data				
<b>Probability of Marriage:</b>	Male:	90%			
	Female:	70%			
	Male spouses are assumed to be three years older than female spouses.				
<b>Number of Children:</b>	Married members are assumed to have the following number of children:				
	<b><u>Member's Gender</u></b>	<b><u>Assumed No. of Children</u></b>			
	Male	0.75			
	Female	0.50			
<b>Assumed Offsets:</b>	The following offsets, expressed as a percentage of Final Compensation, are assumed to cease at age 60:				
		<b>Coverage A</b>		<b>Coverage B</b>	
		<b><u>Male</u></b>	<b><u>Female</u></b>	<b><u>Male</u></b>	<b><u>Female</u></b>
	Death	8.0%	4.0%	0.0%	0.0%
	Disability	2.5%	4.0%	2.2%	3.0%

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Appendix C  
Valuation Data**

The membership data for this actuarial valuation was supplied by CalSTRS. Although we did not audit this data, we compared the data for this and the prior valuation and tested for reasonableness, as well as for consistency with prior periodic reports from the CalSTRS staff. Based on these tests, we believe the data to be sufficiently accurate for the purposes of this valuation. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

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

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Table C.1 Summary of Statistical Information**

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	June 30, 2007	June 30, 2006
<b>Number of Members</b>		
Active Members <sup>(1)</sup>	455,693	453,365
Inactive Members <sup>(1)</sup>	141,450	133,601
Retirees and Beneficiaries		
Service Retirement	188,659	181,833
Disability Benefits	7,915	7,683
Benefits for Survivors	<u>19,067</u>	<u>18,330</u>
Total Benefit Recipients	215,641	207,846
 Total Membership in Valuation	 812,784	 794,812
 <b>Active Member Statistics</b>		
Earned Salaries	\$25,906 million	\$24,240 million
Average Salary	\$ 56,849	\$ 53,466
Average Age	44.7 years	44.6 years
Average Service	10.8 years	10.8 years

Note:

<sup>(1)</sup> Some active members were reported with no Earnable Salaries, in which case their liabilities, if any, were included with inactive members

**CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM  
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**Table C.2 Age and Service Distribution  
Active Male Members**

<u>Age</u>	<u>Service</u>					
	<u>Under 1</u>	<u>1 - 5</u>	<u>6 - 10</u>	<u>11 - 15</u>	<u>16 - 20</u>	<u>21 - 25</u>
Under 25	418	610				
25 to 30	1,353	7,628	410			
30 to 35	823	8,171	6,592	248		
35 to 40	686	5,681	8,177	4,415	117	
40 to 45	539	3,887	4,724	4,572	2,391	82
45 to 50	499	3,360	3,456	2,919	3,484	1,931
50 to 55	459	3,282	3,092	2,523	2,901	2,836
55 to 60	415	2,900	2,848	2,317	2,485	2,224
60 to 65	300	2,050	1,585	1,248	1,354	1,097
65 to 70	107	764	537	351	326	231
70 & Up	54	436	211	108	90	71
Unknown	0	0	0	0	0	0
<b>Total</b>	<b>5,653</b>	<b>38,769</b>	<b>31,632</b>	<b>18,701</b>	<b>13,148</b>	<b>8,472</b>

<u>Age</u>	<u>Service</u>					<u>Total</u>
	<u>26 - 30</u>	<u>31 - 35</u>	<u>36 - 40</u>	<u>41 - 45</u>	<u>Over 45</u>	
Under 25						1,028
25 to 30						9,391
30 to 35						15,834
35 to 40						19,076
40 to 45						16,195
45 to 50	62					15,711
50 to 55	2,322	187				17,602
55 to 60	3,174	3,966	292	3		20,624
60 to 65	1,174	1,853	1,218	23		11,902
65 to 70	174	202	174	87	1	2,954
70 & Up	43	56	47	47	35	1,198
Unknown	0	0	0	0	0	0
<b>Total</b>	<b>6,949</b>	<b>6,264</b>	<b>1,731</b>	<b>160</b>	<b>36</b>	<b>131,515</b>

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**Table C.3 Age and Service Distribution  
Active Female Members**

<u>Age</u>	<u>Service</u>					
	<u>Under 1</u>	<u>1 - 5</u>	<u>6 - 10</u>	<u>11 - 15</u>	<u>16 - 20</u>	<u>21 - 25</u>
Under 25	1,842	3,022	3			
25 to 30	3,526	28,860	1,965			
30 to 35	1,722	20,317	21,549	886	1	
35 to 40	1,546	11,903	18,327	11,101	375	1
40 to 45	1,281	9,087	10,222	9,079	6,258	350
45 to 50	1,256	8,796	9,246	7,365	7,272	4,761
50 to 55	1,002	7,581	9,035	7,804	7,396	5,985
55 to 60	644	5,395	7,177	6,930	8,044	5,944
60 to 65	311	2,643	3,285	3,160	4,076	3,351
65 to 70	108	862	805	700	773	690
70 & Up	48	453	251	165	180	142
Unknown	0	9	3	0	0	0
<b>Total</b>	<b>13,286</b>	<b>98,928</b>	<b>81,868</b>	<b>47,190</b>	<b>34,375</b>	<b>21,224</b>

<u>Age</u>	<u>Service</u>					<u>Total</u>
	<u>26 - 30</u>	<u>31 - 35</u>	<u>36 - 40</u>	<u>41 - 45</u>	<u>Over 45</u>	
Under 25						4,867
25 to 30						34,351
30 to 35						44,475
35 to 40						43,253
40 to 45						36,277
45 to 50	260	1				38,957
50 to 55	5,381	386	2			44,572
55 to 60	6,155	5,806	525	3		46,623
60 to 65	2,877	2,275	1,958	51		23,987
65 to 70	556	314	179	141	8	5,136
70 & Up	156	126	74	46	27	1,668
Unknown	0	0	0	0	0	12
<b>Total</b>	<b>15,385</b>	<b>8,908</b>	<b>2,738</b>	<b>241</b>	<b>35</b>	<b>324,178</b>

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**Table C.4 Age and Service Distribution  
All Active Members**

<u>Age</u>	<u>Service</u>					
	<u>Under 1</u>	<u>1 - 5</u>	<u>6 - 10</u>	<u>11 - 15</u>	<u>16 - 20</u>	<u>21 - 25</u>
Under 25	2,260	3,632	3			
25 to 30	4,879	36,488	2,375			
30 to 35	2,545	28,488	28,141	1,134	1	
35 to 40	2,232	17,584	26,504	15,516	492	1
40 to 45	1,820	12,974	14,946	13,651	8,649	432
45 to 50	1,755	12,156	12,702	10,284	10,756	6,692
50 to 55	1,461	10,863	12,127	10,327	10,297	8,821
55 to 60	1,059	8,295	10,025	9,247	10,529	8,168
60 to 65	611	4,693	4,870	4,408	5,430	4,448
65 to 70	215	1,626	1,342	1,051	1,099	921
70 & Up	102	889	462	273	270	213
Unknown	0	9	3	0	0	0
<b>Total</b>	<b>18,939</b>	<b>137,697</b>	<b>113,500</b>	<b>65,891</b>	<b>47,523</b>	<b>29,696</b>

<u>Age</u>	<u>Service</u>					<u>Total</u>
	<u>26 - 30</u>	<u>31 - 35</u>	<u>36 - 40</u>	<u>41 - 45</u>	<u>Over 45</u>	
Under 25						5,895
25 to 30						43,742
30 to 35						60,309
35 to 40						62,329
40 to 45						52,472
45 to 50	322	1				54,668
50 to 55	7,703	573	2			62,174
55 to 60	9,329	9,772	817	6		67,247
60 to 65	4,051	4,128	3,176	74		35,889
65 to 70	730	516	353	228	9	8,090
70 & Up	199	182	121	93	62	2,866
Unknown	0	0	0	0	0	12
<b>Total</b>	<b>22,334</b>	<b>15,172</b>	<b>4,469</b>	<b>401</b>	<b>71</b>	<b>455,693</b>

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**Table C.5 Inactive Members**

<u>Fiscal Year Ending June 30</u>	<u>Number Vested</u>	<u>Total Number</u>	<u>Male % of Total</u>	<u>Female % of Total</u>
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
2004	22,511	116,128	28.7	71.3
2005	24,113	124,394	28.8	71.2
2006	26,733	133,601	28.8	71.2
2007	28,922	141,450	28.9	71.1

<u>Fiscal Year Ending June 30</u>	<u>Average Account on Deposit</u>	<u>Average Age</u>	<u>Average Service Credit</u>	<u>Average Years Inactive</u>
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
2004	12,418	45.8	2.9	7.3
2005	12,177	45.9	2.9	7.4
2006	12,282	45.9	2.9	7.5
2007	12,440	46.0	3.0	7.7

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**Table C.6 Members Retired for Service**

<b>Fiscal Year Ending June 30</b>	<b><u>Total</u></b>	<b><u>Male % of Total</u></b>	<b><u>Female % of Total</u></b>
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
2004	169,022	37.2	62.8
2005	176,008	36.9	63.1
2006	181,833	36.5	63.5
2007	188,659	36.1	63.9

<b><u>Fiscal Year Ending June 30</u></b>	<b><u>Average Age at Retirement</u></b>	<b><u>Average Years of Service Credit</u></b>	<b><u>Final Average Compensation</u></b>	<b><u>Average Current Allowance Payable</u></b>
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
2004	60.7	26.0	3,931	2,488
2005	60.8	26.1	4,103	2,617
2006	60.8	26.2	4,264	2,741
2007	60.8	26.3	4,437	2,878

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**Appendix D**  
**Glossary**

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

<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, and procedures used to determine 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.
<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.

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<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>Entry Age Cost Method:</b>	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.
<b>Normal Cost:</b>	The portion of the Actuarial Present Value of Projected Benefits which is allocated to a valuation year by the Actuarial Cost Method.
<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, 2007.