



1301 Fifth Avenue
Suite 3800
Seattle, WA 98101-2605
USA

Tel +1 206 624 7940
Fax +1 206 623 3485

milliman.com

March 22, 2011

Teachers' Retirement Board
California State Teachers' Retirement System

**Re: Medicare Premium Payment Program
Actuarial Valuation as of June 30, 2010**

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Medicare Premium Payment (MPP) Program of the California State Teachers' Retirement System as of June 30, 2010. Details about the actuarial valuation are contained in the following report.

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 2 of this report for our full actuarial certification statement.

Actuarial computations presented in this report are for purposes of assessing the funding of the CalSTRS Medicare Premium Payment Program. The calculations in the enclosed report have been made on a basis consistent with our understanding of CalSTRS's funding. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the internal business use of CalSTRS. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s):

- (a) CalSTRS may provide a copy of Milliman's work, in its entirety, to CalSTRS' professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit CalSTRS.
- (b) CalSTRS may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

This work product was prepared solely to provide assistance to CalSTRS. It may not be appropriate to use for other purposes.
Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

Offices in Principal Cities Worldwide



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 that reads "Nick Collier".

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

A handwritten signature in black ink that reads "Mark C. Olleman".

Mark C. Olleman, FSA, EA, MAAA
Principal and Consulting Actuary

Enclosure

NJC/MCO/nlo

cc: Mr. Ed Derman
Mr. Rick Reed

**California State Teachers' Retirement System
Medicare Premium Payment Program - 2010 Actuarial Valuation**

Table of Contents

		Page
Letter of Transmittal		
Section 1	Summary of the Findings	1
	Exhibit Summary of Key Valuation Results.....	4
Section 2	Actuarial Certification	5
Section 3	Actuarial Obligation	6
Section 4	Funding.....	9
	Table 1 Projection of MPP Program Costs	11
Section 5	Accounting Information	12
	Table 2 Statement of Program Assets	14
	Table 3 Statement of Changes in Program Assets	15
	Table 4 Schedule of Funding Progress.....	16
	Table 5 Schedule of Employer Contributions.....	17
	Table 6 Determination of Annual Required Contribution.....	17
 Appendices		
	Appendix A Provisions of Governing Law	18
	Appendix B Actuarial Methods and Assumptions.....	19
	Appendix C Valuation Data	27
	Appendix D Glossary	30



This work product was prepared solely for CalSTRS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

California State Teachers' Retirement System

Medicare Premium Payment Program - 2010 Actuarial Valuation

Section 1

Summary of the Findings

The primary purpose of the actuarial valuation is to analyze the sufficiency of the current allocated assets to meet the current and future obligations of the Medicare Premium Payment (MPP) 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 MPP Program.

The key findings of this Actuarial Valuation are:

Funding Sufficiency

We find that as of June 30, 2010 the current MPP Program assets, along with MPP-allocated assets residing with the Defined Benefit (DB) Program, are sufficient to finance the future MPP Program obligations of \$601.8 million for both Part A premiums and Part B penalties. Currently, the Teachers' Health Benefit Fund (THBF) has approximately \$0.6 million in assets; however, additional DB Program assets have been allocated to fund the MPP Program obligations for a total value of \$601.8 million. Our valuation assumes that the assets currently held in the DB Program are available to fund the MPP Program benefits.

If these allocated assets were not included in this valuation, the THBF by itself would not be sufficient to fund the expected MPP Program obligation. These results are consistent with our prior valuation of the MPP Program.

Under current Board policy, the assets set aside from the DB Program to fund the MPP Program are equal to its actuarial obligation less the value of any assets already in the THBF. Prior to the June 30, 2008 actuarial valuation, a fixed asset amount, with year-to-year adjustments, was used.

The Funded Status of a benefit plan is equal to the difference between its Actuarial Value of Assets and its Actuarial Obligation. Since the Actuarial Value of Assets is being set to match the Actuarial Obligation, the Funded Status of the MPP Program is 100.0%.

California State Teachers' Retirement System Medicare Premium Payment Program - 2010 Actuarial Valuation

Funding Sufficiency (continued)

<i>(\$Millions)</i>	2010 Valuation	2008 Valuation
Actuarial Obligation		
Part A Premiums	\$ 595.8	\$ 623.2
Part B Penalties	<u>6.0</u>	<u>6.5</u>
Actuarial Obligation	601.8	629.7
THBF Assets	<u>0.6</u>	<u>4.2</u>
Existing Unfunded Actuarial Obligation / (Surplus Funding)	\$ 601.2	\$ 625.5
Guaranteed Funding from DB Program	<u>601.2</u>	<u>625.5</u>
Effective Unfunded Actuarial Obligation / (Surplus Funding)	\$ 0.0	\$ 0.0

Changes since the 2008 Valuation

There have been a few changes since the 2008 valuation, as follows:

- As of the 2010 actuarial valuation, the investment return assumption was lowered from 8.0% to 7.75%. This increased the actuarial obligation by about \$14 million.
- The actual 2011 Medicare Part A monthly premium amount is \$450, significantly less than the estimated 2011 amount of \$488 based on the prior valuation. This resulted in a reduction in the actuarial obligation of approximately \$50 million.

Impact of Alternative Assumptions

The ultimate cost of the MPP Program is highly dependent on actual experience in the future. To provide information regarding the sensitivity of the results to the assumptions, we have varied the interest rate assumption and the assumed participation levels in the MPP Program. The valuation results are based on the "Best Estimate" set of assumptions. The following results show a comparison with a more conservative (i.e., higher cost) set of assumptions (investment return assumption reduced by 1.0%, and higher member participation):

<i>(\$Millions)</i>	2010 Valuation	2008 Valuation
Actuarial Obligation		
Best Estimate	\$ 601.8	\$ 629.7
Higher Cost Assumptions	\$ 755.1	\$ 798.0

California State Teachers' Retirement System

Medicare Premium Payment Program - 2010 Actuarial Valuation

Further Information

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

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

California State Teachers' Retirement System

Medicare Premium Payment Program - 2010 Actuarial Valuation

Summary of Key Valuation Results

	2010 Valuation	2008 Valuation	Relative Change
1. Current MPP Program Membership			
A. Retirees with Part A Premium	6,452	6,238	3.4 %
B. Retirees with Part B Penalty	1,089	1,217	(10.5)%
2. Monthly Medicare Premium Amount (for following calendar year)			
A. Part A	\$ 450.00	\$ 443.00	1.6%
B. Part B	115.40	96.40	19.7%
3. Average CalSTRS Payment for Participating Members (for following calendar year)			
A. Retirees with Part A Premium	\$ 436.13	\$ 449.42	(3.0)%
B. Retirees with Part B Penalty	66.35	59.30	11.9%
4. Actuarial Accrued Liability (\$millions)			
A. Retirees with Part A Premium	\$ 595.8	\$ 623.2	(4.4)%
B. Retirees with Part B Penalty	6.0	6.5	(7.7)%
C. Total	\$ 601.8	\$ 629.7	(4.4)%
5. Actuarial Accrued Liability (\$millions) - Alternate Measurement			
Total under Higher Cost Assumptions	\$ 755.1	\$ 798.0	(5.4)%
6. MPP Program Assets			
A. Market Value of THBF (\$millions)	\$ 0.6	\$ 4.2	(85.7)%
B. Total Allocated MPPP Assets (\$millions)	\$ 601.8	\$ 629.7	(4.4)%
7. Unfunded Actuarial Accrued Liability (4C - 6B) or (Surplus Funding) - \$millions	\$ -	\$ -	-
8. Funding Sufficiency			
Are current allocated assets greater than the value of all expected payments?	Yes	Yes	

California State Teachers' Retirement System Medicare Premium Payment Program - 2010 Actuarial Valuation

Section 2 Actuarial Certification

The major findings of the 2010 Actuarial Valuation on the Medicare Premium Payment (MPP) Program are contained in this report. This report reflects the benefit provisions as of the valuation date and Medicare premium amounts effective for the 2011 calendar year. 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 Medicare Premium Payment Program as of June 30, 2010.

In preparing the valuation, we relied without audit upon the financial and membership data furnished by CalSTRS. Although we did not audit this data, we compared the data for this and the prior study 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.

All costs, liabilities, rates of interest, and other factors for CalSTRS have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of CalSTRS and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the CalSTRS MPP Program. Further, in our opinion, each actuarial assumption used is reasonably related to the experience of CalSTRS and to reasonable expectations which, in combination, represent a reasonable estimate of anticipated experience. The Teachers' Retirement Board has sole authority to determine the actuarial assumptions and methods used for the valuation of the MPP Program. The Board adopted the actuarial methods and assumptions used in the 2010 valuation.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or 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, I hereby certify that, to the best of my knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with principles prescribed by the Actuarial Standards Board and the code of Professional conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries. In addition, the assumptions and methods used meet the parameters set by Governmental Accounting Standards Board Statement No. 43 for financial statement disclosures.



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



Mark C. Olleman, FSA, EA, MAAA
Principal and Consulting Actuary



California State Teachers' Retirement System Medicare Premium Payment Program - 2010 Actuarial Valuation

Section 3 Actuarial Obligation



In this section, the discussion will focus on the commitments of CalSTRS for MPP Program benefits, which are referred to as its Actuarial Obligation.

Unlike the DB Program where new members join the plan, members eligible for the MPP Program are a closed group. Only those hired prior to April 1, 1986 who retire on or before June 30, 2012 are eligible. Another difference is that in the DB Program active members earn additional benefits based on service, whereas active members who may join the MPP Program have a fixed benefit equal to the Part A premium that is not based on service.

Accordingly, the actuarial obligation for the MPP Program is equal to the value of all benefits expected to be paid in the future. This differs from the DB Program where a certain portion of the obligation is allocated to past service and the remainder is allocated to future service in the form of Normal Cost.

We first project all future MPP Program benefit payments for current members and retirees, including those who are not currently enrolled in the MPP Program but may join later. The level of premiums currently being paid is known, but assumptions are needed to estimate how long they will be paid and the probability that current active, inactive and retired members who are not currently receiving payments, will enroll in the MPP Program. 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**. As discussed above, for the MPP Program the actuarial obligation is equal to this value.

California State Teachers' Retirement System Medicare Premium Payment Program - 2010 Actuarial Valuation

Actuarial Obligation (continued)

Details are shown below.

<i>(\$Millions)</i>	2010 Valuation	2008 Valuation
Current Retirees	\$ 537.7	\$ 522.2
Inactive Deferred	4.3	7.5
Active Members	<u>53.8</u>	<u>93.5</u>
Present Value of Part A Premiums	\$ 595.8	\$ 623.2
Present Value of Part B Penalties	<u>6.0</u>	<u>6.5</u>
Total Present Value of MPP Program Benefits	\$ 601.8	\$ 629.7

Actuarial Gains and Losses

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

The actuarial gains and losses since the last report are summarized in the following table:

<i>(\$Millions)</i>	Actuarial (Gains) or Losses
Expected Actuarial Obligation	
Actuarial Obligation as of June 30, 2008	\$ 629.7
Expected Increase due to Interest	99.6
Expected Decrease due to Payments	<u>(64.8)</u>
Expected Actuarial Obligation	\$ 664.5
Actuarial (Gains) or Losses by Source	
Change in Investment Return Assumption	\$ 14.2
Change in Premium/Penalty Different than Expected	(49.5)
All other sources	<u>(27.4)</u>
(Gain) or Loss on the Actuarial Obligation	\$ (62.7)

Note that there is a material gain from "All Other Sources". This is primarily due to lower-than-expected enrollment.

California State Teachers' Retirement System Medicare Premium Payment Program - 2010 Actuarial Valuation

Actuarial Gains and Losses (continued)

Based on the 2008 valuation, the Actuarial Obligation was expected to increase to \$664.5 million. The actual Actuarial Obligation of \$601.8 million represents a net actuarial gain of \$62.7 million. This gain was mostly caused by a much smaller than expected increase in Part A Premiums over the last two years.



This work product was prepared solely for CalSTRS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

California State Teachers' Retirement System

Medicare Premium Payment Program - 2010 Actuarial Valuation

Section 4 Funding



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. The MPP Program has been essentially funded on a pay-as-you-go basis with a portion of contributions to the DB Program diverted to the THBF to make MPP Program payments. Beginning in 2008, DB Program assets in the amount of the MPP Program Actuarial Obligation (less any assets already in the THBF) are allocated for the purposes of paying the MPP Program benefits. This results in an ongoing Unfunded Actuarial Obligation of \$0.

The Funded Status is shown below.

<i>(\$Millions)</i>	2010 Valuation	2008 Valuation
Actuarial Obligation		
Part A Premiums	\$ 595.8	\$ 623.2
Part B Penalties	<u>6.0</u>	<u>6.5</u>
Total Actuarial Obligation	601.8	629.7
THBF Assets	<u>0.6</u>	<u>4.2</u>
Existing Unfunded Actuarial Obligation / (Surplus Funding)	\$ 601.2	\$ 625.5
Guaranteed Funding from DB Program	<u>601.2</u>	<u>625.5</u>
Effective Unfunded Actuarial Obligation / (Surplus Funding)	\$ 0.0	\$ 0.0

Annual Cost

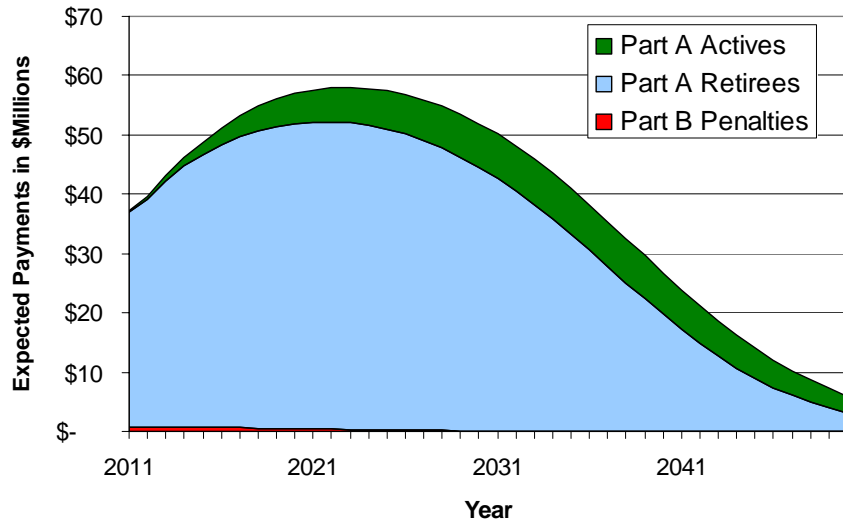
As noted above, the MPP Program has essentially been funded on a pay-as-you-go basis. Therefore, the annual cost from a funding perspective is equal to the MPP Program payments. For the 2009-2010 fiscal year, the actual cost was \$35.4 million. For the 2010-2011 fiscal year, the expected cost is \$37.3 million.

A 40-year projection of the MPP Program costs is shown in **Table 1**. Note that the projection is shown under two scenarios. The first is the "Best Estimate" scenario which is based on the valuation assumption for participation in the MPP Program. The second is the "Higher Cost Assumptions" scenario which reflects higher MPP Program participation rates. Details of these participation assumptions can be found in Appendix B.

California State Teachers' Retirement System Medicare Premium Payment Program - 2010 Actuarial Valuation

Annual Cost (continued)

This graph represents the Best Estimate payouts shown in Table 1.



**California State Teachers' Retirement System
Medicare Premium Payment Program - 2010 Actuarial Valuation**

**Table 1
Projected MPP Program Costs**

Plan Year Ending June 30	Payouts (in \$Thousands)					
	Best Estimate Assumptions			Higher Cost Assumptions		
	Part A	Part B	Total	Part A	Part B	Total
2011	\$ 36,442	\$ 820	\$ 37,262	\$ 37,514	\$ 820	\$ 38,334
2012	38,903	792	39,695	41,397	792	42,189
2013	42,428	762	43,190	45,796	762	46,558
2014	45,481	728	46,209	49,638	728	50,366
2015	48,142	689	48,831	53,009	689	53,698
2016	50,528	647	51,175	56,086	647	56,733
2017	52,596	602	53,198	58,760	602	59,362
2018	54,280	554	54,834	60,987	554	61,541
2019	55,558	505	56,063	62,764	505	63,269
2020	56,538	455	56,993	64,161	455	64,616
2021	57,195	405	57,600	65,200	405	65,605
2022	57,585	356	57,941	65,943	356	66,299
2023	57,699	310	58,009	66,358	310	66,668
2024	57,554	266	57,820	66,494	266	66,760
2025	57,187	226	57,413	66,348	226	66,574
2026	56,590	189	56,779	65,977	189	66,166
2027	55,750	156	55,906	65,329	156	65,485
2028	54,696	128	54,824	64,398	128	64,526
2029	53,386	103	53,489	63,173	103	63,276
2030	51,838	82	51,920	61,688	82	61,770
2031	50,062	65	50,127	59,873	65	59,938
2032	48,088	50	48,138	57,806	50	57,856
2033	45,865	39	45,904	55,434	39	55,473
2034	43,460	30	43,490	52,801	30	52,831
2035	40,895	22	40,917	49,922	22	49,944
2036	38,187	17	38,204	46,828	17	46,845
2037	35,358	12	35,370	43,581	12	43,593
2038	32,476	9	32,485	40,196	9	40,205
2039	29,583	7	29,590	36,761	7	36,768
2040	26,719	5	26,724	33,310	5	33,315
2041	23,914	3	23,917	29,918	3	29,921
2042	21,207	2	21,209	26,626	2	26,628
2043	18,649	2	18,651	23,471	2	23,473
2044	16,248	1	16,249	20,498	1	20,499
2045	14,049	1	14,050	17,770	1	17,771
2046	12,050	-	12,050	15,245	-	15,245
2047	10,240	-	10,240	12,994	-	12,994
2048	8,631	-	8,631	10,960	-	10,960
2049	7,228	-	7,228	9,201	-	9,201
2050	6,006	-	6,006	7,662	-	7,662

California State Teachers' Retirement System

Medicare Premium Payment Program - 2010 Actuarial Valuation

Section 5

Accounting Information



Actuarial computations under Governmental Accounting Standards Board (GASB) Statements No. 43 and 45 are for purposes of fulfilling financial accounting requirements. GASB 43 applies to retirement systems, such as CalSTRS. GASB 45 applies to individual participating employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of GASB Statements No. 43 and 45.

GASB 43 and 45 require that the interest rate used to discount future benefit payments back to the present be based on the expected rate of return on any investments set aside to pay for these benefits. It is our understanding that currently CalSTRS is not pre-funding the MPP Program premiums (except for approximately one month's worth of payments held in the THBF), although it is the intent to pre-fund under the revised MPP Program funding policy. Note that although CalSTRS has allocated DB Program assets for MPP Program benefits in the amount of the MPP Program Actuarial Obligation, since these are not held in a separate trust, it does not meet GASB's definition of pre-funding.

The expected investment return on the DB Program assets is 7.75%, as that fund is invested in a diversified portfolio of both equities and bonds. However, the contributions for the MPP Program premiums are coming from the general funds of CalSTRS's participating employers. Therefore, a much lower rate of 4.00% is appropriate for discounting the MPP Program obligations for GASB purposes. The Board adopted the 4.00% discount rate, which is based upon the expected return for short term fixed income securities. This will result in much higher obligations than reported for funding purposes.

For GASB purposes, the Annual Required Contribution (ARC) must be calculated based on certain parameters required for disclosure purposes. We have used the Entry Age Normal Cost Method, one of the acceptable actuarial funding methods under these parameters. Under this method the projected benefits are allocated on a level dollar basis for each individual between entry age and assumed exit age. The amount allocated to each year is called the Normal Cost and the portion of the Actuarial Present Value of all benefits not provided for by future Normal Cost payments is called the Actuarial Accrued Liability. Since nearly all current and future MPP Program members have already retired,

California State Teachers' Retirement System Medicare Premium Payment Program - 2010 Actuarial Valuation

Accounting Information (continued)

the amount of the Normal Cost is small. The UAAL is the Actuarial Accrued Liability minus the THBF assets.

For GASB reporting purposes, Table 6 presents the annual Normal Cost and the ARC as of the valuation date, assuming the UAAL is amortized as a level dollar amount over a 30-year period beginning June 30, 2006 (26 years remaining as of the valuation date).

For disclosure purposes, we have assumed this is a closed 30-year period.

The tables on the following pages show the required information for reporting under GASB 43.

California State Teachers' Retirement System
Medicare Premium Payment Program - 2010 Actuarial Valuation

Table 2
Statement of Program Assets

<i>(\$Thousands)</i>	June, 2010	June, 2008
Invested Assets		
Short-term	\$ 646	\$ 2,381
Debt Securities	0	0
Equity	0	0
Alternative	0	0
Real Estate	<u>0</u>	<u>0</u>
Total Investments	\$ 646	\$ 2,381
Cash and Cash Equivalents	0	1
Receivables	6	1,852
Liabilities	<u>(79)</u>	<u>(50)</u>
Fair Market Value of Net Assets	\$ 573	\$ 4,184

California State Teachers' Retirement System
Medicare Premium Payment Program - 2010 Actuarial Valuation

Table 3
Statement of Changes in Program Assets

<i>(\$Thousands)</i>	June, 2010	June, 2008
Contributions		
Members	\$ 0	\$ 0
Employers	31,749	33,239
State of California	<u>0</u>	<u>0</u>
Total Contributions	31,749	33,239
Benefits and Expenses		
Retirement, Death, and Survivors	\$ (35,421)	\$ (32,689)
Refunds of Member Contributions	(0)	(0)
Administrative Expenses	<u>(309)</u>	<u>(334)</u>
Total Benefits and Expenses	(35,730)	(33,023)
Net Cash Flow	\$ (3,981)	\$ 216
Investment Income		
Realized Income	\$ 33	\$ 205
Net Appreciation	0	0
Investment Expenses	(0)	(0)
Other (Expense) Income	<u>(0)</u>	<u>(0)</u>
Net Investment Return	33	205
Net Increase	\$ (3,948)	\$ 421
Fair Market Value of Net Assets		
Beginning of Year	\$ <u>4,521</u>	\$ <u>3,763</u>
End of Year	\$ 573	\$ 4,184

**California State Teachers' Retirement System
Medicare Premium Payment Program - 2010 Actuarial Valuation**

**Table 4
Schedule of Funding Progress (in \$millions)**

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b - a) / c)
6/30/2005	\$ 2.7	\$ 775.0	\$ 772.3	0.3%	\$ 7,748.1	10.0%
6/30/2006	\$ 2.7	\$ 796.5	\$ 793.8	0.3%	\$ 7,451.9	10.7%
6/30/2008	\$ 4.2	\$ 976.3	\$ 972.1	0.4%	\$ 6,604.3	14.7%
6/30/2010	\$ 0.6	\$ 905.0	\$ 904.4	0.1%	\$ 5,010.7	18.0%



This work product was prepared solely for CalSTRS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

**California State Teachers' Retirement System
Medicare Premium Payment Program - 2010 Actuarial Valuation**

**Table 5
Schedule of Employer Contributions (in \$millions)**

<u>Year Ended 6/30</u>	<u>Annual Required Contribution*</u>	<u>Actual Contribution</u>	<u>Percentage Contributed</u>
2005	Not Calculated	\$ 28.5	N/A
2006	\$ 47.3	\$ 29.6	62.6%
2007	\$ 47.3	\$ 32.3	68.3%
2008	\$ 47.3	\$ 33.2	70.2%
2009	\$ 62.4	\$ 30.0	48.1%
2010	\$ 62.4	\$ 31.7	50.8%

* The UAAL is amortized over a closed 30-year period starting June 30, 2006 on a level-dollar basis. The remaining period is 26 years as of June 30, 2010.

**Table 6
Determination of Annual Required Contribution (in \$millions)**

Annual Required Contribution (ARC)*	Year Ended June 30, 2011
(1) Normal Cost	\$ 0.7
(2) Amortization Payment of UAAL	<u>56.6</u>
	\$ 57.3

* The normal cost is determined on the entry age normal cost method (level dollar) to meet the GASB parameters. The UAAL amount of \$903.5 million is assumed to be amortized over a closed 30-year period from June 30, 2006 on a level-dollar basis.

California State Teachers' Retirement System Medicare Premium Payment Program - 2010 Actuarial Valuation

Appendix A Provisions of Governing Law

All of the actuarial calculations contained in this report are based upon our understanding of the CalSTRS MPP Program as contained in Part 13.5 of the California Education Code. The provisions used in this valuation are summarized below for reference purposes.

Eligibility (Part A)

Member Eligibility Requirement:

Satisfies either:

- 1) Retired or disabled prior to January 1, 2001;
Hired prior to April 1, 1986;
Age 65 or above;
Enrolled in Medicare Part A and Part B; and,
Not eligible for Part A without premium payment.

- - - OR - - -

- 2) Meet all of the above requirements, except retired or disabled before July 1, 2007;
District completed a Medicare Division election prior to retirement; and,
Active member less than 58 years of age at the time of the election.

Spouse Eligibility:

Spouses of members are not eligible to participate in the program.

Eligibility (Part B)

Member Eligibility Requirement:

Only those currently enrolled are eligible.

Benefits Paid

Part A:

Part A premium (\$450 per month in 2011). Reduced amount if less than 40 quarters of covered employment.

Part B:

Part B premium (\$115.40 per month in 2011). Only the penalty is paid by CalSTRS.
(Small group of high earners will have higher premiums, up to \$369.10 in 2011)

California State Teachers' Retirement System

Medicare Premium Payment Program - 2010 Actuarial Valuation

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 MPP Program and on current expectations as to future economic conditions.

The assumptions are intended to estimate the future experience of the members of the MPP Program and of the MPP 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 MPP Program's benefits.

MPP Program assumptions were adopted by the Board at the June 5, 2009 meeting based on Milliman's May 19, 2009 letter. Please refer to the 2007 Actuarial Experience Analysis for further information on the DB Program assumptions. The investment return assumption of 7.75% was adopted by the Board in December 2010.

Actuarial Cost Method

The MPP Program obligations are funded on a pay-as-you-go basis.

For GASB reporting purposes, MPP Program obligations are shown under the entry age normal cost method (level dollar).

Asset Valuation Method

For funding purposes, the assets are valued as the allocated value of DB Program Assets. This figure is equal to the actuarial obligation of the MPP Program benefits.

For GASB purposes, the assets are equal to the fair value of THBF.

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 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

Medicare Premium Payment Program - 2010 Actuarial Valuation

Table B.1
List of Major Valuation Assumptions

I. Economic Assumptions

A.	Investment Return (net of investment and administrative expenses)	Best Estimate = 7.75% Higher Cost = 6.75% GASB Reporting = 4.0%
B.	Medical Inflation	
	Part A Premiums	5.0%
	Part B Premiums	5.0%
C.	Price Inflation	3.00%

II. Demographic Assumptions

A.	Mortality		
	(1) Active	- Male - Female	2007 CalSTRS Retired – M (- two years) 2007 CalSTRS Retired – F (- two years)
			Table B.2 Table B.2
	(2) Retired & Beneficiary*	- Male - Female	2007 CalSTRS Retired – M 2007 CalSTRS Retired – F
			Table B.2 Table B.2
	(3) Disabled*	- Male - Female	RP 2000-M (minimum 2.5% with select rates in first three years) RP 2000-F (minimum 2.0% with select rates in first three years)
			Table B.2 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.	MPP Program Enrollment Rates	Experience Tables	Table B.7
F.	Adjustment to Part B Premium to Account from Higher Premiums if Above the Compensation Limit	4.0% of current Part B enrollees are assumed to be affected by the compensation limit. All are assumed to pay the average of the three highest compensation tier premiums.	
G.	Adjustment to MPP Program Eligibility in Last Year	Eligibility for current active employees is limited to those who retire before July 1, 2012. We have added an extra year to this period to reflect the fact that some members may choose to retire earlier than they otherwise would have, in order to take advantage of the MPP Program benefits.	

**California State Teachers' Retirement System
Medicare Premium Payment Program - 2010 Actuarial Valuation**

**Table B.2
Mortality**

<u>Active Members</u>				
<u>Age</u>	<u>Male</u>	<u>Female</u>		
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		
	<u>Retired Members and Beneficiaries*</u>		<u>Disabled Members (After Year 3)*</u>	
<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
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
Select rates for disability:				
	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
Medicare Premium Payment Program - 2010 Actuarial Valuation**

**Table B.3
Service Retirement**

Age	Only for the 1990 Benefit Structure		For the DB Program			
	Male	Female	Under 30 Years*		30 or More Years	
			Male	Female	Male	Female
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 11%.

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
Medicare Premium Payment Program - 2010 Actuarial Valuation**

**Table B.4
Disability Retirement**

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	0.530
65	0.144	0.853	0.168	0.916

**California State Teachers' Retirement System
Medicare Premium Payment Program - 2010 Actuarial Valuation**

**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 & 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 & 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	1.1	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
Medicare Premium Payment Program - 2010 Actuarial Valuation**

**Table B.6
Probability of Refund**

<u>Year</u>	<u>Entry Ages - Male</u>				
	<u>Under 25</u>	<u>25 - 29</u>	<u>30 - 34</u>	<u>35 - 39</u>	<u>40 and Up</u>
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>Year</u>	<u>Entry Ages - Female</u>				
	<u>Under 25</u>	<u>25 - 29</u>	<u>30 - 34</u>	<u>35 - 39</u>	<u>40 and Up</u>
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
Medicare Premium Payment Program - 2010 Actuarial Valuation**

**Table B.7
Part A Enrollment Rates***

Assumption	Best Estimate		Higher Cost	
	Male	Female	Male	Female
Percentage of Actives and Under 65 Retirees Enrolling (Retired on or After 2001)**	3.50%	3.50%	4.50%	4.50%
Percentage of Under 65 Retirees Enrolling (Retired Before 2001)**	4.50%	4.50%	5.50%	5.50%
Percentage of Over 65 Retirees Enrolling (for those not Currently Enrolled) at Age:***				
65	2.50%	2.50%	3.00%	3.00%
66	1.00	1.00	2.20	2.20
67	0.25	0.25	0.30	0.30
68	0.15	0.15	0.18	0.18
69	0.10	0.10	0.12	0.12
70-74	0.05	0.05	0.06	0.06
75 & Above	0.05	0.05	0.06	0.06
Percentage of Over 65 Retirees Enrolling (for those Already Enrolled)	100.0%	100.0%	100.0%	100.0%

* Only current enrollees are assumed to receive Part B payments.

** For actives and under 65 retirees, the enrollment percent applies upon reaching age 65 (or retirement age if later). No enrollment is assumed after age 65 (or retirement age if later).

*** For over 65 retirees, the enrollment percent applies in each future year.

California State Teachers' Retirement System Medicare Premium Payment Program - 2010 Actuarial Valuation

Appendix C Valuation Data

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

In preparing this report, we relied upon the membership data furnished by CalSTRS. Although we did not audit this data, we compared the data for this and the prior study and tested for reasonableness. 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.2 summarizes the census data used in this valuation.

California State Teachers' Retirement System
Medicare Premium Payment Program - 2010 Actuarial Valuation

Table C.1
Summary of Statistical Information

	June 30, 2010	June 30, 2008
Number of Enrolled Members		
Retirees with Part A Premium	6,452	6,238
Retirees with Part B Penalty	1,089	1,217
Average CalSTRS Payment for Enrolled Members (for current calendar year)		
Retirees with Part A Premium	\$ 436.13	\$ 449.42
Retirees with Part B Penalty	66.35	59.30

**California State Teachers' Retirement System
Medicare Premium Payment Program - 2010 Actuarial Valuation**

**Table C.2
Projected MPP Program Membership**

Plan Yr Ending 6/30	Projected Participants					
	Part A			Part B		
	Current Status			Current Status		
	Active	Retired	Total	Active	Retired	Total
2011	60	6,742	6,802	-	1,061	1,061
2012	109	7,115	7,224	-	999	999
2013	183	7,288	7,470	-	936	936
2014	251	7,399	7,650	-	871	871
2015	327	7,368	7,695	-	805	805
2016	413	7,290	7,703	-	739	739
2017	492	7,160	7,652	-	673	673
2018	551	6,957	7,508	-	608	608
2019	589	6,729	7,318	-	544	544
2020	612	6,490	7,102	-	482	482
2021	628	6,210	6,839	-	422	422
2022	633	5,918	6,551	-	366	366
2023	629	5,623	6,252	-	313	313
2024	621	5,321	5,942	-	264	264
2025	614	5,006	5,620	-	220	220
2026	605	4,691	5,296	-	181	181
2027	588	4,373	4,961	-	147	147
2028	578	4,059	4,637	-	117	117
2029	558	3,741	4,299	-	92	92
2030	543	3,431	3,974	-	72	72
2031	528	3,114	3,642	-	55	55
2032	510	2,829	3,339	-	42	42
2033	490	2,527	3,017	-	31	31
2034	466	2,257	2,724	-	23	23
2035	440	1,984	2,424	-	17	17
2036	415	1,731	2,147	-	12	12
2037	393	1,500	1,893	-	9	9
2038	364	1,289	1,653	-	6	6
2039	337	1,093	1,430	-	4	4
2040	311	919	1,230	-	3	3
2041	282	763	1,045	-	2	2
2042	255	621	877	-	1	1
2043	225	496	721	-	1	1
2044	200	397	597	-	1	1
2045	176	321	497	-	-	-
2046	150	240	390	-	-	-
2047	128	191	319	-	-	-
2048	110	145	254	-	-	-
2049	83	108	190	-	-	-
2050	69	77	146	-	-	-
2051	55	61	116	-	-	-

California State Teachers' Retirement System

Medicare Premium Payment Program - 2010 Actuarial Valuation

Appendix D Glossary

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

Actuarial Assumptions:	Assumptions as to the occurrence of future events affecting pension and medical costs, such as mortality, withdrawal, disablement, and retirement, changes in medical costs, participation in the MPP Program, rates of investment earnings and asset appreciation or depreciation, and procedures used to determine other relevant items.
Actuarial Cost Method:	A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Obligation.
Actuarial Gain or Loss:	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.
Actuarial Obligation:	That portion, as determined by a particular Actuarial Cost method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs. Note that for purposes of the MPP Program valuation, the value of future Normal Costs is \$0.
Actuarial Present Value:	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.
Actuarial Surplus:	The excess, if any, of the Actuarial Value of Assets over the Actuarial Obligation.



This work product was prepared solely for CalSTRS for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

Actuarial Valuation:	The determination, as of a Valuation Date, of the Normal Cost, Actuarial Obligation, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.
Actuarial Value of Assets:	The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation. For the MPP Program valuation, the Actuarial Value of Assets is equal to the value of future MPP Program payments.
Actuarial Equivalent:	Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.
Normal Cost:	The portion of the Actuarial Present Value of Projected Benefits which is allocated to a valuation year by the Actuarial Cost Method. Note that for purposes of the MPP Program valuation, the Normal Cost is \$0.
Unfunded Actuarial Obligation:	The excess, if any, of the Actuarial Obligation over the Actuarial Value of Assets.
Valuation Date:	June 30, 2010.