



Schools Pool Actuarial Valuation

As of June 30, 2013

Establishing Required Contributions

for the Fiscal Year

July 1, 2014 through June 30, 2015

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Schools Pool Actuarial Valuation as of June 30, 2013

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Actuarial Certification

To the best of our knowledge, this report is complete and accurate and contains sufficient information to fully and fairly disclose the funded condition of the CalPERS Schools Pool. This valuation is based on the member and financial data as of June 30, 2013 provided by the various CalPERS databases and the benefits under this plan with CalPERS as of the date this report was produced. In our opinion, this valuation has been performed in accordance with generally accepted actuarial principles and in accordance with standards of practice prescribed by the Actuarial Standards Board. The assumptions and methods are internally consistent and reasonable for this plan, as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.

The undersigned are actuaries for CalPERS, who are members of the American Academy of Actuaries and the Society of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

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HIGHLIGHTS AND EXECUTIVE SUMMARY

- **INTRODUCTION**
- **PURPOSE OF THE REPORT**
- **EMPLOYER REQUIRED CONTRIBUTION RATES**
- **EXPECTED FUTURE CHANGES**
- **HISTORY OF THE EXPECTED CONTRIBUTION REQUIREMENTS**
- **FUNDED STATUS OF THE PLAN**
- **CHANGES SINCE THE PRIOR YEAR'S VALUATION**
- **SUBSEQUENT EVENTS**

Introduction

This is the actuarial valuation report as of June 30, 2013 for the Schools Pool. This actuarial valuation was used to set the 2014-15 required employer contribution rate.

The Schools Pool provides retirement benefits to members employed by school districts and community college districts in California. It generally does not cover teachers as they are covered by a separate retirement system – the California State Teachers' Retirement System, also known as CalSTRS.

Previously, the valuation report for the Schools Pool has been combined with the report on the valuation of the State plans. Due to differences in the timing of actuarial assumption changes, a desire to simplify the reporting and to provide greater flexibility in the future, separate reports are now being provided.

On January 1, 2013, the Public Employees' Pension Reform Act of 2013 (PEPRA) took effect. This is the first actuarial valuation of the plan that includes membership under the new benefit formulas. For more information on PEPRA, please refer to the CalPERS website.

On April 17, 2013, the CalPERS Board of Administration approved a recommendation to change the CalPERS amortization and smoothing policies. Prior to this change, CalPERS employed an amortization and smoothing policy, which spread investment returns over a 15-year period while experience gains and losses were amortized over a rolling 30-year period. Effective with the June 30, 2014 valuation, CalPERS will no longer use an actuarial value of assets and will employ an amortization and smoothing policy that will spread rate increases or decreases over a 5-year period, and will amortize all experience gains and losses over a fixed 30-year period. This valuation will be performed in early 2015 and will set employer contribution rates for the fiscal year 2015-16.

In 2014 CalPERS completed a 2-year asset liability management study incorporating actuarial assumptions and strategic asset allocation. On February 19, 2014, the CalPERS Board of Administration adopted relatively modest changes to the current asset allocation that will reduce the expected volatility of returns. The adopted asset allocation is expected to have a long-term blended return that continues to support a discount rate assumption of 7.5 percent. The Board also approved several changes to the demographic assumptions that more closely align with actual experience. The most significant of these changes is the inclusion of mortality improvement to acknowledge the greater life expectancies we are seeing in our membership and expected continued improvements.

As per the Board's decision in February of this year, the new actuarial assumptions will be incorporated in the June 30, 2015 valuation for the Schools Pool. The increase in liability due to the new actuarial assumptions will be amortized over 20 years and phased in over 5 years in accordance with Board policy, beginning with the contribution requirement for fiscal year 2016-17. The projected impact of the assumption change on the Schools Pool rate is estimated to be an increase of 1.6 percent of payroll in 2016-17 with approximate annual increases of 0.8 percent of payroll in each of the next 4 years with an estimated total increase of 4.8 percent of payroll by 2020-21.

The combined impact of known assumption and method changes and gains and losses on future contribution rates is shown in the projected rates in the "Risk Analysis" section of this report.

Purpose of the Report

This actuarial valuation was performed by the CalPERS Actuarial Office using data as of June 30, 2013. The purpose of the report is to:

- Set forth the assets and accrued liabilities of this plan as of June 30, 2013
- Determine the required employer contribution rate for the fiscal year July 1, 2014 through June 30, 2015
- Provide actuarial information as of June 30, 2013 to the CalPERS Board of Administration and other interested parties, and to
- Provide pension information as of June 30, 2013 to be used in financial reports subject to Governmental Accounting Standards Board (GASB) Statement Number 27.

The use of this report for any other purposes may be inappropriate.

California Actuarial Advisory Panel Recommendations

This report includes all the basic disclosure elements as described in the *Model Disclosure Elements for Actuarial Valuation Reports* recommended in 2011 by the California Actuarial Advisory Panel (CAAP), with the exception of including the original base amounts of the various components of the unfunded liability in the “Schedule of Amortization Bases.”

Additionally, this report includes the following “Enhanced Risk Disclosures” also recommended by the CAAP in the Model Disclosure Elements document:

- A “Deterministic Stress Test,” projecting future results under different investment income scenarios
- A “Sensitivity Analysis,” showing the impact on current valuation results using a 1 percent plus or minus change in the discount rate.

Employer Required Contribution Rates

The actuarially required employer contribution rates for the fiscal year July 1, 2014 through June 30, 2015 are shown in the table below. For comparison purposes, the corresponding contribution rates for fiscal year July 1, 2013 through June 30, 2014 are also provided. The expected contribution amounts that these rates are/were expected to generate are also shown.

	Fiscal Year 2013-14	Fiscal Year 2014-15
Actuarially Determined Employer Contributions		
1. Contribution in Projected Dollars		
a) Total Normal Cost	\$ 1,465,973,324	\$ 1,541,474,132
b) Employee Contribution ¹	716,957,540	726,957,033
c) Employer Normal Cost [(1a) – (1b)]	749,015,784	814,517,100
d) Unfunded Contribution	422,929,774	412,464,594
e) Required Employer Contribution [(1c) + (1d)]	\$ 1,171,945,558	\$ 1,226,981,694
Projected Annual Payroll for Contribution Year	\$ 10,242,250,566	\$ 10,423,817,503
2. Contribution as a Percentage of Payroll		
a) Total Normal Cost	14.313%	14.788%
b) Employee Contribution ¹	7.000%	6.974%
c) Employer Normal Cost [(2a) – (2b)]	7.313%	7.814%
d) Unfunded Rate	4.129%	3.957%
e) Required Employer Rate [(2c) + (2d)]	11.442%	11.771%

The supporting exhibit in this report entitled “Reconciliation of Employer Contributions” on page 26 provides explanations of the changes in required contribution rates and expected contribution amounts from the 2013-14 fiscal year to the 2014-15 fiscal year. A history of the required contribution rates is included on page 27 of this report.

¹ For classic members this is the percentage specified in the Public Employees Retirement Law, net of any reduction from the use of a modified formula or other factors. For PEPRA members the member contribution rate is based on 50 percent of the total normal cost. A development of PEPRA member contribution rates can be found in Appendix D.

Reasons for Change in Employer Contributions for the Schools Pool

Overall, the required contributions for the Schools Pool has increased by \$55.0 million between fiscal year 2013-14 and fiscal year 2014-15. These increases in required contributions are mainly due to plan experience in 2012-13 and are shown in the table below. Included in the category “Other Gains and Losses” in the table below are gains from individual salary increases lower than expected that are offset by an increase in contributions due to an improvement in the calculation methodology for termination benefits and gains or losses due to data corrections.

Reason for Change	Change in Required Contribution (millions)
Change due to normal progression of existing amortization bases	\$12.6
Change due to payroll being lower than expected	13.3
Actuarial gains and losses:	
• Impact of recognizing lower than expected investment returns from prior years	26.8
• Other Gains and Losses	2.3
Total Change in Required Contributions	\$55.0

Expected Future Changes

The estimated 2015-16 employer rate for the Schools Pool is 12.0% based on an 18 percent investment return for fiscal year 2013-14. Note that the projected rate assumes that all other actuarial assumptions will be realized, reflects the amortization and smoothing policy changes, and assumes that no changes to benefits will occur between now and the beginning of fiscal year 2015-16.

A scenario analysis was performed to determine the effects of various investment returns on future employer contribution rates for three years beyond the estimated 2015-16 employer rates shown above. That information is available in the “Risk Analysis” section of this report.

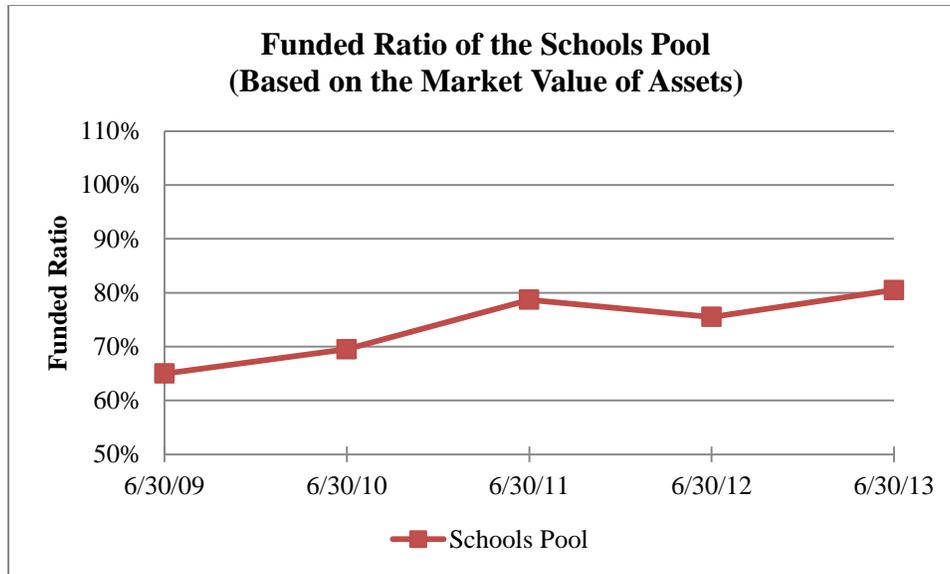
History of the Expected Contribution Requirements

The following table shows the history of the employer contributions set by CalPERS based on projected payroll for the Schools Pool going back to fiscal year 1996-97.

Fiscal Year	Total School Contributions
1996-97	\$ 416,694,314
1997-98	317,571,853
1998-99	0
1999-00	0
2000-01	0
2001-02	0
2002-03	228,972,653
2003-04	869,501,830
2004-05	903,570,002
2005-06	826,672,339
2006-07	841,504,282
2007-08	919,528,538
2008-09	966,316,743
2009-10	1,081,377,863
2010-11	1,189,482,769
2011-12	1,232,486,937
2012-13	1,203,430,156
2013-14	1,171,945,558
2014-15	1,226,981,694

Funded Status of the Plan

The funded status of a pension plan is defined as the ratio of assets to a plan's accrued liabilities. Plans with a lower funded ratio are, all other things being equal, more at risk of not being able to meet their future benefit obligations. From June 30, 2012 to June 30, 2013 the funded status for the Schools Pool increased by 5 percent. This was mainly due to the investment return for 2012-13 being greater than expected. Note that the increase in accrued liability due to the demographic assumption change will not be reflected until the June 30, 2015 valuation. The graph on the following page shows the average funded status for the past five years for the Schools Pool based on the market value of assets.



The table below shows the funded status of the plan using the market value of assets on June 30, 2013.

Funded Status and Unfunded Liability on June 30, 2013

	June 30, 2012	June 30, 2013
1. Present Value of Projected Benefits	\$ 69,705,029,824	\$ 72,261,792,494
2. Entry Age Normal Accrued Liability	59,439,130,743	61,487,179,133
3. Market Value of Assets (MVA)	\$ 44,853,803,861	\$ 49,481,899,610
4. Unfunded Liability [(2) - (3)]	\$ 14,585,326,882	\$ 12,005,279,523
5. Funded Ratio [(3) / (2)]	75.5%	80.5%

The table below shows the funded status for the plan for the last five years.

Funded Ratio of the Retirement Program (Based on the Market Value of Assets)				
June 30, 2009	June 30, 2010	June 30, 2011	June 30, 2012	June 30, 2013
65.0%	69.5%	78.7%	75.5%	80.5%

Changes Since the Prior Year's Valuation

Plan Provisions

On January 1, 2013, the Public Employees' Pension Reform Act of 2013 (PEPRA) took effect. This is the first valuation that includes membership under the new formula. This law also required that new members pay half of their total normal cost. The development of the PEPRA member contribution rate is disclosed in Appendix D of this report. For more information on PEPRA, please refer to the CalPERS website.

Subsequent Events

Actuarial Methods and Assumptions

On April 17, 2013, the CalPERS Board of Administration approved a recommendation to change the CalPERS amortization and smoothing policies. Beginning with the June 30, 2014 valuation for the Schools Pool that sets the 2015-16 rates, CalPERS will no longer use an actuarial value of assets and will employ an amortization and rate smoothing policy that will pay for all gains and losses over a fixed 30-year period with the increases or decreases in the rate spread directly over a 5-year period. The impact of this new actuarial methodology is reflected in the "Expected Rate Increases" subsection of the "Risk Analysis" section of this report.

In 2014 CalPERS completed a 2-year asset liability management study incorporating actuarial assumptions and strategic asset allocation. On February 19 the CalPERS Board of Administration adopted relatively modest changes to the current asset allocation that will reduce the expected volatility of returns. The adopted asset allocation is expected to have a long-term blended return that continues to support a discount rate assumption of 7.5 percent.

The Board also approved several changes to the demographic assumptions that more closely align with actual experience. The most significant of these is mortality improvement to acknowledge the greater life expectancies we are seeing in our membership and expected continued improvements. The new actuarial assumptions will be used to set the FY 2016-17 contribution rates for School employers. The increase in liability due to new actuarial assumptions will be calculated in the 2015 actuarial valuation and will be amortized over a 20-year period with a 5-year ramp-up/ramp-down in accordance with Board policy. The impact of assumption changes are included in the "Expected Rate Increases" subsection of the "Risk Analysis" section.

ASSETS

- **RECONCILIATION OF THE MARKET VALUE OF ASSETS OVER THE PRIOR FISCAL YEAR**
- **DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS**
- **ASSET ALLOCATION**
- **CALPERS HISTORY OF INVESTMENT RETURNS**

Reconciliation of the Market Value of Assets Over the Prior Fiscal Year

1.	Market Value of Assets as of June 30, 2012 Including Receivables	\$ 44,853,803,861
2.	Receivables for Service Buybacks as of June 30, 2012	29,408,567
3.	Adjustment	479,856
4.	Market Value of Assets as of July 1, 2012 [(1) - (2) + (3)]	44,824,875,150
5.	Contributions Received during fiscal year 2012-13	1,833,133,338
6.	Benefit Payments in 2012-13	(2,855,219,916)
7.	Refunds in 2012-13	(94,771,544)
8.	Transfers In/Out in 2012-2013	(148,542)
9.	Investment Return	5,676,150,902
10.	Market Value of Assets as of June 30, 2013 [(4) + (5) + (6) + (7) + (8) + (9)]	\$ 49,384,019,388
11.	Receivables for Service Buybacks as of June 30, 2013	97,880,222
12.	Market Value of Assets as of June 30, 2013 Including Receivables	\$ 49,481,899,610

Development of the Actuarial Value of Assets

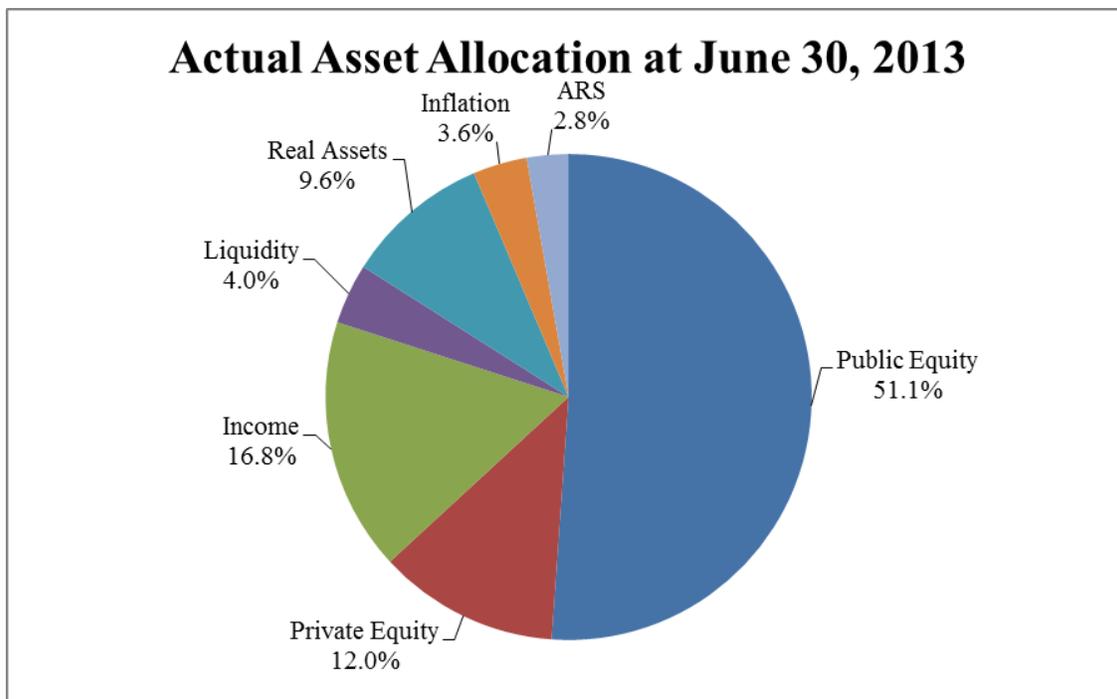
1.	Actuarial Value of Assets as of June 30, 2012 Including Receivables	\$ 53,791,228,732
2.	Receivables for Service Buybacks as of June 30, 2012	29,408,567
3.	Actuarial Value of Assets as of June 30, 2012 [(1) - (2)]	\$ 53,761,820,165
4.	Contributions Received during fiscal year 2012-13	1,833,133,338
5.	Benefit Payments in 2012-13	(2,855,219,916)
6.	Refunds in 2012-13	(94,771,544)
7.	Transfers In/Out in 2012-2013	(148,542)
8.	Expected Investment Return during fiscal 2012-13 [(3) x 0.075 + [(4) + (5) + (6) + (7)] x ((1 + 0.075) ^{.5} - 1)]	3,991,006,017
9.	Expected Actuarial Value of Assets as of June 30, 2013 [(3) + (4) + (5) + (6) + (7) + (8)]	\$ 56,635,819,518
10.	Market Value of Assets as of June 30, 2013	49,384,019,388
11.	Actuarial Value of Assets as of June 30, 2013 [(9) + [(10) - (9)]/15, but not less than 80% or more than 120% of (9)]	56,152,366,176
12.	Receivables for Service Buybacks as of June 30, 2013	97,880,222
13.	Actuarial Value of Assets as of June 30, 2013 Including Receivables [(11) + (12)]	\$ 56,250,246,398

Asset Allocation

CalPERS adheres to an Asset Allocation Strategy which establishes asset class allocation policy targets and ranges, and manages those asset class allocations within their policy ranges. CalPERS recognizes that over 90 percent of the variation in investment returns of a well-diversified pool of assets can typically be attributed to asset allocation decisions. On February 19, 2014 the CalPERS Board of Administration adopted changes to the current asset allocation that will lower the expected volatility while maintaining the expected long term blended rate of return of 7.5 percent.

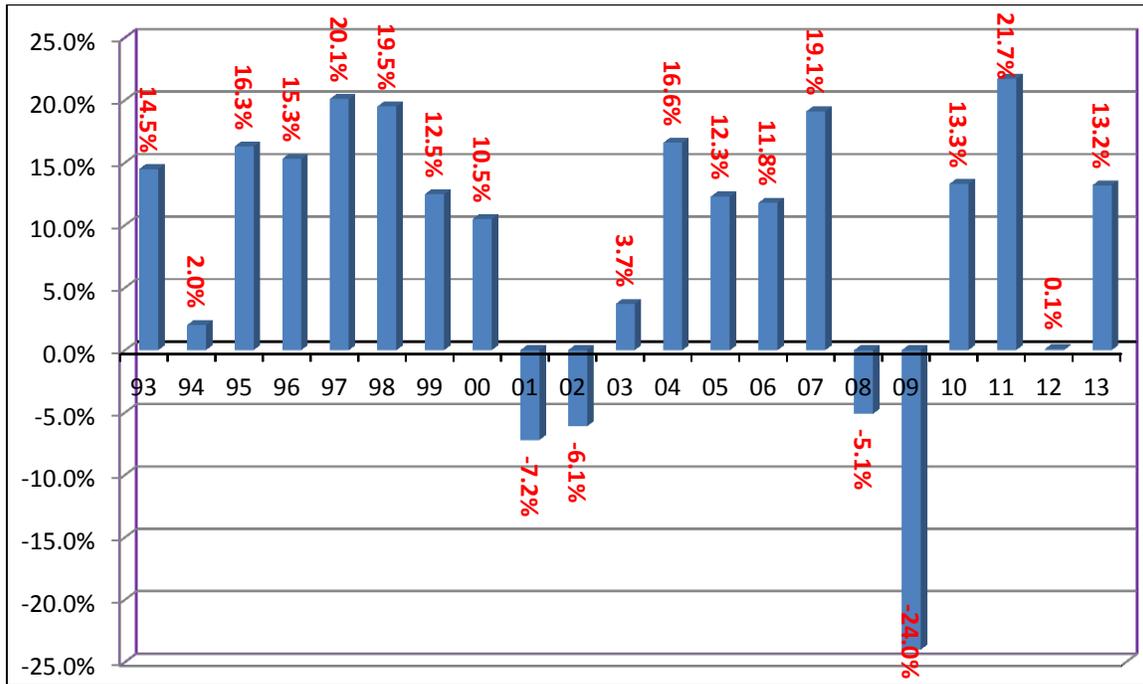
The asset allocation and market value of assets shown below reflect the values of the Public Employees Retirement Fund (PERF) in its entirety as of June 30, 2013. The assets of the Schools Pool are part of the Public Employees Retirement Fund (PERF) and are invested accordingly.

(A) Asset Class	(B) Market Value (\$ Billion)	(C) Policy Target Allocation
1) Global Equity	133.4	47.0%
2) Private Equity	31.4	12.0%
3) Global Fixed Income	43.9	19.0%
4) Liquidity	10.5	2.0%
5) Real Assets	25.2	14.0%
6) Inflation Sensitive Assets	9.4	6.0%
7) Absolute Return Strategy (ARS)	7.2	0.0%
Total Fund	\$261.0	100.0%



CalPERS History of Investment Returns

The following is a chart with historical annual returns of the Public Employees Retirement Fund for each fiscal year ending on June 30. Beginning with June 30, 2002, the figures are reported gross of fees.



The table below shows historical geometric mean annual returns of the Public Employees Retirement Fund for each fiscal year ending on June 30, 2013, (figures are reported as gross of fees). The geometric mean rate of return is the average rate per period compounded over multiple periods. It should be recognized that in any given year the rate of return is volatile. Although the expected rate of return on the recently adopted new asset allocation is 7.5 percent the portfolio has an expected standard deviation of 11.76 percent per year. Consequently when looking at investment returns it is more instructive to look at returns over longer time horizons.

History of CalPERS Geometric Mean Rate of Return				
1 year	5 year	10 year	20 year	30 year
13.2%	3.5%	7.0%	7.6%	9.5%

LIABILITIES AND RATES

- **COMPARISON OF CURRENT AND PRIOR YEAR**
- **DEVELOPMENT OF ACCRUED AND UNFUNDED LIABILITIES**
- **DEVELOPMENT OF EMPLOYER CONTRIBUTION RATES**
- **SCHEDULE OF AMORTIZATION BASES FOR THE RETIREMENT PROGRAM**
- **GAIN AND LOSS ANALYSIS**
- **RECONCILIATION OF EMPLOYER CONTRIBUTIONS**
- **EMPLOYER CONTRIBUTION RATE HISTORY**
- **HISTORY OF FUNDED STATUS AND FUNDING PROGRESS**

Comparison of Current and Prior Year

Shown below are the key valuation results for the current valuation compared to the corresponding results from the prior valuation.

Participant Information

	June 30, 2012	June 30, 2013
Members Included in the Valuation ¹		
Active Members	283,003	280,422
Transfers from Schools	30,237	22,116
Vested Terminations ²	167,758	170,094
Receiving Payments	<u>195,233</u>	<u>202,199</u>
Total	676,231	674,831
Average Entry Age of Active Members	36.5	36.5
Average Age of Active Members	47.5	47.7
Average Pay	\$ 34,114	\$ 35,038
Covered Payroll Prior Fiscal Year	\$ 9,654,303,484	\$ 9,825,483,034
Projected Payroll for Contribution Rate	\$ 10,242,250,566	\$ 10,423,854,951

1 Counts of members included in the valuation are counts of the records processed by the valuation. Multiple records may exist for those who have service in more than one coverage group. This does not result in double counting of liabilities.

2 Includes non-vested terminated participants with employee contributions remaining in the plan.

Funded Status of the Retirement Program

	June 30, 2012	June 30, 2013
Present Value of Benefits	\$ 69,705,029,824	\$ 72,261,792,494
Accrued Liability	\$ 59,439,130,743	\$ 61,487,179,133
Market Value of Assets	\$ 44,853,803,861	\$ 49,481,899,610
Unfunded Liability/(Surplus) on a Market Value of Assets Basis	\$ 14,585,326,882	\$ 12,005,279,523
Funded Status	75.5%	80.5%

Employer Contribution

	June 30, 2012	June 30, 2013
Contribution Required in Dollars		
Total Normal Cost	\$ 1,465,973,324	\$ 1,541,474,132
Employee Contribution	716,957,540	726,957,033
Employer Normal Costs	749,015,784	\$ 814,517,100
Amortization of Unfunded Liability ³	<u>422,929,774</u>	<u>412,464,594</u>
Total	\$ 1,171,945,558	\$ 1,226,981,694
Contribution Required (Percent of Payroll)		
Total Normal Cost	14.313%	14.788%
Employee Contribution	7.000%	6.974%
Employer Normal Costs	7.313%	7.814%
Amortization of Unfunded Liability ³	<u>4.129%</u>	<u>3.957%</u>
Total	11.442%	11.771%

³ For rate setting purposes, the unfunded liability is calculated based on the smoothed actuarial value of assets.

Development of Accrued and Unfunded Liabilities

The following table shows the development of the accrued liabilities and the unfunded liabilities based on the market value of assets and represent the true measure of the plan's ability to pay benefits.

1. Present Value of Projected Benefits	
a) Active and Inactives	\$ 40,809,438,621
b) Retired	31,452,353,873
c) Total	<u>\$ 72,261,792,494</u>
2. Present Value of Future Employee Contributions	\$ 5,277,985,101
3. Present Value of Future Employer Normal Costs	\$ 5,496,628,260
4. Accrued Liability [(1c) – (2) – (3)]	61,487,179,133
5. Market Value of Assets (MVA)	\$ 49,481,899,610
6. Unfunded Liability/(Surplus) MVA Basis [(4) – (5)]	\$ 12,005,279,523
7. Funded Status MVA Basis [(5) / (4)]	80.5%

Development of Employer Contribution Rates

The following table shows the development of the unfunded liabilities based on the smoothed actuarial value of assets. The unfunded liability on an actuarial value of assets basis is only for purposes of setting the employer contribution and keeping the contribution rates as smooth as possible from year to year.

Accrued Liability	\$ 61,487,179,133
Actuarial Value of Assets (AVA)	<u>\$ 56,250,246,398</u>
Unfunded Liability/(Surplus) AVA Basis	\$ 5,236,932,735

The following table shows the development of the employer contribution rates which includes the amortization of the unfunded liability calculated on an actuarial value of assets basis.

Employer Contribution Amount	
Normal Cost	\$ 814,517,100
Payment on the Unfunded Liability	<u>412,464,594</u>
Total Employer Contribution Amount	\$ 1,226,981,694
Projected Payroll	\$ 10,423,817,503
Employer Contribution (as a percent of payroll)	
Normal Cost	7.814%
Payment on the Unfunded Liability	<u>3.957%</u>
Total Employer Contribution Rate	11.771%

Schedule of Amortization Bases for the Retirement Program

The schedule below shows the development of the payment on the amortization bases used to determine the employer contribution rate. Each row of the schedule gives a brief description of a base (or portion of the Unfunded Actuarial Liability), the date the base was established, the balance of the base on the valuation date, and the number of years remaining in the amortization period. In addition, we show the expected payment for the year immediately following the valuation date, the balance on the date a year after the valuation date, and the scheduled payment for fiscal year 2014-15. Please refer to Appendix A for an explanation of how amortization periods are determined.

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2013	Expected Payment in 2013-14	Amount Remaining on 6/30/2014	Scheduled Payment for Fiscal Year 2014-15
Assumption Change	6/30/2011	18	\$ 1,370,691,386	\$ 106,950,887	\$ 1,362,604,200	\$ 110,159,413
Assumption Change	6/30/2009	16	\$ 1,046,044,563	\$ 87,879,482	\$ 1,033,382,519	\$ 90,515,866
Fresh Start	6/30/2004	21	\$ 2,810,147,587	\$ 200,052,092	\$ 2,813,490,232	\$ 206,053,655
(Gain)/Loss in 2009	6/30/2009	26	\$ 835,266,396	\$ 52,937,702	\$ 843,024,398	\$ 54,525,833
(Gain)/Loss in 2010	6/30/2010	27	\$ 404,491,757	\$ 25,151,380	\$ 408,751,133	\$ 25,905,922
(Gain)/Loss in 2011	6/30/2011	28	\$ (881,543,903)	\$ (53,839,469)	\$ (891,837,746)	\$ (55,454,653)
(Gain)/Loss	N/A	30	\$ (401,664,887)	\$ 585,007	\$ (432,396,302)	\$ (25,965,626)
Payment (Gain)/Loss	N/A	30	\$ 53,499,836	\$ (52,528,896)	\$ 111,975,443	\$ 6,724,184
Total			\$ 5,236,932,735	\$ 367,188,185	\$ 5,248,993,877	\$ 412,464,594

Gain and Loss Analysis

A. Total (Gain)/Loss for the Year		
1.	Unfunded Liability/(Surplus) as of June 30, 2012	\$ 5,647,902,011
2.	Expected Payment on the Unfunded Liability during 2012-13	408,127,041
3.	Interest through June 30, 2013 $[0.075 \times (A1) - ((1 + 0.075)^{\frac{1}{2}} - 1) \times (A2)]$	408,564,569
4.	Change in Unfunded Liability as of June 30, 2013 due to New Assumptions	0
5.	Expected Unfunded Liability as of June 30, 2013 after all changes $[(A1) - (A2) + (A3) + (A4)]$	5,648,339,539
6.	Actual Unfunded Liability as of June 30, 2013	<u>5,236,932,735</u>
7.	Total (Gain)/Loss for 2012-13 $[(A6) - (A5)]$	\$ (411,406,804)
B. Contribution (Gain)/Loss for the Year		
1.	Expected Contribution for 2012-13	\$ 1,831,402,112
2.	Actual Contribution for 2012-13	<u>1,833,133,338</u>
3.	Contribution (Gain)/Loss for 2012-13 $[(B1) - (B2)]$	\$ (1,731,226)
C. Asset (Gain)/Loss for the Year		
1.	Actuarial Value of Assets before receivables as of June 30, 2012	\$ 53,761,820,165
2.	Contributions Received during 2012-13	1,833,133,338
3.	Benefits and Refunds Paid during 2012-13	(2,949,991,460)
4.	Transfers In/Out during 2012-13	(148,542)
5.	Expected Interest for 2012-13 $[0.075 \times (C1) + ((1 + 0.075)^{\frac{1}{2}} - 1) \times ((C2) + (C3) + (C4))]$	3,991,006,017
6.	Receivables for AER and Past Service Benefits	<u>29,408,567</u>
7.	Expected Actuarial Value of Assets as of June 30, 2013 $[(C1) + (C2) + (C3) + (C4) + (C5) + (C6)]$	\$ 56,665,228,085
8.	Actual Actuarial Value of Assets as of June 30, 2013	<u>56,250,246,398</u>
9.	Asset (Gain)/Loss for 2012-13 $[(C7) - (C8)]$	\$ 414,981,687
D. Liability (Gain)/Loss for the Year		
1.	Total (Gain)/Loss for 2012-13 (A7)	\$ (411,406,804)
2.	Contribution (Gain)/Loss for 2012-13 (B3)	(1,731,226)
3.	Asset (Gain)/Loss for 2012-13 (C9)	<u>414,981,687</u>
4.	Liability (Gain)/Loss for 2012-13 $[(D1) - (D2) - (D3)]$	\$ (824,657,266)
E. Development of the (Gain)/Loss Balance as of June 30, 2013		
1.	(Gain)/Loss Balance as of June 30, 2012	\$ 89,646,129
2.	Payment Made on the Balance during 2012-13	83,551,146
3.	Interest through June 30, 2013 $[0.075 \times (E1) - ((1 + 0.075)^{\frac{1}{2}} - 1) \times (E2)]$	<u>3,646,934</u>
4.	Scheduled (Gain)/Loss Balance as of June 30, 2013 $[(E1) - (E2) + (E3)]$	\$ 9,741,917
5.	(Gain)/Loss for 2012-13 $[(A7) \text{ above}]$	<u>(411,406,804)</u>
6.	Final (Gain)/Loss Balance as of June 30, 2013 $[(E4) + (E5)]$	\$ (401,664,887)

Reconciliation of Employer Contributions

	Percentage of Projected Payroll		Estimated \$ Based on Projected Payroll
1. Contribution for July 1, 2013 – June 30, 2014	11.442%	\$	1,171,945,558
2. Effect of changes since the prior year annual valuation			
a) Effect of unexpected changes in demographics and financial results	0.329%		29,135,807
b) Effect of plan changes	0.000%		0
c) Effect of changes in Assumptions/Methods	0.000%		0
d) Effect of change in payroll	-		25,900,329
e) Net effect of the changes above [sum of a through d]	0.329%		55,036,136
3. Contribution for July 1, 2014 – June 30, 2015	11.771%	\$	1,226,981,694

Employer Contribution Rate History

The table below provides a history of the contribution rates for the the Schools Pool. In cases where the contribution rate changed during the course of a fiscal year, the entry shown is the weighted average of the rates effective during the fiscal year.

Fiscal Year	Schools
1979-80	12.515%
1980-81	13.119%
1981-82	13.020%
1982-83	12.045%
1983-84	12.378%
1984-85	12.378%
1985-86	11.969%
1986-87	11.015%
1987-88	9.718%
1988-89	8.454%
1989-90	8.210%
1990-91	7.282%
1991-92	8.162%
1992-93	7.273%
1993-94	7.066%
1994-95	3.849%
1995-96	6.979%
1996-97	7.787%
1997-98	6.172%
1998-99	0.000%
1999-00	0.000%
2000-01	0.000%
2001-02	0.000%
2002-03	2.894%
2003-04	10.420%
2004-05	9.952%
2005-06	9.116%
2006-07	9.124%
2007-08	9.306%
2008-09	9.428%
2009-10	9.709%
2010-11	10.707%
2011-12	10.923%
2012-13	11.417%
2013-14	11.442%
2014-15	11.771%

History of Funded Status and Funding Progress

Shown below is the history of funding progress for the plan. One could view the trend in the ratio of the unfunded liability to covered payroll as a measure of the ability of the employer to address the unfunded liability.

Schools (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets (MVA)	Funded Status (MVA)	Unfunded Liabilities/ (Surplus) (MVA)	Projected Payroll for Contribution	Unfunded/ (Surplus) as a % of Payroll
6/30/87	\$8,582.66	\$8,173.59	95.2%	\$409.07	\$3,605.26	11.3%
6/30/88	9,395.40	\$8,341.39	88.8%	\$1,054.01	3,768.65	28.0%
6/30/89	9,941.35	\$9,925.64	99.8%	\$15.72	4,054.28	0.4%
6/30/90	11,249.14	\$9,297.76	82.7%	\$1,951.37	4,392.59	44.4%
6/30/91	12,002.48	\$13,300.78	110.8%	(\$1,298.30)	4,849.84	-26.8%
6/30/92	12,855.90	\$13,815.63	107.5%	(\$959.73)	4,882.78	-19.7%
6/30/93	13,575.13	\$14,955.70	110.2%	(\$1,380.57)	4,852.84	-28.4%
6/30/94	15,135.82	\$15,373.38	101.6%	(\$237.56)	5,140.41	-4.6%
6/30/95	16,421.90	\$17,314.37	105.4%	(\$892.46)	5,350.87	-16.7%
6/30/96	17,571.63	\$19,706.46	112.1%	(\$2,134.83)	5,145.78	-41.5%
6/30/97	17,583.43	\$23,499.15	133.6%	(\$5,915.72)	4,907.43	-120.5%
6/30/98	19,499.14	\$27,873.56	142.9%	(\$8,374.42)	5,444.66	-153.8%
6/30/99	21,216.00	\$30,917.57	145.7%	(\$9,701.57)	5,961.02	-162.8%
6/30/00	25,473.96	\$33,295.07	130.7%	(\$7,821.11)	7,052.94	-110.9%
6/30/01	27,946.43	\$30,307.55	108.4%	(\$2,361.12)	7,912.23	-29.8%
6/30/02	31,271.16	\$27,689.90	88.5%	\$3,581.27	8,344.24	42.9%
6/30/03	33,792.88	\$28,182.01	83.4%	\$5,610.86	9,079.11	61.8%
6/30/04	35,932.74	\$32,828.49	91.4%	\$3,104.24	9,068.75	34.2%
6/30/05	38,367.52	\$36,898.25	96.2%	\$1,469.27	9,222.78	15.9%
6/30/06	41,408.65	\$40,852.35	98.7%	\$556.31	9,880.89	5.6%
6/30/07	44,810.07	\$48,292.93	107.8%	(\$3,482.86)	10,249.83	-34.0%
6/30/08	48,537.68	\$45,547.90	93.8%	\$2,989.78	11,137.70	26.8%
6/30/09	52,493.08	\$34,146.45	65.0%	\$18,346.63	11,109.76	165.1%
6/30/10	55,306.96	\$38,435.17	69.5%	\$16,871.79	11,283.40	149.5%
6/30/11	58,358.41	\$45,900.99	78.7%	\$12,457.42	10,540.43	118.2%
6/30/12	59,439.13	\$44,853.80	75.5%	\$14,585.33	10,242.25	142.4%
6/30/13	61,487.18	\$49,481.90	80.5%	\$12,005.28	10,423.82	115.2%

RISK ANALYSIS

- **VOLATILITY RATIOS**
- **PROJECTED RATES**
- **ANALYSIS OF FUTURE INVESTMENT RETURN SCENARIOS**
- **ANALYSIS OF DISCOUNT RATE SENSITIVITY**

Volatility Ratios

The actuarial calculations supplied in this communication are based on a number of assumptions about very long-term demographic and economic behavior. Unless these assumptions (terminations, deaths, disabilities, retirements, salary growth, and investment return) are exactly realized each year, there will be differences on a year-to-year basis. The year-to-year differences between actual experience and the assumptions are called actuarial gains and losses and serve to lower or raise the employer's rates from one year to the next. Therefore, the rates will inevitably fluctuate, especially due to the ups and downs of investment returns.

Asset Volatility Ratio

Plans that have higher asset to payroll ratios produce more volatile employer rates due to investment return volatility. For example, a plan with an asset to payroll ratio of 8 may experience twice the contribution volatility due to investment return volatility than a plan with an asset to payroll ratio of 4. Below we have shown the asset volatility ratio. It should be noted that this ratio is a measure of the current situation. It increases over time but generally tends to stabilize as the plan matures.

Liability Volatility Ratio

Plans that have higher liability to payroll ratios produce more volatile employer rates due to investment return and changes in liability. For example, a plan with a liability to payroll ratio of 8 is expected to have twice the contribution volatility of a plan with a liability to payroll ratio of 4. The liability volatility ratio is also included in the table below. It should be noted that this ratio indicates a longer-term potential for contribution volatility and the asset volatility ratio, described above, will tend to move closer to this ratio as the plan matures.

Rate Volatility

<u>Rate Volatility</u>	<u>As of June 30, 2013</u>
1. Market Value of Assets without Receivables	\$ 49,384,019,388
2. Payroll	9,825,447,736
3. Asset Volatility Ratio [AVR = (1) / (2)]	5.0
4. Accrued Liability	\$ 61,487,179,133
5. Liability Volatility Ratio [(4) / (2)]	6.3

Projected Rates

On April 17, 2013, the CalPERS Board of Administration approved a recommendation to change the CalPERS amortization and smoothing policies. Beginning with the June 30, 2014 valuation that will set the 2015-16 rates, CalPERS will employ an amortization and rate smoothing policy that will pay for all gains and losses over a fixed 30-year period with the increases or decreases in the rate spread over a 5-year period. The table below shows projected employer contribution rates for the next six fiscal years, assuming CalPERS earns 18 percent for fiscal year 2013-14 and 7.50 percent every fiscal year thereafter, and assuming that all other actuarial assumptions will be realized and no changes to assumptions, contributions, benefits, or funding. These projections take into account potential rate increases from the demographic assumption change adopted by the Board in February 2014 that will first impact 2016-17 rates. They also take into account the positive impact PEPRAs is expected to gradually have on the normal cost.

New Rate	Projected Future Employer Contribution Rates						
	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
11.771%	12.0%	13.7%	14.7%	15.7%	16.7%	17.4%	

Analysis of Future Investment Return Scenarios

As part of this report, a sensitivity analysis was performed to determine the effects of various investment returns during fiscal years 2014-15, 2015-16 and 2016-17 on the 2016-17, 2017-18 and 2018-19 employer rates. The projected rates assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur. These projected rates also reflect that new hires will be entering into lower benefit formulas with a lower normal cost, the April 17, 2013 CalPERS Board-approved amortization and rate smoothing method change, and the demographic assumption change adopted by the Board in February 2014.

Five different investment return scenarios were selected.

- The first scenario is what one would expect if the markets were to give us a 5th percentile return from July 1, 2014 through June 30, 2017. The 5th percentile return corresponds to a -3.8 percent return for each of the 2014-15, 2015-16 and 2016-17 fiscal years.
- The second scenario is what one would expect if the markets were to give us a 25th percentile return from July 1, 2014 through June 30, 2017. The 25th percentile return corresponds to a 2.8 percent return for each of the 2014-15, 2015-16 and 2016-17 fiscal years.
- The third scenario assumed the return for 2014-15, 2015-16, and 2016-17 would be our assumed 7.5 percent investment return which represents about a 49th percentile event.

- The fourth scenario is what one would expect if the markets were to give us a 75th percentile return from July 1, 2014 through June 30, 2017. The 75th percentile return corresponds to a 12.0 percent return for each of the 2014-15, 2015-16 and 2016-17 fiscal years.
- Finally, the last scenario is what one would expect if the markets were to give us a 95th percentile return from July 1, 2014 through June 30, 2017. The 95th percentile return corresponds to a 18.9 percent return for each of the 2014-15, 2015-16 and 2016-17 fiscal years.

The tables below show the projected contribution rates for 2016-17 through 2018-19 for the various State Plans under the five different scenarios.

2014-17 Investment Return Scenario	Estimated Employer Rate			Estimated Change in Employer Rate between 2015-16 and 2018-19
	2016-17	2017-18	2018-19	
-3.8% (5th percentile)	14.6%	17.2%	20.5%	8.5%
2.8% (25th percentile)	14.1%	15.8%	17.8%	5.8%
7.5%	13.7%	14.7%	15.7%	3.7%
12.0%(75th percentile)	13.4%	13.7%	13.6%	1.6%
18.9%(95th percentile)	12.9%	12.0%	10.0%	-2.0%

Analysis of Discount Rate Sensitivity

The discount rate reflects expectations of what the markets will deliver in the future and it is calculated based on two components: expected price inflation and real rate of return. A change in either of those components over the long term would necessitate further evaluation of the discount rate.

The following analysis looks at the 2014-15 employer contribution rates under two different discount rate scenarios. Shown below are the employer contribution rates assuming discount rates are 1 percent lower and 1 percent higher than the current valuation discount rate. This analysis gives an indication of the potential required employer contribution rates if the PERF were to realize investment returns of 6.50 percent or 8.50 percent over the long term.

This type of analysis gives the reader a sense of the long-term risk to the employer contribution rates.

2014-15 Employer Contribution Rate			
As of June 30, 2013	6.50% Discount Rate (-1%)	7.50% Discount Rate (assumed rate)	8.50% Discount Rate (+1%)
Employer Normal Cost	11.4%	7.814%	5.1%
Unfunded Rate Payment	9.4%	3.957%	0.0%
Total	20.7%	11.771%	5.1%
Funded Status	71.5%	80.5%	89.9%

Note that the change in accrued liability due to the discount rate change, in the scenarios above, was amortized over 20 years as a level percentage of pay. In the case of a surplus, rates were calculated to equal the employer normal cost rate. This is based on a provision in the Public Employees' Pension Reform Act of 2013 (PEPRA) that requires a minimum employer contribution rate in combination with employee contributions shall not be less than the normal cost rate. Numbers may not add, due to rounding.

APPENDIX A

STATEMENT OF ACTUARIAL METHODS AND ASSUMPTIONS

•	ACTUARIAL DATA	A-1
•	ACTUARIAL METHODS	A-1
•	ACTUARIAL ASSUMPTIONS	A-4
•	MISCELLANEOUS	A-8

Actuarial Data

As stated in the Actuarial Certification, the data, which serves as the basis for this valuation, has been obtained from the various CalPERS databases. We have reviewed the valuation data and believe that it is reasonable and appropriate in aggregate. We are unaware of any potential data issues that would have a material effect on the results of this valuation, except that data does not always contain the latest salary information for former members now in reciprocal systems and does not recognize the potential for unusually large salary deviation in certain cases such as elected officials. Therefore, salary information in these cases may not be accurate. These situations are relatively infrequent, however, and when they do occur, they generally do not have a material impact on the employer contribution rates.

Actuarial Methods

FUNDING METHOD

The actuarial funding method used for this report is the Individual Entry Age Normal Cost Method. Under this method, projected benefits are determined for all members and the associated liabilities are spread in a manner that produces level annual cost as a percent of pay in each year from the age of hire (entry age) to the assumed retirement age. The cost allocated to the current fiscal year is called the normal cost.

The actuarial accrued liability for active members is then calculated as the portion of the total cost of the plan allocated to prior years. The actuarial accrued liability for members currently receiving benefits, for active members beyond the assumed retirement age, and for members entitled to deferred benefits, is equal to the present value of the benefits expected to be paid. No normal costs are applicable for these participants.

The excess of the total actuarial accrued liability over the actuarial value of plan assets is called the unfunded actuarial accrued liability. Funding requirements are determined by adding the normal cost and an amortization of the unfunded liability as a level percentage of assumed future payroll. Beginning July 1, 2000, the Schools plan became subject to the amortization methods prescribed in Actuarial Policy ACT-96-05E, described below.

Actuarial Policy ACT-96-05E specifies that all changes in liability due to plan amendments, changes in actuarial assumptions, or changes in actuarial methodology are amortized separately over a 20-year period. In addition, all gains or losses are tracked and the net unamortized gain or loss is amortized as a rolling 30-year amortization with the exception of gains and losses in fiscal years 2008-09, 2009-10 and 2010-11 in which each year's gains or losses will be isolated and amortized over fixed and declining 30-year periods (as opposed to the current rolling 30-year amortization). Also, if a plan's accrued liability exceeds the actuarial value of assets, the annual contribution with respect to the total unfunded liability may not be less than the amount produced by a 30-year amortization of the unfunded liability. Finally, all plans are subject to a minimum employer contribution rate equal to the employer normal cost plus a 30-year amortization of surplus, if any.

In addition, in February 2010 the CalPERS Board adopted a resolution requiring additional contributions for the Schools Pool if their cash flows hampered adequate funding progress by preventing the expected funded status on a market value of assets basis of the plan to either:

- Increase by at least 15 percent by June 30, 2042; or
- Reach a level of 75 percent funded by June 30, 2042

The necessary additional contribution will be obtained by changing the amortization period of the gains and losses, except for those occurring in the fiscal years 2008-09, 2009-10, and 2010-11 to a period which will result in the satisfaction of the above criteria. CalPERS actuaries will reassess the criteria above when performing each future valuation to determine whether or not the additional contributions are necessary for each plan.

An exception to the funding rules above is used whenever the application of such rules results in inconsistencies. In these cases, a “fresh start” approach is used. This simply means that the current unfunded actuarial liability/surplus is projected and amortized over a set number of years. This fresh start approach generally occurs when a total negative rate would result or a positive payment would be required on a negative unfunded actuarial liability (or conversely a negative payment on a positive unfunded actuarial liability). When the fresh start is being used to avoid a negative total rate and the surplus is sufficient to offset at least 30 years of normal cost payments, the amortization period equals the number of years that the rate is projected to be zero. In addition, a fresh start may be used whenever the Chief Actuary feels that it would better achieve the intent of the Board’s funding policy.

The 1959 Survivor Program valuation is not provided in this report. A separate report for that program is available.

PURCHASING POWER PROTECTION ACT (PPPA) METHOD

PPPA benefits are cost-of-living adjustments intended to maintain the individual’s current retirement benefit at 75 percent of the original benefit at retirement adjusted for inflation since retirement. The PPPA benefit is paid, if necessary, in addition to any other cost-of-living adjustment provided under the terms of the plan. Prior to January 1, 2001, there was a single PPPA pool covering all CalPERS employers. However, commencing January 1, 2001, separate PPPA pools were established. A pool was set up for all State plans and a separate pool for School employers. The public agencies were removed entirely from PPPA pooling resulting in each public agency plan paying for its own PPPA benefits. The creation of separate pools effectively eliminates the cross subsidization between the State, Schools and public agencies.

For the Schools plan, the total annual outlay for PPPA benefits is limited by State statute to earnings of up to 1.1 percent of accumulated member contributions. If this annual outlay is insufficient to provide the PPPA benefits in a given fiscal year, the 75 percent maintenance target would be proportionately reduced. Since the inception of the PPPA benefit program, 1.1 percent has proved more than sufficient to provide the 75 percent maintenance. Under the inflation assumption of 3 percent compounded annually, the 1.1 percent appears to remain more than sufficient in the foreseeable future.

The actuarial model mimics the PPPA administrative procedure by deriving the employer contribution rate for the plan as the lesser of two separate actuarially computed rates:

- 1) The rate that results if a full 1.1 percent investment return on the actuarial value of each future year’s employee assets in the plan is used for that plan’s PPPA payments; or
- 2) The rate that results if the plan pays the full 75 percent purchasing power for itself.

In this way, those plans for which future PPPA costs equal or exceed a 1.1 percent return on current and future employee assets are charged an employer rate that replaces the 1.1 percent return on employee assets. Those plans that require less than the 1.1 percent return on current and future employee assets to maintain 75 percent purchasing power are charged the rate necessary to maintain the 75 percent purchasing power. It must be noted that nothing is charged in the rates for any cross-subsidization. That is, the model assumes that cross subsidization for PPPA for State plans will remain so small that it can be ignored.

ASSET VALUATION METHOD

In order to dampen the effect of short-term market value fluctuations on employer contribution rates, the following asset smoothing technique is used. First, an Expected Value of Assets would be computed by bringing forward the prior year's Actuarial Value of Assets and the contributions received and benefits paid during the year at the assumed actuarial rate of return. The Actuarial Value of Assets would then be computed as the Expected Value of Assets plus one-fifteenth of the difference between the actual Market Value of Assets and the Expected Value of Assets as of the valuation date. Finally, the Actuarial Value of Assets is restricted to no less than 80 percent and no more than 120 percent of the Market Value of Assets.

In December 2009, the CalPERS Board adopted changes to the asset smoothing method in order to phase in over a three year period the impact of the -24 percent investment loss experienced by CalPERS in fiscal year 2008-09. The phase-in was accomplished by temporarily increasing the corridor limits for the actuarial value of assets to 60 percent - 140 percent in the 2009 valuation and 70 percent - 130 percent in the 2010 valuation. In this valuation, the corridor limits are back to 80 percent - 120 percent.

On April 17, 2013, the CalPERS Board of Administration approved a recommendation to change the CalPERS amortization and rate smoothing policies. Beginning with the June 30, 2014 valuations for the Schools Pool that sets the 2015-16 rates, CalPERS will no longer use an actuarial value of assets and will employ an amortization and smoothing policy that will pay for all gains and losses over a fixed 30-year period with the increases or decreases in the rate spread directly over a 5-year period. The expected impact is included in the projected contribution rates shown in this report. Details of the agenda item can be found on our website CalPERS On-Line:

<http://www.calpers.ca.gov/index.jsp?bc=/about/committee-meetings/archives/pension-201304.xml>

ACCOUNTS RECEIVABLE

In preparing valuations and setting employer contribution rates, the asset figures used include accounts receivable. The CalPERS Actuarial Office assumes that all assets are accruing interest at the actuarially assumed rate. Therefore, the rates depicted assume that all payments have been made and are accruing interest.

Actuarial Assumptions

ECONOMIC ASSUMPTIONS:

Discount Rate

7.5% compounded annually (net of administrative expenses).

Salary Growth

Annual increases vary by entry age and duration of service. A sample of the assumed increases are shown below

Duration of Service	Schools		
	Entry Age		
	20	30	40
0	10.80%	9.60%	8.20%
3	7.50%	7.00%	6.20%
5	6.30%	6.00%	5.30%
10	4.50%	4.40%	4.10%
15	3.90%	3.80%	3.50%
20	3.60%	3.50%	3.20%
25	3.40%	3.40%	3.20%
30	3.40%	3.40%	3.20%

Overall Payroll Growth

3 percent compounded annually (used in projecting the payroll over which the unfunded liability is amortized).

Inflation

2.75 percent compounded annually.

MISCELLANEOUS LOADING FACTORS:

Credit for Unused Sick Leave

Benefits are increased by 1 percent for all groups providing credit for unused sick leave.

Norris Decision (Best Factors)

Employees hired prior to July 1, 1982 have projected benefit amounts increased in order to reflect the use of “Best Factors” in the calculation of optional benefit forms. This is due to a 1983 Supreme Court decision, known as the Norris decision, which required males and females to be treated equally in the determination of benefit amounts. Consequently, anyone already employed at that time is given the best possible conversion factor when optional benefits are determined. No loading is necessary for employees hired after July 1, 1982.

DEMOGRAPHIC ASSUMPTIONS:*Post-retirement Mortality*

Rates vary by age, type of retirement and gender. See sample rates in the table below.

Age	Healthy Recipients		Non-Industrially Disabled (Not Job-Related)		Industrially Disabled (Job-Related)	
	Male	Female	Male	Female	Male	Female
50	0.00239	0.00125	0.01632	0.01245	0.00443	0.00356
55	0.00474	0.00243	0.01936	0.01580	0.00563	0.00546
60	0.00720	0.00431	0.02293	0.01628	0.00777	0.00798
65	0.01069	0.00775	0.03174	0.01969	0.01388	0.01184
70	0.01675	0.01244	0.03870	0.03019	0.02236	0.01716
75	0.03080	0.02071	0.06001	0.03915	0.03585	0.02665
80	0.05270	0.03749	0.08388	0.05555	0.06926	0.04528
85	0.09775	0.07005	0.14035	0.09577	0.11799	0.08017
90	0.16747	0.12404	0.21554	0.14949	0.16575	0.13775
95	0.25659	0.21556	0.31025	0.23055	0.26108	0.23331
100	0.34551	0.31876	0.45905	0.37662	0.40918	0.35165

The mortality assumptions are based on mortality rates resulting from the most recent CalPERS Experience Study adopted by the CalPERS Board, first used in the June 30, 2009 valuation. For purposes of the post-retirement mortality rates, those revised rates include 5 years of projected on-going mortality improvement using Scale AA published by the Society of Actuaries until June 30, 2010. There is no margin for future mortality improvement beyond the valuation date.

On February 19, 2014 the CalPERS Board adopted new recommended demographic assumption based on the most recent CalPERS Experience Study. These new actuarial assumptions will be implemented for the first time in the June 30, 2015 valuation. The expected impact of the assumptions is included in the projected rates in this report, starting with 2016-17. For purposes of the post-retirement mortality rates, the revised rates include 20 years of projected on-going mortality improvement using Scale BB published by the Society of Actuaries. For more details, please refer to the experience study report that can be found at the following link: <http://www.calpers.ca.gov/eip-docs/about/pubs/employer/2014-experience-study.pdf>

Marital Status

For active members 85 percent are assumed to be married upon retirement.

Age of Spouse

It is assumed that female spouses are 3 years younger than male spouses.

Terminated Members

It is assumed that terminated members refund immediately if non-vested. Terminated members who are vested are assumed to follow the same service retirement pattern as active members but with a load to reflect the expected higher rates of retirement, especially at lower ages. The following table shows the load factors that are applied to the service retirement assumption for active members to obtain the service retirement pattern for separated vested members:

Age	Load Factor
50	450%
51	250%
52 through 56	200%
57 through 60	150%
61 through 64	125%
65 and above	100% (no change)

Termination with Refund

Rates vary by entry age and service. See sample rates in the table below.

Duration of Service	Entry Age				
	20	25	30	35	40
0	0.1730	0.1627	0.1525	0.1422	0.1319
1	0.1585	0.1482	0.1379	0.1277	0.1174
2	0.1440	0.1336	0.1234	0.1131	0.1028
3	0.1295	0.1192	0.1089	0.0987	0.0884
4	0.1149	0.1046	0.0944	0.0841	0.0738
5	0.0278	0.0249	0.0221	0.0192	0.0164
10	0.0172	0.0147	0.0122	0.0098	0.0074
15	0.0115	0.0094	0.0074	0.0053	0.0032
20	0.0073	0.0055	0.0038	0.0020	0.0002
25	0.0037	0.0023	0.0010	0.0002	0.0002
30	0.0015	0.0003	0.0002	0.0002	0.0002

Termination with Vested Deferred Benefits

Rates vary by entry age and service. See sample rates in the table below.

Duration of Service	Entry Age				
	20	25	30	35	40
5	0.0816	0.0733	0.0649	0.0566	0.0482
6	0.0782	0.0697	0.0613	0.0527	0.0443
7	0.0745	0.0660	0.0573	0.0487	0.0400
8	0.0708	0.0621	0.0534	0.0446	0.0359
9	0.0671	0.0582	0.0493	0.0404	0.0316
10	0.0629	0.0540	0.0450	0.0359	-
14	0.0558	0.0462	0.0367	0.0272	-
15	0.0537	0.0440	0.0344	-	-
19	0.0443	0.0344	0.0243	-	-
20	0.0420	0.0317	-	-	-
24	0.0319	0.0211	-	-	-
25	0.0291	-	-	-	-
29	0.0170	-	-	-	-
30	-	-	-	-	-

Non-Industrial Death

Rates vary by age and gender. See sample rates in the table below.

Non-Industrial Disability

Rates vary by age and gender. See sample rates in the table below.

Attained Age	Male		Female	
	Non-Industrial Death	Non-Industrial Disability	Non-Industrial Death	Non-Industrial Disability
20	0.00047	0.00010	0.00016	0.00010
25	0.00050	0.00010	0.00026	0.00010
30	0.00053	0.00018	0.00036	0.00010
35	0.00067	0.00064	0.00046	0.00038
40	0.00087	0.00136	0.00065	0.00094
45	0.00120	0.00283	0.00093	0.00171
50	0.00176	0.00439	0.00126	0.00299
55	0.00260	0.00489	0.00176	0.00335
60	0.00395	0.00425	0.00266	0.00239

Service Retirement – Classic Members

Rates vary by age and service. See sample rates in the table below.

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.005	0.009	0.013	0.015	0.016	0.018	0.022
52	0.006	0.012	0.017	0.020	0.022	0.025	0.029
54	0.012	0.024	0.033	0.039	0.044	0.049	0.057
56	0.020	0.039	0.055	0.065	0.072	0.081	0.095
58	0.025	0.050	0.070	0.083	0.092	0.103	0.121
60	0.037	0.073	0.102	0.121	0.134	0.150	0.176
62	0.076	0.151	0.212	0.250	0.278	0.311	0.366
65	0.091	0.180	0.251	0.297	0.331	0.370	0.435
70	0.066	0.131	0.183	0.216	0.241	0.270	0.316
75	0.055	0.108	0.151	0.179	0.199	0.223	0.262

Service Retirement – PEPRA Members

Rates vary by age and service. See sample rates in the table below.

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000
52	0.004	0.008	0.012	0.014	0.015	0.018	0.020
54	0.008	0.017	0.023	0.027	0.031	0.034	0.040
56	0.014	0.027	0.039	0.046	0.050	0.057	0.067
58	0.019	0.038	0.053	0.062	0.069	0.077	0.091

60	0.030	0.058	0.082	0.097	0.107	0.120	0.293
62	0.061	0.121	0.170	0.200	0.222	0.249	0.293
65	0.082	0.162	0.226	0.267	0.298	0.333	0.392
70	0.066	0.131	0.183	0.216	0.241	0.270	0.316
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Miscellaneous

INTERNAL REVENUE CODE SECTION 415

The limitations on benefits imposed by Internal Revenue Code Section 415 are taken into account in this valuation.

INTERNAL REVENUE CODE SECTION 401(a)(17)

The limitations on compensation imposed by Internal Revenue Code Section 401(a)(17) are taken into account in this valuation. Each year, the impact of any changes in the compensation limitation since the prior valuation is included and amortized as part of the actuarial gain or loss base.

PEPRA ASSUMPTIONS

The Public Employees' Pension Reform Act of 2013 (PEPRA) mandated new benefit formulas and new member contributions for new members (as defined by PEPRA) hired after January 1, 2013. These new members are reflected in the June 30, 2013 valuations. Different assumptions for these new PEPRA members are disclosed above.

APPENDIX B

PRINCIPAL PLAN PROVISIONS

- **SUMMARY OF PRINCIPAL PLAN PROVISIONS**

B-1

Summary of Principal Plan Provisions

The following is a summary of the major plan provisions for the most representative group used in calculating costs and liabilities of this plan. Many of the statements in this summary are general in nature, and are intended to provide an easily understood summary of the complex Public Employees' Retirement Law. The law itself governs in all situations.

RETIREMENT PROGRAM

PEPRA Benefit Changes

The Public Employees' Pension Reform Act of 2013 (PEPRA) requires new benefits and member contributions for new members as defined by PEPRA, that are hired after January 1, 2013. These members are reflected in the June 30, 2013 valuation.

Service Retirement

Eligibility

A CalPERS Classic member becomes eligible for Service Retirement upon attainment of age 50 with at least 5 years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements). PEPRA Schools members become eligible for Service Retirement upon attainment of age 52 with at least 5 years of service.

Benefit

The Service Retirement benefit calculated for service earned by this group of employees is a monthly allowance equal to the product of the *benefit factor*, *years of service*, and *final compensation*, where

- The *benefit factor* for this group of employees comes from the **2% at 55** benefit factor table. New PEPRA members hired on or after January 1, 2013 are subject to the **2% at 62** benefit factor table. The factor depends on the member's age at retirement. Listed below are the factors for retirement at whole year ages:

Retirement <u>Age</u>	2% at 55 <u>Factor</u>	Retirement <u>Age</u>	2% at 62 <u>Factor</u>
50	1.100%	50	N/A
51	1.280%	51	N/A
52	1.460%	52	1.000%
53	1.640%	53	1.100%
54	1.820%	54	1.200%
55	2.000%	55	1.300%
56	2.064%	56	1.400%
57	2.126%	57	1.500%
58	2.188%	58	1.600%
59	2.250%	59	1.700%
60	2.314%	60	1.800%
61	2.376%	61	1.900%

62	2.438%	62	2.000%
63 & Up	2.500%	63	2.100%
		64	2.200%
		65	2.300%
		66	2.400%
		67 & Up	2.500%

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, and then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.
- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For new PEPRA members hired after January 1, 2013 final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPRA members have a cap on the annual salary that can be used to calculate final compensation for all new members based on the Social Security Contribution and Benefit Base. For employees that participate in Social Security this cap is \$113,700 for 2013 and for those employees that do not participate in social security the cap for 2013 is \$136,440, the equivalent of 120% of the 2013 Contribution and Benefit Base. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- The employees in this plan may or may not be covered by Social Security. For employees with service prior to January 1, 2001 covered by Social Security, the final compensation is offset by \$133.33 (or by one-third if, the final compensation is less than \$400). For PEPRA members, the final compensation is not offset.
- The Service Retirement benefit is not capped.

Vested Deferred Retirement

Eligibility for Deferred Status

A CalPERS member becomes eligible for a deferred vested retirement benefit when he or she leaves employment, keeps his or her contribution account balance on deposit with CalPERS, **and** has earned at least 5 years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements).

Eligibility to Start Receiving Benefits

The CalPERS classic member becomes eligible to receive the deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 50. PEPRA

Schools members become eligible to receive the deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 52.

Benefit

The vested deferred retirement benefit is the same as the Service Retirement benefit, where the benefit factor is based on the member's age at allowance commencement. For members who have earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, and then added together for the total allowance.

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

A CalPERS member is eligible for Non-Industrial Disability Retirement if he or she becomes *disabled* and has at least 5 years of credited service (total service across all PERS employers, and with certain other Retirement Systems with which PERS has reciprocity agreements). There is no special age requirement. *Disabled* means the member is unable to perform his or her job because of an illness or injury which is expected to be permanent or to last indefinitely. The illness or injury does not have to be job related. A CalPERS member must be actively working with any CalPERS employer at the time of disability in order to be eligible for this benefit.

Benefit

The Non-Industrial Disability Retirement benefit is a monthly allowance equal to 1.8 percent of final compensation, multiplied by *service*, which is determined as follows:

- *service* is CalPERS credited service, for members with less than 10 years of service or greater than 18.518 years of service; or
- *service* is CalPERS credited service plus the additional number of years that the member would have worked until age 60, for members with at least 10 years but not more than 18.518 years of service. The maximum benefit in this case is 33 1/3 percent of Final Compensation.

Members who are eligible for a larger service retirement benefit may choose to receive that benefit in lieu of a disability benefit. Members eligible to retire, and who have attained the normal retirement age determined by their service retirement benefit formula, will receive the same dollar amount for disability retirement as that payable for service retirement. For members who have earned service with multiple CalPERS employers, the benefit attributed to each employer is the total disability allowance multiplied by the ratio of service with a particular employer to the total CalPERS service.

Post-Retirement Death Benefit

Lump Sum Payment

Upon the death of a retiree, a one-time lump sum payment of \$2,000 will be made to the retiree's designated survivor(s), or to the retiree's estate.

Form of Payment for Retirement Allowance

Generally, the retirement allowance is paid to the retiree in the form of an annuity for as long as he or she is alive. The retiree may choose to provide for a portion of his or her allowance to be paid to any designated beneficiary after the retiree's death. CalPERS provides for a variety of such benefit options, which the retiree pays for by taking a reduction in his or her retirement allowance. Such reduction takes into account the amount to be provided to the beneficiary and the probable duration of payments (based on the ages of the member and beneficiary) made subsequent to the member's death.

For retirement allowances with respect to service earned by employment in this group, 25 percent of the retirement allowance will automatically be continued to certain statutory beneficiaries upon the death of the retiree, *without* a reduction in the retiree's allowance (50 percent for service not covered by Social Security). This additional benefit is often referred to as *post retirement survivor allowance* (PRSA) or simply as *survivor continuance*.

In other words, 25 percent of the allowance (or 50 percent for service not covered by Social Security), the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 75 percent of the retirement allowance (or 50 percent for service not covered by Social Security), which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. Or, the retiree may choose to provide for some of this *option portion* to be paid to **any** designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Pre-Retirement Death Benefits

Basic Death Benefit

Eligibility

An employee's beneficiary (or estate) may receive the Basic Death benefit if the member dies while actively employed. A CalPERS member who is no longer actively employed with **any** CalPERS employer is not eligible for this benefit. A member's survivor who is eligible for any other pre-retirement death benefit described below may choose to receive that death benefit instead of this Basic Death benefit.

Benefit

The Basic Death Benefit is a lump sum in the amount of the member's accumulated contributions, where interest is currently credited at 7.5 percent per year. In addition, a lump sum in the amount of six months' salary is paid. For purposes of this benefit, one month's salary is defined as the member's average monthly full-time rate of compensation during the 12 months preceding death.

1957 Survivor Benefit

Eligibility

An employee's *eligible survivor(s)* may receive the 1957 Survivor benefit if the member dies while actively employed, has attained at least age 50 for classic members and age 52 for PEPRAs school members, and has at least 5 years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member who is no longer actively employed with **any** CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death or, if there is no eligible spouse, to the member's unmarried children under age 18. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the Special Death benefit.

Benefit

The 1957 Survivor benefit is a monthly allowance equal to one-half of the unmodified Service Retirement benefit that the member would have been entitled to receive if the member had retired on the date of his or her death. If the benefit is payable to the spouse, the benefit is discontinued upon the death of the spouse. If the benefit is payable to a dependent child, the benefit will be discontinued upon death or attainment of age 18, unless the child is disabled. There is a guarantee that the total amount paid will at least equal the Basic Death benefit.

Cost-of-Living Adjustments

Beginning the second calendar year after the year of retirement, retirement and survivor allowances will be annually adjusted on a compound basis by 2 percent. However, the cumulative adjustment may not be greater than the cumulative change in the Consumer Price Index since the date of retirement.

Purchasing Power Protection Allowance (PPPA)

Retirement and survivor allowances are protected against inflation by PPPA. PPPA benefits are cost-of-living adjustments that are intended to maintain an individual's allowance at 75 percent of the initial allowance at retirement adjusted for inflation since retirement. The PPPA benefit will be coordinated with other cost-of-living adjustments provided under the plan. The total annual outlay for PPPA is limited to 1.1 percent of accumulated member contributions. If this amount of member contributions were insufficient to provide for PPPA payments, the 75 percent target would be proportionately reduced.

Employee Contributions

Each employee contributes toward his or her retirement based upon one of the following schedules. The employer may choose to "pick-up" these contributions for the employees.

The contribution schedule is as follows:

The percent contributed below the monthly compensation breakpoint is 0 percent.

The monthly compensation breakpoint is \$0.

The percent contributed above the monthly compensation breakpoint is 7 percent for classic members and 6 percent for PEPRA members.

Refund of Employee Contributions

If the member's service with the employer ends, and if the member does not satisfy the eligibility conditions for any of the retirement benefits above, the member may elect to receive a refund of his or her employee contributions, which are credited annually with 6 percent interest.

1959 SURVIVOR BENEFITS PROGRAM

For these benefits, please refer to the 1959 Survivor Report

APPENDIX C

PARTICIPANT DATA

•	SOURCE OF THE PARTICIPANT DATA	C-1
•	DATA VALIDATION TESTS AND ADJUSTMENTS	C-1
•	DATA STATEMENT	C-2
•	RECONCILIATION OF PARTICIPANTS	C-2
•	ACTIVE MEMBERS	C-3
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•	RETIRED MEMBERS AND BENEFICIARIES	C-5

Source of the Participant Data

The data was extracted from various databases within CalPERS and placed in a data warehouse by a series of extract programs. Included in this data is:

- individual member and beneficiary information,
- employment and payroll information,
- accumulated contributions with interest,
- service information,
- benefit payment information,
- information about the various organizations which contract with CalPERS, and
- detailed information about the plan provisions applicable to each group of members.

Data Validation Tests and Adjustments

Once the information is extracted from the various computer systems into the data warehouse, update queries are then run against this data to correct for flaws found in the data. This part of the process is intended to validate the participant data for all CalPERS plans. It is not specific to the Schools Pool.

Checks on the data included:

- A reconciliation of the membership of the plan,
- Comparisons of various member statistics (average attained age, average entry age, average salary, etc.) for the plan with those from the prior valuation
- Pension amounts for each retiree and beneficiary receiving payments were compared with the pension amounts from the prior valuation
- Checks for invalid ages and dates, and
- Reasonableness checks on various key data elements such as service and salary.

As a result of the tests on the data, a number of adjustments were determined to be necessary. These included:

- Dates of hire and dates of entry were adjusted where necessary to be consistent with the service fields, the date of birth and each other, and
- The annual earnings rate for most Schools members were overwritten with the annualized earnings based on their yearly contributions.

Data Statement

The data does not contain information about reciprocal systems and hence salary information for terminated participants covered by reciprocal systems may not be up to date. This situation is not expected to have a material impact on the employer contribution rates since the total present value for all terminated participants represents less than 2 percent of the present value of benefits for all members.

We are unaware of any other data issues that would have a material effect on the results of this valuation.

It is our opinion that, after the adjustments noted above, the participant data was sufficient and reliable for the purposes of the valuation.

Reconciliation of Participants

For the Fiscal Year Ending June 30, 2013

Schools

	Active	Transfer	Terminated	Receiving	Total
As of June 30, 2012	283,003	30,237	167,758	195,233	676,231
Retirements	(7,912)	(1,117)	(1,312)	10,341	-
Industrial Disabilities	-	(20)	(3)	23	-
Ordinary Disabilities	(137)	(8)	(43)	188	-
Deaths ²	(434)	(285)	(694)	(6,803)	(8,216)
New Survivors	n/a	n/a	n/a	2,561	2,561
Non-vested Terminations ¹	(9,525)	(215)	9,740	-	-
Vested Terminations	(4,260)	(296)	4,557	(1)	-
Refunds of Contributions	(2,317)	(792)	(7,175)	(7)	(10,291)
Transfers	(837)	1,600	(755)	(8)	-
Redeposits/Rehires	3,887	(768)	(3,085)	(34)	-
First Year in Status	19,789	543	1,320	245	21,897
Data Corrections ³	(835)	(6,763)	(214)	461	(7,351)
As of June 30, 2013	280,422	22,116	170,094	202,199	674,831

¹ Includes non-vested terminated participants with employee contributions left in the plan.

² Includes both deaths without survivors and deaths with survivors receiving a benefit.

³ May include the combining of data records into a single record.

Active Members

Distribution of Active Members By Age and Service

As of June 30, 2013

Schools

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0-4	5-9	10-14	15-19	20-24	25+		
15-24	6,851	73	0	0	0	0	6,924	159,328,996
25-29	14,682	3,402	57	0	0	0	18,141	488,057,388
30-34	12,169	8,753	2,260	13	0	0	23,195	751,891,616
35-39	10,601	9,111	6,318	64	0	0	26,094	918,320,170
40-44	11,984	9,997	9,800	139	9	0	31,929	1,128,065,687
45-49	13,030	12,625	14,587	191	34	5	40,472	1,447,820,633
50-54	11,705	15,312	21,440	311	52	44	48,864	1,807,997,983
55-59	8,329	14,042	22,751	404	48	58	45,632	1,712,644,155
60-64	4,423	8,790	14,286	251	44	33	27,827	1,035,988,869
65 and Over	2,317	3,896	5,026	82	13	10	11,344	375,332,239
Total	96,091	86,001	96,525	1,455	200	150	280,422	\$ 9,825,447,736

Counts of members included in the valuation are counts of the records processed by the valuation. Multiple records may exist for those who have service in more than one valuation group. This does not result in double counting of liabilities.

Distribution of Average Annual Salaries By Age and Service

As of June 30, 2013

Schools

Attained Age	Years of Service at Valuation Date						Average Salary
	0-4	5-9	10-14	15-19	20-24	25+	
15-24	22,828	33,974	0	0	0	0	\$22,946
25-29	24,958	34,580	45,772	0	0	0	26,827
30-34	27,035	36,437	44,683	64,456	0	0	32,324
35-39	26,793	36,629	46,469	68,560	0	0	35,094
40-44	25,502	34,874	47,114	60,519	56,024	0	35,231
45-49	24,528	32,749	47,641	69,163	69,442	60,616	35,674
50-54	24,165	30,923	47,600	64,651	64,306	59,902	37,000
55-59	23,410	29,385	46,917	64,593	67,457	59,009	37,425
60-64	22,702	28,376	46,478	59,450	55,203	55,882	37,124
65 and Over	19,052	26,233	44,232	54,998	44,094	49,224	32,991
Average	\$24,804	\$32,239	\$46,911	\$63,552	\$62,198	\$57,972	\$35,038

Terminated and Transferred Participants

Distributions By Age and Service

Transfers to Other CalPERS Plans

As of June 30, 2013

Schools

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0-4	5-9	10-14	15-19	20-24	25+		
15-24	65	0	0	0	0	0	65	31,428
25-29	636	16	1	0	0	0	659	42,643
30-34	1,641	110	8	0	0	0	1,759	47,674
35-39	2,334	193	15	0	0	0	2,542	47,776
40-44	2,476	340	35	0	0	0	2,851	48,547
45-49	2,546	472	102	10	0	0	3,130	48,587
50-54	3,170	624	189	49	5	1	4,038	47,700
55-59	2,990	561	159	41	16	0	3,767	46,031
60-64	1,886	389	104	26	8	3	2,416	45,088
65 and Over	727	122	33	9	2	2	895	41,727
Total	18,471	2,827	646	135	31	6	22,116	46,741

Distributions By Age and Service

Terminated Participants With Funds on Deposit

As of June 30, 2013

Schools

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0-4	5-9	10-14	15-19	20-24	25+		
15-24	2,351	1	0	0	0	0	2,352	25,703
25-29	12,712	231	2	0	0	0	12,945	28,341
30-34	20,875	1,096	63	0	0	0	22,034	29,533
35-39	21,031	1,473	170	4	0	0	22,678	30,545
40-44	19,320	1,889	308	6	0	0	21,523	31,422
45-49	17,872	2,539	684	33	5	3	21,136	32,323
50-54	19,720	3,067	909	193	28	2	23,919	32,579
55-59	18,134	2,617	723	151	51	6	21,682	32,203
60-64	12,243	1,580	481	91	24	10	14,429	30,346
65 and Over	6,446	717	188	26	14	5	7,396	29,739
Total	150,704	15,210	3,528	504	122	26	170,094	30,956

Retired Members and Beneficiaries

Number of Retirees and Beneficiaries

By Age and Retirement Type

As of June 30, 2013

Schools

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	0	3	1	162	166
30-34	0	14	3	0	0	108	125
35-39	0	35	19	2	0	145	201
40-44	1	104	25	5	0	219	354
45-49	4	345	43	8	0	331	731
50-54	1,624	967	80	43	2	578	3,294
55-59	11,324	1,774	142	99	2	884	14,225
60-64	28,352	2,165	189	161	0	1,484	32,351
65-69	37,870	2,060	140	147	3	2,064	42,284
70-74	29,486	1,801	74	113	2	2,655	34,131
75-79	22,364	1,154	24	71	5	3,360	26,978
80-84	16,772	767	23	49	0	3,915	21,526
85 and Over	18,090	671	8	38	0	7,026	25,833
Total	165,887	11,857	770	739	15	22,931	202,199

Counts of members do not include alternate payees receiving benefits while the member is still working. Multiple records may exist for those who have service in more than one coverage group. This does not result in double counting of liabilities.

Annual Allowance Amounts for**Retirees and Beneficiaries****By Age and Retirement Type****As of June 30, 2013****Annual Amounts not Including PPPA Payments****Schools**

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$0	\$29,948	\$4	\$731,573	\$761,525
30-34	0	121,876	269	0	0	702,604	824,749
35-39	0	345,016	8,198	26,947	0	1,053,959	1,434,120
40-44	13	959,556	18,297	23,730	0	1,474,954	2,476,550
45-49	22,167	3,412,399	33,651	64,031	0	2,517,525	6,049,773
50-54	13,376,411	10,439,636	134,140	337,751	693	4,499,962	28,788,593
55-59	177,706,718	20,608,854	181,711	874,946	3,074	8,292,857	207,668,160
60-64	521,410,503	24,199,273	400,112	1,197,899	0	15,360,010	562,567,797
65-69	690,136,975	22,861,323	364,048	1,169,534	4,423	21,974,593	736,510,896
70-74	485,062,819	18,648,576	229,083	812,033	642	27,669,030	532,422,183
75-79	317,094,436	10,615,221	35,552	478,812	4,108	32,433,406	360,661,535
80-84	211,085,908	6,344,589	125,174	295,931	0	35,510,992	253,362,594
85 and Over	184,940,687	5,219,797	6,715	321,737	0	51,569,083	242,058,019
Total	\$2,600,836,637	\$123,776,116	\$1,536,950	\$5,633,299	\$12,944	\$203,790,548	\$2,935,586,494

Counts of members do not include alternate payees receiving benefits while the member is still working. Multiple records may exist for those who have service in more than one coverage group. This does not result in double counting of liabilities.

Number of Retirees and Beneficiaries
By Years Retired and Retirement Type
As of June 30, 2013
Schools

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Yrs	50,086	1,387	129	253	1	1,058	52,914
5-9	39,178	2,019	175	202	2	2,107	43,683
10-14	28,604	2,780	175	143	0	3,080	34,782
15-19	19,506	2,476	104	49	2	3,570	25,707
20-24	14,153	1,572	83	46	2	4,155	20,011
25-29	7,629	702	49	24	6	3,298	11,708
30 and Over	6,731	921	55	22	2	5,663	13,394
Total	165,887	11,857	770	739	15	22,931	202,199

Counts of members do not include alternate payees receiving benefits while the member is still working. Multiple records may exist for those who have service in more than one coverage group. This does not result in double counting of liabilities.

Annual Allowance Amounts for Retirees and Beneficiaries**By Years Retired and Retirement Type****As of June 30, 2013****Annual Amounts not Including PPPA Payments****Schools**

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Yrs	\$950,244,401	\$17,178,107	\$428,995	\$2,214,319	\$4	\$12,911,426	\$982,977,252
5-9	685,838,862	24,405,826	425,716	1,575,112	791	23,621,965	735,868,272
10-14	456,056,591	30,782,389	398,195	932,748	0	33,699,229	521,869,152
15-19	235,440,029	24,728,985	72,439	288,487	5,587	32,577,938	293,113,465
20-24	161,956,125	14,942,075	175,835	330,546	3,941	41,111,214	218,519,736
25-29	62,660,800	5,354,488	18,799	113,458	2,492	24,836,245	92,986,282
30 and Over	48,639,829	6,384,246	16,971	178,629	129	35,032,531	90,252,335
Total	\$2,600,836,637	\$123,776,116	\$1,536,950	\$5,633,299	\$12,944	\$203,790,548	\$2,935,586,494

Counts of members do not include alternate payees receiving benefits while the member is still working. Multiple records may exist for those who have service in more than one coverage group. This does not result in double counting of liabilities.

Retirees and Beneficiaries**Number Counts and Benefits****By Year of Retirement****As of June 30, 2013****Schools**

Years Retired	Total Retirement	Total Benefits	Average Benefits
2013	4,959 ¹	81,348,475	16,404
2012	10,679	191,452,844	17,928
2011	10,462	189,835,980	18,145
2010	11,299	213,638,544	18,908
2009	10,421	200,372,036	19,228
2008	8,574	159,284,758	18,578
2007	8,239	146,727,994	17,809
2006	8,574	142,353,043	16,603
2005	8,748	141,540,556	16,180
2004	9,046	146,479,839	16,193
2003	9,505	164,901,692	17,349
2002	7,469	125,478,862	16,800
2001	7,024	108,440,567	15,439
2000	8,325	130,770,441	15,708
1999	4,768	55,143,409	11,565
1998	5,672	67,317,236	11,868
1997	5,338	60,156,154	11,269
1996	5,121	57,674,858	11,262
1995	5,260	59,402,648	11,293
1994	4,818	55,282,327	11,474
1993	4,804	57,814,916	12,035
1992	4,615	53,919,328	11,683
1991	4,290	49,216,255	11,472
1990	3,690	38,247,451	10,365
1989	3,503	35,247,395	10,062
1988	3,258	31,533,008	9,679
1987	2,922	26,689,492	9,134
1986	2,680	22,564,354	8,420
1985	2,389	17,752,740	7,431
1984	1,871	12,542,728	6,704
1983	3,408	30,275,979	8,884
1982 and Earlier	10,468	62,180,585	5,940
Totals	202,199	2,935,586,494	14,518

Counts of members include alternate payees receiving benefits while the member is still working. Multiple records may exist for those who have service in more than one coverage group. This does not result in double counting of liabilities.

1 – The numbers for 2013 are for the first 6 months of the calendar year only.

APPENDIX D

NORMAL COST INFORMATION

- **NORMAL COST CHART** **D-1**
- **DEVELOPMENT OF PEPRAS MEMBER CONTRIBUTION RATES** **D-1**

Normal Cost Chart

The normal cost is determined using the Entry Age Normal Cost method. Some important features of this method are that the costs are dependent upon a member's entry age in the plan and benefit level of the plan. In general the lower the entry age the lower the total normal cost. Note that future costs may vary as the entry age of the members change. FAC means Final Average Compensation.

SCHOOLS	TOTAL NORMAL COST	EMPLOYEE CONTRIBUTION ¹	Range of Breakpoints	Average Effective Member Rate	Employer Normal Cost
Schools 2% @ 62 - 3 year FAC	12.1%	6%	-	N/A	N/A
Schools 2% @ 55 - 1 Year FAC	14.9%	7%	-	7.0%	7.9%

Notes:

1-Employee contribution rates are based on rates in effect during the 2014-15 fiscal year.

Development of PEPRA Member Contribution Rates

The table below shows the determination of the Member contribution rates based on 50 percent of the Total Normal Cost on June 30, 2013.

Assembly Bill (AB) 340 created PEPRA that implemented new benefit formulas and a final compensation period as well as new contribution requirements for new employees. In accordance with Section Code 7522.30(b), "new members ... shall have an initial contribution rate of at least 50 percent of the normal cost rate." The normal cost for the plan is dependent on the benefit levels, actuarial assumptions and demographics of the plan particularly the entry age into the plan.

Plan	Basis for Current Rate		Rates Effective July 1, 2014			
	Total Normal Cost ¹	Member Rate	Total Normal Cost ²	Change	Change Needed	Member Rate
Schools	11.85%	6.00%	12.08%	0.23%	No	6.00%
¹ As of June 30, 2012 valuation date			² As of June 30, 2013 valuation date			

APPENDIX E

GLOSSARY OF ACTUARIAL TERMS

- **GLOSSARY OF ACTUARIAL TERMS**

E-1

Glossary of Actuarial Terms

Accrued Liability (*also called Actuarial Accrued Liability or Entry Age Normal Accrued Liability*)

The total dollars needed as of the valuation date to fund all benefits earned in the past for *current* members.

Actuarial Assumptions

Assumptions made about certain events that will affect pension costs. Assumptions generally can be broken down into two categories: demographic and economic. Demographic assumptions include such things as mortality, disability and retirement rates. Economic assumptions include discount rate, salary growth and inflation.

Actuarial Methods

Procedures employed by actuaries to achieve certain funding goals of a pension plan. Actuarial methods include funding method, setting the length of time to fund the Accrued Liability and determining the Actuarial Value of Assets.

Actuarial Valuation

The determination, as of a valuation date, of the Normal Cost, Accrued liability, Actuarial Value of Assets and related actuarial present values for a pension plan. These valuations are performed annually or when an employer is contemplating a change to their plan provisions.

Actuarial Value of Assets

The Actuarial Value of Assets used for funding purposes is obtained through an asset smoothing technique where investment gains and losses are partially recognized in the year they are incurred, with the remainder recognized in subsequent years.

This method helps to dampen large fluctuations in the employer contribution rate.

Amortization Bases

Separate payment schedules for different portions of the Unfunded Liability. The total Unfunded Liability of a Risk Pool or non-pooled plan can be segregated by "cause," creating "bases" and each such base will be separately amortized and paid for over a specific period of time. However, all bases are amortized using investment and payroll assumptions from the current valuation. This can be likened to a home having a first mortgage of 24 years remaining payments and a second mortgage that has 10 years remaining payments. Each base or each mortgage note has its own terms (payment period, principal, etc.)

Generally, in an actuarial valuation, the separate bases consist of changes in unfunded liability due to contract amendments, actuarial assumption changes, actuarial methodology changes, and or gains and losses. Payment periods are determined by Board policy and vary based on the cause of the change.

Amortization Period

The number of years required to pay off an Amortization Base.

Annual Required Contributions (ARC)

The employer's periodic required annual contributions to a defined benefit pension plan as set forth in GASB Statement No. 27, calculated in accordance with the plan assumptions. The ARC is determined by multiplying the employer contribution rate by the payroll reported to CalPERS for the applicable fiscal year. However, if this contribution is fully prepaid in a lump sum, then the dollar value of the ARC is equal to the Lump Sum Prepayment.

Classic Member (under PEPRA)

A classic member is a member who joined CalPERS prior to January, 1, 2013 and who is not defined as a new member under PEPRA. (See definition of new member below)

Discount Rate Assumption

The actuarial assumption that was called "investment return" in earlier CalPERS reports or "actuarial interest rate" in Section 20014 of the California Public Employees' Retirement Law (PERL).

Entry Age

The earliest age at which a plan member begins to accrue benefits under a defined benefit pension plan. In most cases, this is the age of the member on their date of hire.

Entry Age Normal Cost Method

An actuarial cost method designed to fund a member's total plan benefit over the course of his or her career. This method is designed to yield a rate expressed as a level percentage of payroll. (The assumed retirement age less the entry age is the amount of time required to fund a member's total benefit. Generally, the older a member on the date of hire, the greater the entry age normal cost. This is mainly because there is less time to earn investment income to fund the future benefits.)

Fresh Start

A Fresh Start is when multiple amortization bases are collapsed to one base and amortized together over a new funding period.

Funded Status

A measure of how well funded, or how "on track" a plan or risk pool is with respect to assets versus accrued liabilities. A ratio greater than 100% means the plan or risk pool has more assets than liabilities and a ratio less than 100% means liabilities are greater than assets. A funded ratio based on the Actuarial Value of Assets indicates the progress toward fully funding the plan using the actuarial cost methods and assumptions. A funded ratio based on the Market Value of Assets indicates the short-term solvency of the plan.

GASB 27

Statement No. 27 of the Governmental Accounting Standards Board. The accounting standard governing a state or local governmental employer's accounting for pensions.

GASB 68

Statement No. 68 of the Governmental Accounting Standards Board. The accounting standard governing a state or local governmental employer's accounting and financial reporting for pensions. GASB 68 replaces GASB 27 effective the first fiscal year beginning after June 15, 2014.

New Member (under PEPRA)

A new member includes an individual who becomes a member of a public retirement system for the first time on or after January 1, 2013, and who was not a member of another public retirement system prior to that date, and who is not subject to reciprocity with another public retirement system.

Normal Cost

The annual cost of service accrual for the upcoming fiscal year for active employees. The normal cost should be viewed as the long term contribution rate.

Pension Actuary

A business professional that is authorized by the Society of Actuaries, and the American Academy of Actuaries to perform the calculations necessary to properly fund a pension plan.

PEPRA

The California Public Employees' Pension Reform Act of 2013

Prepayment Contribution

A payment made by the employer to reduce or eliminate the year's required employer contribution.

Present Value of Benefits (PVB)

The total dollars needed as of the valuation date to fund all benefits earned in the past or expected to be earned in the future for *current* members.

Rolling Amortization Period

An amortization period that remains the same each year, rather than declining.

Superfunded

A condition existing when a plan's Actuarial Value of Assets exceeds its Present Value of Benefits. Prior to the passage of PEPRA, when this condition existed on a given valuation date for a given plan, employee contributions for the rate year covered by that valuation could be waived.

Unfunded Liability

When a plan or pool's Actuarial Value of Assets is less than its Accrued Liability, the difference is the plan or pool's Unfunded Liability. If the Unfunded Liability is positive, the plan or pool will have to pay contributions exceeding the Normal Cost.