Section 2

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Safety 2.0% at 50 Risk Pool as of June 30, 2012

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ACTUARIAL CERTIFICATION

To the best of our knowledge, **Section 2** of this report is complete and accurate and contains sufficient information to disclose, fully and fairly, the funded condition of the Safety 2.0% at 50 Risk Pool. This valuation is based on the member and financial data as of June 30, 2012 provided by the various CalPERS databases and the benefits under this Risk Pool with CalPERS as of the date this report was produced. Changes to the pool that will occur as a result of PEPRA are not reflected in this report. It is our opinion that the valuation has been performed in accordance with generally accepted actuarial principles, in accordance with standards of practice prescribed by the Actuarial Standards Board, and that the assumptions and methods are internally consistent and reasonable for this risk pool, as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.

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

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HIGHLIGHTS AND EXECUTIVE SUMMARY

- **PURPOSE OF SECTION 2**
- **RISK POOL'S REQUIRED EMPLOYER CONTRIBUTION**
- **RISK POOL'S REQUIRED BASE EMPLOYER RATE**
- **RISK POOL'S NET TOTAL NORMAL COST RATE**
- **FUNDED STATUS OF THE RISK POOL**
- **COST**
- **CHANGES SINCE THE PRIOR YEAR'S VALUATION**
- **SUBSEQUENT EVENTS**

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Purpose of Section 2

This Actuarial Valuation for the Safety 2.0% at 50 Risk Pool of the California Public Employees' Retirement System (CalPERS) was performed by CalPERS' staff actuaries using data as of June 30, 2012 in order to:

- Set forth the actuarial assets and accrued liabilities of this risk pool as of June 30, 2012
- Determine the required contribution rate of the pool for the fiscal year July 1, 2014 through June 30, 2015
- Provide actuarial information as of June 30, 2012 to the CalPERS Board of Administration and other interested parties

The use of this report for any other purposes may be inappropriate. In particular, this report does not contain information applicable to alternative benefit costs. The employer should contact their actuary before disseminating any portion of this report for any reason that is not explicitly described above.

California Actuarial Advisory Panel Recommendations

This report satisfies all basic disclosure requirements under the *Model Disclosure Elements for Actuarial Valuation Reports* recommended by the *California Actuarial Advisory Panel*, except for the original base amounts of the various components of the unfunded liability amortization.

The report gives the following additional information classified as enhanced risk disclosures under the *Model Disclosure Elements for Actuarial Valuation Reports* recommended by the *California Actuarial Advisory Panel*:

- "Deterministic stress test", projecting future results under different investment income scenarios.
- "Sensitivity analysis", showing the impact on current valuation results of a plus or minus 1% change in the discount rate.

Risk Pool's Required Employer Contribution

			Fiscal Year 2013-14		Fiscal Year 2014-15
1) Contribution in Projected Dollars					
a)	Total Pool's Normal Cost		16,809,969		15,869,310
b)	Employee Contribution		6,174,808		5,841,033
c)	Pool's Gross Employer Normal Cost [(1a) – (1b)]	$	10,635,161	$	10,028,276
d)	Payment on Pool's Amortization Bases		3,643,168		3,598,397
e)	Payment on Employer Side Funds		3,941,517		3,666,675
f)	Total Required Employer Contribution* [(1c)+(1d)+(1e)]	$	18,219,632	$	17,293,680
	* Total may not add up due to rounding				
2) Contribution as a Percentage of Projected Pay					
a)	Total Pool's Normal Cost		24.267%		24.210%
b)	Employee Contribution		8.914%		8.911%
c)	Pool's Gross Employer Normal Cost [(2a) – (2b)]		15.353%		15.299%
d)	Payment on Pool's Amortization Bases		5.259%		5.490%
e)	Payment on Employer Side Funds		5.690%		5.594%
f)	Total Required Employer Contribution [(2c)+(2d)+(2e)]		26.302%		26.383%

These rates are the total required employer contributions to the pool for fiscal years 2013-14 and 2014-15. The Pool's Gross Employer Normal Cost includes the Class 1 surcharges for all employers that contract for the Class 1 type benefits. The payment on the pool's amortization bases is the payment on the ongoing cumulative gains and losses experienced by the pool since its June 30, 2003 inception. The payment on employer side funds is the combination of all expected individual amortization payments on every side fund in the pool.

Risk Pool's Required Base Employer Rate

		Fiscal Year 2013-14	Fiscal Year 2014-15
1.	Pool's Gross Employer Normal Cost	15.353%	15.299%
	Less: Surcharges for Class 1 Benefits	0.712%	0.706%
2.	Pool's Net Employer Normal Cost	14.641%	14.593%
3.	Payment on Pool's Amortization Bases	5.259%	5.490%
4.	Pool's Base Employer Rate	19.900%	20.083%

The base employer contribution rate is the rate that each plan within the pool pays before any adjustments are made. It represents the pool funding for basic benefits (no Class 1 surcharges) for the fiscal year shown. To arrive at a plan's total contribution rate, several components must be added to this base rate. These components are Class 1 benefit surcharges, normal cost phase-out and any side fund payment. More information about those additional components can be found in Section 1 of this report.

Risk Pool's Net Total Normal Cost Rate

		Fiscal Year 2013-14	Fiscal Year 2014-15
1.	Pool's Net Employer Normal Cost	14.641%	14.593%
2.	Pool's Employee Contribution Rate	8.914%	8.911%
3.	Pool's Net Total Normal Cost Rate	23.555%	23.504%

Funded Status of the Risk Pool

		June 30, 2011	June 30, 2012
1.	Present Value of Projected Benefits	$ 656,225,272	$ 619,696,341
2.	Entry Age Normal Accrued Liability	$ 503,491,275	$ 475,963,729
3.	Actuarial Value of Assets (AVA)	$ 421,374,728	$ 407,411,936
4.	Unfunded Liability (AVA Basis) [(2) – (3)]	82,116,547	68,551,793
5.	Funded Ratio (AVA Basis) [(3) / (2)]	83.7%	85.6%
6.	Market Value of Assets (MVA)	$ 377,235,284	$ 339,655,071
7.	Unfunded Liability (MVA Basis) [(2) – (6)]	$ 126,255,991	$ 136,308,658
8.	Funded Ratio (MVA Basis) [(6) / (2)]	74.9%	71.4%

Cost

Actuarial Cost Estimates in General

What will this plan or pool cost? Unfortunately, there is no simple answer. There are two major reasons for the complexity of the answer:

First, all actuarial calculations, including those in this report, are based on a number of assumptions about the future. These assumptions can be divided into two categories.

- Demographic assumptions include the percentage of employees that will terminate, die, become disabled, and retire in each future year.
- Economic assumptions include future salary increases for each active employee, and the assumption with the greatest impact, future asset returns at CalPERS for each year into the future until the last dollar is paid to current members of your plan.

While CalPERS has set these assumptions as our best estimate of the real future of your plan, it must be understood that these assumptions are very long term predictors and will surely not be realized in any one year. For example, while the asset earnings at CalPERS have averaged more than the assumed return of 7.5 percent over the past twenty year period ending June 30, 2013, returns for each fiscal year ranged from -24 percent to +21.7 percent.

Second, the very nature of actuarial funding produces the answer to the question of plan or pool cost as the sum of two separate pieces:

- The Normal Cost (i.e., the future annual premiums in the absence of surplus or unfunded liability) expressed as a percentage of total active payroll, and
- The Past Service Cost or Accrued Liability (i.e., representing the current value of the benefit for all credited past service of current members) which is expressed as a lump sum dollar amount.

The cost is the sum of a percent of future pay and a lump sum dollar amount (the sum of an apple and an orange if you will). To communicate the total cost, either the Normal Cost (i.e., future percent of payroll) must be converted to a lump sum dollar amount (in which case the total cost is the present value of benefits), or the Past Service Cost (i.e., the lump sum) must be converted to a percent of payroll (in which case the total cost is expressed as the employer's rate, part of which is permanent and part temporary). Converting the Past Service Cost lump sum to a percent of payroll requires a specific amortization period, and the plan or pool rate will vary depending on the amortization period chosen.

Changes since the Prior Year's Valuation

Benefits

The standard actuarial practice at CalPERS is to recognize mandated legislative benefit changes in the first annual valuation following the effective date of the legislation. Voluntary benefit changes by employers within the risk pool are generally included in the first valuation that is prepared after the amendment becomes effective even if the valuation date is prior to the effective date of the amendment.

The valuation generally reflects plan changes by amendments effective prior to July 1, 2013. Please refer to Appendix B for a summary of the plan provisions used in this valuation report. The provisions in Appendix B do not indicate the class of benefits voluntarily contracted for by individual employers within the risk pool. Refer to Section 1 of the valuation report for a list of your specific contracted benefits. The increase in the pool's unfunded liabilities due to Class 1 or 2 amendments by individual employers within the pool is embedded in the Liability (Gain) / Loss shown in the (Gain) / Loss section of this report. This amount, however, is offset by additional contributions through a surcharge for employers who voluntarily contract for those benefits.

Public Employees' Pension Reform Act of 2013 (PEPRA)

On January 1, 2013, the Public Employees' Pension Reform Act of 2013 (PEPRA) took effect, requiring that a public employer's contribution to a defined benefit plan, in combination with employee contributions to that defined benefit plan, shall not be less than the normal cost rate. Beginning July 1, 2013, this means that some

plans with surplus will be paying more than they otherwise would. 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 rate smoothing policies. Beginning with the June 30, 2013 valuations that set the 2015-16 rates, CalPERS 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 impact of this new actuarial methodology is reflected in the "Analysis of Future Investment Return Scenarios" subsection of the "Risk Analysis" section of your Section 2 report.

Not reflected in the "Analysis of Future Investment Return Scenarios" subsection of the "Risk Analysis" section is the impact of assumption changes that we expect will also impact future rates. A review of the preferred asset allocation mix for CalPERS investment portfolio will be performed in late 2013, which could influence future discount rates. In addition, CalPERS will review economic and demographic assumptions, including mortality rate improvements that are likely to increase employer contribution rates in future years. The partial closure of the pool (to most new hires) due to the enactment of PEPRA will also impact future pool rates.

ASSETS

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

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Reconciliation of the Market Value of Assets

1.	Market Value of Assets as of June 30, 2011 Including Receivables	$	377,235,284
2.	Receivables for Service Buybacks as of June 30, 2011		586,730
3.	Market Value of Assets as of June 30, 2011 [1 - 2]		376,648,554
4.	Employer Contributions		15,483,791
5.	Employee Contributions		5,504,615
6.	Benefit Payments to Retirees and Beneficiaries		(21,895,836)
7.	Refunds		(318,485)
8.	Lump Sum Payments		0
9.	Transfers and Miscellaneous Adjustments		(36,214,465)
10.	Investment Return		(817,846)
11.	Market Value of Assets as of June 30, 2012 (w/o Pool Transfers)	$	338,390,328
12.	Transfers into and out of the Risk Pool		393,997
13.	Market Value of Assets as of June 30, 2012	$	338,784,325
14.	Receivables for Service Buybacks as of June 30, 2012		870,746
15.	Market Value of Assets as of June 30, 2012 Including Receivables [13 + 14]		339,655,071

Development of the Actuarial Value of Assets

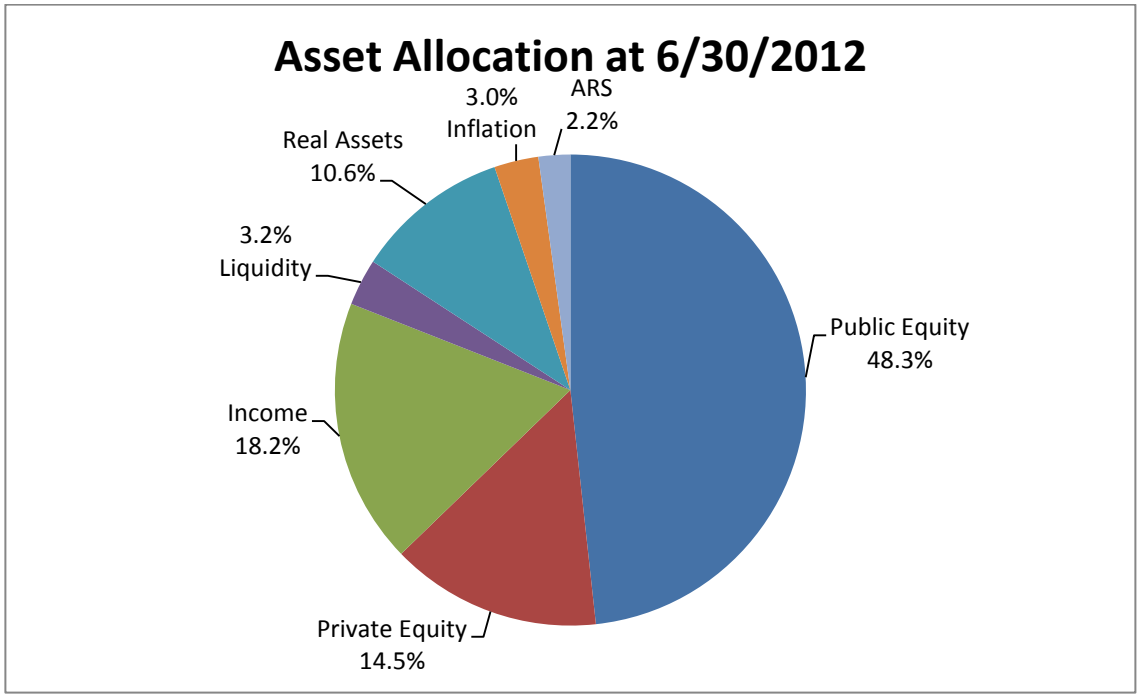
1.	Actuarial Value of Assets as of June 30, 2011 Used for Rate Setting Purposes		421,374,728
2.	Receivables for Service Buyback as of June 30, 2011		586,730
3.	Actuarial Value of Assets as of June 30, 2011 [1 - 2]		420,787,998
4.	Employer Contributions		15,483,791
5.	Employee Contributions		5,504,615
6.	Benefit Payments to Retirees and Beneficiaries		(21,895,836)
7.	Refunds		(318,485)
8.	Lump Sum Payments		0
9.	Transfers and Miscellaneous Adjustments		(36,214,465)
10.	Expected Investment Income at 7.5%		30,180,468
11.	Expected Actuarial Value of Assets (w/o Pool Transfers)	$	413,528,086
12.	Market Value of Assets June 30, 2012 (w/o Pool Transfers)		338,390,328
13.	Preliminary Actuarial Value of Assets (w/o Pool Transfers) [(11) + ((12) - (11)) / 15]		406,068,394
14.	Preliminary Actuarial Value to Market Value Ratio		120.0%
15.	Final Actuarial Value to Market Value Ratio (minimum 80%, maximum 120%)		120.0%
16.	Market Value of Assets June 30, 2012		338,784,325
17.	Actuarial Value of Assets as of June 30, 2012		406,541,190
18.	Receivables for Service Buybacks as of June 30, 2012		870,746
19.	Actuarial Value of Assets as of June 30, 2012 Used for Rate Setting Purposes [17 + 18]		407,411,936

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. The Board approved in December 2010 policy asset class targets and ranges listed below. These policy asset allocation targets and ranges are expressed as a percentage of total assets and were expected to be implemented over a period of one to two years beginning July, 1 2011 and reviewed again in December 2013.

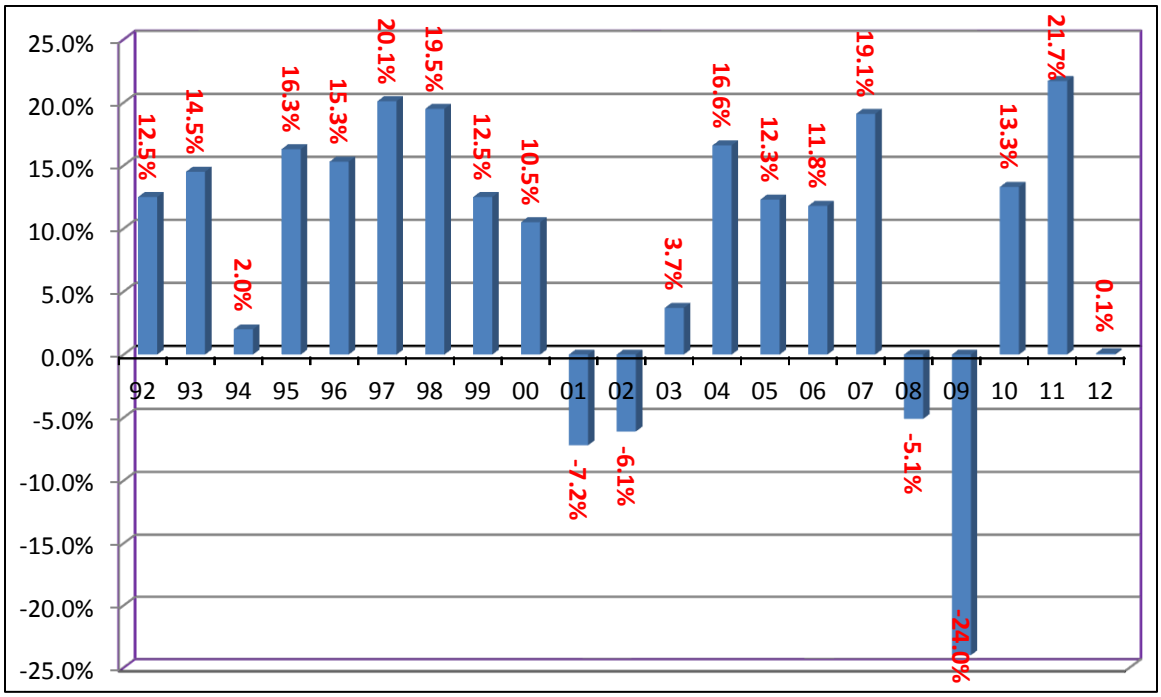
The asset allocation and market value of assets shown below reflect the values of the Public Employees Retirement Fund (PERF) in its entirety as of June 30, 2012. The assets for Safety 2.0% at 50 Risk Pool are part of the Public Employees Retirement Fund (PERF) and are invested accordingly.

(A) Asset Class	(B) Market Value ($ Billion)	(C) Policy Target Allocation	(D) Policy Target Range
1) Public Equity	113.0	50.0%	+/- 7%
2) Private Equity	33.9	14.0%	+/- 4%
3) Fixed Income	42.6	17.0%	+/- 5%
4) Cash Equivalents	7.5	4.0%	+/- 5%
5) Real Assets	24.8	11.0%	+/- 3%
6) Inflation Assets	7.0	4.0%	+/- 3%
7) Absolute Return Strategy (ARS)	5.1	0.0%	N/A
Total Fund	**$233.9**	**100.0%**	**N/A**



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 as gross of fees.



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LIABILITIES AND RATES

- **DEVELOPMENT OF POOL'S ACCRUED AND UNFUNDED LIABILITIES**
- **(GAIN)/LOSS ANALYSIS 06/30/11 - 06/30/12**
- **SCHEDULE OF AMORTIZATION BASES FOR THE RISK POOL**
- **DEVELOPMENT OF RISK POOL'S ANNUAL REQUIRED BASE CONTRIBUTION**
- **POOL'S EMPLOYER CONTRIBUTION RATE HISTORY**
- **FUNDING HISTORY**

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Development of Pool's Accrued and Unfunded Liabilities

		June 30, 2011	June 30, 2012
1.	Present Value of Projected Benefits		
	a) Active Members	$ 315,434,148	$ 293,741,483
	b) Transferred Members	60,201,607	50,202,895
	c) Separated Members	6,540,707	7,302,419
	d) Members and Beneficiaries Receiving Payments	274,048,810	268,449,544
	e) Total	$ 656,225,272	$ 619,696,341
2.	Present Value of Future Employer Normal Costs	$ 92,953,418	$ 87,186,504
3.	Present Value of Future Employee Contributions	$ 59,788,960	$ 56,546,108
4.	Entry Age Normal Accrued Liability		
	a) Active Members [(1a) - (2) - (3)]	$ 162,700,151	$ 150,008,871
	b) Transferred Members (1b)	60,201,607	50,202,895
	c) Separated Members (1c)	6,540,707	7,302,419
	d) Members and Beneficiaries Receiving Payments (1d)	274,048,810	268,449,544
	e) Total	$ 503,491,275	$ 475,963,729
5.	Actuarial Value of Assets (AVA) Including Receivables	$ 421,374,728	$ 407,411,936
6.	Unfunded Accrued Liability (AVA Basis) [(4e) - (5)]	82,116,547	68,551,793
7.	Funded Ratio (AVA Basis) [(5) / (4e)]	83.7%	85.6%
8.	Side Funds	$ (24,932,098)	$ (21,321,973)
9.	Unfunded Liability excluding Side Funds [(4e) - (5) + (8)]	57,184,449	47,229,820
10.	Market Value of Assets (MVA) Including Receivables	$ 377,235,284	$ 339,655,071
11.	Funded Ratio (MVA Basis) [(10) / (4e)]	74.9%	71.4%

(Gain)/Loss Analysis 06/30/11 - 06/30/12

To calculate the cost requirements of your pool, we use assumptions about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is contrasted against the expected experience based on the actuarial assumptions. The differences are reflected below as your pool's actuarial gains or losses.

1.	**Total (Gain)/Loss for the Year**		
	a) Unfunded Liability/(Surplus) as of June 30, 2011	$	57,184,449
	b) Expected payment on the Unfunded Liability		2,578,259
	c) Interest accumulation [.075 X (1a) - ((1.075)^.5 - 1) X (1b)]		4,193,897
	d) Expected Unfunded Liability before other changes [(1a) - (1b) + (1c)]		58,800,087
	e) Change due to assumption changes		0
	f) Expected Unfunded Liability after changes[(1d) + (1e)]		58,800,087
	g) Actual Unfunded Liability/(Surplus) as of June 30, 2012		47,229,820
	h) Total (Gain)/Loss [(1g) - (1f)]	$	(11,570,267)
2.	**Contribution (Gain)/Loss for the Year**		
	a) Expected contribution (Employer and Employee)	$	22,448,158
	b) Interest on Expected Contributions		826,587
	c) Total expected Contributions with interest [(2a) + (2b)]		23,274,745
	d) Actual Contributions		20,988,406
	e) Interest on Actual Contributions		772,837
	f) Total Actual Contributions with interest [(2d) + (2e)]		21,761,243
	g) Contribution (Gain)/Loss [(2c) - (2f)]	$	1,513,502
3.	**Asset (Gain)/Loss for the Year**		
	a) Actuarial Value of Assets as of 06/30/11 Including Receivables	$	421,374,728
	b) Receivables as of 06/30/11		586,730
	c) Actuarial Value of Assets as of 06/30/11		420,787,998
	d) Contributions received		20,988,406
	e) Benefits and Refunds Paid		(22,214,321)
	f) Transfers and miscellaneous adjustments		(36,214,465)
	g) Expected interest		30,180,468
	h) Transfers into the pool (AVA Basis)		472,796
	i) Transfers out of the pool (AVA Basis)		0
	j) Expected Assets as of 06/30/12 [Sum (3c) through (3i)]		414,000,882
	k) Receivables as of 06/30/12		870,746
	l) Expected Assets Including Receivables		414,871,628
	m) Actual Actuarial Value of Assets as of 06/30/12 Including Receivables		407,411,936
	n) Asset (Gain)/Loss [(3l) – (3m)]	$	7,459,692
4.	**Liability (Gain)/Loss for the Year**		
	a) Total (Gain)/Loss (1h)	$	(11,570,267)
	b) Contribution (Gain)/Loss (2g)		1,513,502
	c) Asset (Gain)/Loss excluding side fund (3n)		7,459,692
	d) Liability (Gain)/Loss [(4a) - (4b) - (4c)]*	$	(20,543,461)

* Includes (Gain)/Loss on plans transferring into the pool.

Schedule of Amortization Bases for the Risk Pool

The schedule below shows the development of the payment on the Pool's amortization bases used to determine the Total Required Employer Contributions to the Pool. Each row of the schedule gives a brief description of a base (or portion of the Unfunded Actuarial Liability), 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 payments for the two years immediately following the valuation date, the balances on the dates a year and two years 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	Amortization Period	Balance on June 30, 2012	Expected Payment 12-13	Balance June 30, 2013	Expected Payment 13-14	Balance June 30, 2014	Scheduled Payment for 2014-15	Payment as a percentage of payroll
2004 FRESH START	22	$7,737,652	$524,734	$7,773,920	$538,974	$7,798,144	$555,143	0.847%
2005 (GAIN)/LOSS	30	$9,723,363	$1,281,768	$9,123,650	$1,294,791	$8,465,455	$508,355	0.775%
2005 PAYMENT (GAIN)/LOSS	30	$2,363,404	$(617,664)	$3,181,067	$(366,028)	$3,799,153	$228,141	0.348%
2009 ASSUMPTION CHANGE	17	$15,572,032	$1,218,435	$15,476,634	$1,251,205	$15,340,105	$1,288,741	1.966%
2009 SPECIAL (GAIN)/LOSS	27	$6,025,803	$368,916	$6,095,238	$379,003	$6,159,422	$390,373	0.596%
2010 SPECIAL (GAIN)/LOSS	28	$(1,806,459)	$(108,732)	$(1,829,208)	$(111,717)	$(1,850,568)	$(115,069)	(0.176%)
2011 ASSUMPTION CHANGE	19	$9,714,757	$(326,179)	$10,781,553	$271,355	$11,308,823	$882,393	1.346%
2011 SPECIAL (GAIN)/LOSS	29	$(2,100,732)	$0	$(2,258,287)	$(135,611)	$(2,287,054)	$(139,680)	(0.213%)
Total excluding side funds		**$47,229,820**	**$2,341,278**	**$48,344,567**	**$3,121,972**	**$48,733,480**	**$3,598,397**	**5.490%**

The special (gain)/loss bases were special bases established for the gain/loss that is recognized in the 2009, 2010, and 2011 annual valuations. Unlike the gain/loss occurring in previous and subsequent years, the gain/loss recognized in the 2009, 2010, and 2011 annual valuations will be amortized over fixed and declining 30 year periods so that these annual gain/losses will be fully paid off in 30 years. The gain/loss recognized in 2012 and later valuations will be combined with the gain/loss from 2008 and earlier valuations.

Development of Risk Pool's Annual Required Base Contribution

			Fiscal Year 2013-14		Fiscal Year 2014-15
1.	**Contribution in Projected Dollars**				
	a) Total Normal Cost	$	16,809,969	$	15,869,310
	b) Employee Contribution		6,174,808		5,841,033
	c) Pool's Gross Employer Normal Cost [(1a) - (1b)]		10,635,161		10,028,276
	d) Total Surcharges for Class 1 Benefits		493,209		462,773
	e) Net Employer Normal Cost [(1c) - (1d)]		10,141,952		9,565,503
	f) Payment on Pool's Amortization Bases	$	3,643,168	$	3,598,397
	g) Total Required Employer Contributions [(1e) + (1f)]		13,785,120		13,163,900
2.	**Annual Covered Payroll as of Valuation Date**	$	63,392,685	$	59,986,230
3.	**Projected Payroll for Contribution Fiscal Year**	$	69,270,899	$	65,548,573
4.	**Contribution as a % of Projected Pay**				
	a) Total Normal Cost [(1a) / (3)]		24.267%		24.210%
	b) Employee Contribution [(1b) / (3)]		8.914%		8.911%
	c) Pool's Gross Employer Normal Cost [(1c) / (3)]		15.353%		15.299%
	d) Total Surcharges for Class 1 Benefits [(1d) / (3)]		0.712%		0.706%
	e) Net Employer Normal Cost [(1e) / (3)]		14.641%		14.593%
	f) Payment on Pool's Amortization Bases [(1f) / (3)]		5.259%		5.490%
	g) Total Required Employer Contributions [(1g) / (3)]		19.900%		20.083%

Pool's Employer Contribution Rate History

Fiscal Date	Net Employer Normal Cost	Total Surcharges for Class 1 Benefits	Gross Employer Normal Cost	Payment on Pool's Amortization Bases	Total Payment On Employer Side Funds	Total Employer Contribution
06/30/2008	11.462%	0.898%	12.360%	1.974%	5.918%	20.252%
06/30/2009	14.014%	0.720%	14.734%	5.155%	5.793%	25.682%
06/30/2010	14.215%	0.744%	14.959%	4.989%	5.785%	25.733%
06/30/2011	14.641%	0.712%	15.353%	5.259%	5.690%	26.302%
06/30/2012	14.593%	0.706%	15.299%	5.490%	5.594%	26.383%

Funding History

Valuation Date	Accrued Liabilities (AL)	Market Value of Assets (MVA)	Funded Ratio (MVA/AL)
06/30/2008	$504,295,839	$447,923,730	88.8%
06/30/2009	$440,333,381	$270,100,582	61.3%
06/30/2010	$469,525,634	$312,646,866	66.6%
06/30/2011	$503,491,275	$377,235,284	74.9%
06/30/2012	$475,963,729	$339,655,071	71.4%

Valuation Date	Accrued Liabilities (AL)	Actuarial Value of Assets (AVA)	Unfunded Liabilities (UL)	Funded Ratio (AVA/AL)	Annual Covered Payroll	UL As a % of Payroll
06/30/2008	$504,295,839	$438,674,996	$65,620,843	87.0%	$77,903,428	84.2%
06/30/2009	$440,333,381	$368,645,673	$71,687,708	83.7%	$60,158,108	119.2%
06/30/2010	$469,525,634	$396,740,091	$72,785,543	84.5%	$61,878,177	117.6%
06/30/2011	$503,491,275	$421,374,728	$82,116,547	83.7%	$63,392,685	129.5%
06/30/2012	$475,963,729	$407,411,936	$68,551,793	85.6%	$59,986,230	114.3%

Information shown here is for compliance with GASB No. 27 for a cost-sharing multiple-employer defined benefit plan.

However, note that beginning next year, GASB 68 will supersede GASB 27. Disclosure required under GASB 68 will require additional reporting which CalPERS may be able to provide for an additional cost.

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RISK ANALYSIS

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

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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 (AVR)

Pools that have higher asset to payroll ratios produce more volatile employer rates due to investment return. For example, a pool with an asset to payroll ratio of 8 may experience twice the contribution volatility due to investment return volatility than a pool with an asset to payroll ratio of 4. Below we have shown your asset volatility ratio, a measure of the pool's potential future rate volatility. It should be noted that this ratio increases over time but generally tends to stabilize as the pool matures.

Liability Volatility Ratio

Pools that have higher liability to payroll ratios produce more volatile employer rates due to investment return. For example, a pool with an liability to payroll ratio of 8 may experience twice the contribution volatility due to investment return volatility than a pool with an liability to payroll ratio of 4. Below we have shown your volatility index, a measure of the plan's potential future rate volatility. It should be noted that this ratio increases over time but generally tends to stabilize as the pool matures.

	As of June 30, 2012
1. Market Value of Assets without Receivables	$ 338,784,325
2. Payroll	59,986,230
3. Asset Volatility Ratio (AVR = 1. / 2.)	5.6
4. Accrued Liability	475,963,729
5. Payroll	59,986,230
6. Liability Volatility Ratio (4. / 5.)	7.9

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, 2013 valuations 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 directly over a 5-year period. The table below shows projected pool contribution rates (before cost sharing) for the next five Fiscal Years, ***assuming CalPERS earns 12 percent for fiscal year 2012-13 and 7.50 percent every fiscal year thereafter***, and assuming that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur between now and the beginning of the fiscal year 2015-16. ***Consequently, these projections do not take into account potential rate increases from likely future assumption changes.*** In addition they do not take into account the positive impact PEPRA is expected to gradually have on the normal cost nor the possibility that a plan may be required under PEPRA to contribute a higher normal cost than would otherwise be calculated. PEPRA is expected to reduce expected payroll for this pool in the future and as a result CalPERS may need to change its method of allocating pooled plan unfunded liability. These potential changes are not reflected in the projected rates.

	New Rate	**Projected Future Pool Contribution Rates**				
	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**
Contribution Rates:	20.083%	21.5%	22.9%	24.2%	25.6%	27.0%

Analysis of Future Investment Return Scenarios

In July 2013, the investment return for fiscal year 2012-13 was announced to be 12.5 percent. Note that this return is before administrative expenses and also does not reflect final investment return information for real estate and private equities. The final return information for these two asset classes is expected to be available later in October. For purposes of projecting future employer rates, we are assuming a 12 percent investment return for fiscal year 2012-13.

The investment return realized during a fiscal year first affects the contribution rate for the fiscal year 2 years later. Specifically, the investment return for 2012-13 will first be reflected in the June 30, 2013 actuarial valuation that will be used to set the 2015-16 employer contribution rates, the 2013-14 investment return will first be reflected in the June 30, 2014 actuarial valuation that will be used to set the 2016-17 employer contribution rates and so forth.

Based on a 12 percent investment return for fiscal year 2012-13 and the April 17, 2013 CalPERS Board-approved amortization and rate smoothing method change and assuming that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur between now and the beginning of the fiscal year 2015-16, the effect on the 2015-16 Employer Rate is as follows:

Estimated 2015-16 Pool's Base Employer Rate	**Estimated Increase in Pool's Base Employer Rate between 2014-15 and 2015-16**
21.5%	1.4%

As part of this report, a sensitivity analysis was performed to determine the effects of various investment returns during fiscal years 2013-14, 2014-15 and 2015-16 on the 2016-17, 2017-18 and 2018-19 employer rates. Once again, the projected rate increases assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur.

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, 2013 through June 30, 2016. The 5th percentile return corresponds to a negative -4.1 percent return for each of the 2013-14, 2014-15 and 2015-16 fiscal years.
- The second scenario is what one would expect if the markets were to give us a 25th percentile return from July 1, 2013 through June 30, 2016. The 25th percentile return corresponds to a 2.6 percent return for each of the 2013-14, 2014-15 and 2015-16 fiscal years.
- The third scenario assumed the return for 2013-14, 2014-15, 2015-16 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, 2013 through June 30, 2016. The 75th percentile return corresponds to a 11.9 percent return for each of the 2013-14, 2014-15 and 2015-16 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, 2013 through June 30, 2016. The 95th percentile return corresponds to a 18.5 percent return for each of the 2013-14, 2014-15 and 2015-16 fiscal years.

The table below shows the estimated changes in the Pool's Base rate for 2016-17, 2017-18 and 2018-19 under the five different scenarios.

2013-16 Investment Return Scenario	Estimated Change in Pool's Base Rate Between Year Shown and Preceding Year			
	2016-17	2017-18	2018-19	Cumulative Increase
-4.10% (5th percentile)	2.4%	3.4%	4.2%	10.0%
2.60% (25th percentile)	1.8%	2.2%	2.7%	6.7%
7.5%	1.4%	1.4%	1.4%	4.2%
11.90% (75th percentile)	1.0%	0.6%	0.1%	1.7%
18.50% (95th percentile)	0.4%	-0.7%	-2.0%	-2.3%

Analysis of Discount Rate Sensitivity

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 that 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 risk pool contribution rates.

2014-15 Employer Contribution Rate			
As of June 30, 2012	6.50% Discount Rate (-1%)	7.50% Discount Rate (assumed rate)	8.50% Discount Rate (+1%)
Pool's Gross Employer Normal Cost	20.9%	15.3%	11.0%
Payment on Pool's Amortization Bases	13.7%	5.5%	-2.1%
Total	34.6%	20.8%	8.9%

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APPENDICES

- **APPENDIX A - ACTUARIAL METHODS AND ASSUMPTIONS**
- **APPENDIX B - PLAN PROVISIONS**
- **APPENDIX C - PLAN OPTIONS AND VARIABLES**
- **APPENDIX D - LIST OF PARTICIPATING EMPLOYERS**
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APPENDIX A

ACTUARIAL METHODS AND ASSUMPTIONS

- **ACTUARIAL DATA**
- **ACTUARIAL METHODS**
- **ACTUARIAL ASSUMPTIONS**
- **MISCELLANEOUS**

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Actuarial Data

As stated in the Actuarial Certification, the data which serves as the basis of 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 the Retirement Program is the 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 pool 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 payrolls. All changes in liability due to changes in actuarial assumptions, or changes in actuarial methodology are amortized separately over a 20-year period. All new gains or losses are tracked and amortized over a rolling 30-year period. If a pool'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.

Additional contributions will be required for any plan or pool if their cash flows hamper 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, 2043; or
- Reach a level of 75 percent funded by June 30, 2043

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 2008-2009, 2009-2010, and 2010-2011 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 additional contributions are necessary.

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 is projected and amortized over a set number of years. As mentioned above, if the annual contribution on the total unfunded liability was less than the amount produced by a 30-year amortization of the unfunded liability, the plan actuary would implement a 30-year fresh start. However, in the case of a 30-year fresh start, just the unfunded liability not already in the (gain)/loss base (which already is amortized over 30 years) will go into the new fresh start base. In addition, a fresh start is needed in the following situations:

1) When a positive payment would be required on a negative unfunded actuarial liability (or conversely a negative payment on a positive unfunded actuarial liability); or

2) When there is excess assets, rather than an unfunded liability. In this situation a 30-year fresh start is used, unless a larger fresh start is needed to avoid a negative total rate.

It should be noted that the actuary may choose to use a fresh start under other circumstances. In all cases, the period of the fresh start is chosen by the actuary according to his or her best judgment, but not be less than five years, nor greater than 30 years.

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 is 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 is then 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. However, in no case will the Actuarial Value of Assets be less than 80 percent, nor greater than 120 percent of the actual Market Value of Assets.

In June 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 negative -24 percent investment loss experienced by CalPERS in fiscal year 2008-2009. The following changes were adopted:

- Increase the corridor limits for the actuarial value of assets from 80 percent-120 percent of market value to 60 percent-140 percent of market value on June 30, 2009
- Reduce the corridor limits for the actuarial value of assets to 70 percent-130 percent of market value on June 30, 2010
- Return to the 80 percent-120 percent of market value corridor limits for the actuarial value of assets on June 30, 2011 and thereafter

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, 2013 valuations that set the 2015-16 contribution rates, CalPERS 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.

Actuarial Assumptions

Economic Assumptions

Discount Rate

7.5 percent compounded annually (net of expenses). This assumption is used for all plans.

Termination Liability Discount Rate

The discount rate used for termination valuation is a weighted average of the 10 and 30-year US Treasury yields in effect on the valuation date that equal the duration of the pension liabilities. For purposes of this hypothetical termination liability estimate, the discount rate used, 2.98 percent, is the yield on the 30-year US Treasury Separate Trading of Registered Interest and Principal of Securities (STRIPS) as of June 30, 2012. Please note, as of June 30, 2013 the 30-year STRIPS yield was 3.72 percent.

Salary Growth

Annual increases vary by category, entry age, and duration of service. Sample which is assumed increases are shown below.

Public Agency Miscellaneous

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1420	0.1240	0.0980
1	0.1190	0.1050	0.0850
2	0.1010	0.0910	0.0750
3	0.0880	0.0800	0.0670
4	0.0780	0.0710	0.0610
5	0.0700	0.0650	0.0560
10	0.0480	0.0460	0.0410
15	0.0430	0.0410	0.0360
20	0.0390	0.0370	0.0330
25	0.0360	0.0360	0.0330
30	0.0360	0.0360	0.0330

Public Agency Fire

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1050	0.1050	0.1020
1	0.0950	0.0940	0.0850
2	0.0870	0.0830	0.0700
3	0.0800	0.0750	0.0600
4	0.0740	0.0680	0.0510
5	0.0690	0.0620	0.0450
10	0.0510	0.0460	0.0350
15	0.0410	0.0390	0.0340
20	0.0370	0.0360	0.0330
25	0.0350	0.0350	0.0330
30	0.0350	0.0350	0.0330

Public Agency Police

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1090	0.1090	0.1090
1	0.0930	0.0930	0.0930
2	0.0810	0.0810	0.0780
3	0.0720	0.0700	0.0640
4	0.0650	0.0610	0.0550
5	0.0590	0.0550	0.0480
10	0.0450	0.0420	0.0340
15	0.0410	0.0390	0.0330
20	0.0370	0.0360	0.0330
25	0.0350	0.0340	0.0330
30	0.0350	0.0340	0.0330

Public Agency County Peace Officers

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1290	0.1290	0.1290
1	0.1090	0.1060	0.1030
2	0.0940	0.0890	0.0840
3	0.0820	0.0770	0.0710
4	0.0730	0.0670	0.0610
5	0.0660	0.0600	0.0530
10	0.0460	0.0420	0.0380
15	0.0410	0.0380	0.0360
20	0.0370	0.0360	0.0340
25	0.0350	0.0340	0.0330
30	0.0350	0.0340	0.0330

Schools

Duration of Service	(Entry Age 20)	(Entry Age 30)	(Entry Age 40)
0	0.1080	0.0960	0.0820
1	0.0940	0.0850	0.0740
2	0.0840	0.0770	0.0670
3	0.0750	0.0700	0.0620
4	0.0690	0.0640	0.0570
5	0.0630	0.0600	0.0530
10	0.0450	0.0440	0.0410
15	0.0390	0.0380	0.0350
20	0.0360	0.0350	0.0320
25	0.0340	0.0340	0.0320
30	0.0340	0.0340	0.0320

- The Miscellaneous salary scale is used for Local Prosecutors.
- The Police salary scale is used for Other Safety, Local Sheriff, and School Police.

Overall Payroll Growth

3.00 percent compounded annually (used in projecting the payroll over which the unfunded liability is amortized). This assumption is used for all plans.

Inflation

2.75 percent compounded annually. This assumption is used for all plans.

Non-valued Potential Additional Liabilities

The potential liability loss for a cost-of-living increase exceeding the 2.75 percent inflation assumption, and any potential liability loss from future member service purchases are not reflected in the valuation.

Miscellaneous Loading Factors

Credit for Unused Sick Leave

Final Average Salary is increased by 1 percent for those agencies that have accepted the provision providing Credit for Unused Sick Leave.

Conversion of Employer Paid Member Contributions (EPMC)

Final Average Salary is increased by the Employee Contribution Rate for those agencies that have contracted for the provision providing for the Conversion of Employer Paid Member Contributions (EPMC) during the final compensation period.

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" for these employees 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.

Termination Liability

The termination liabilities include a 7 percent contingency load. This load is for unforeseen improvements in mortality.

Demographic Assumptions

Pre-Retirement Mortality

Non-Industrial Death Rates vary by age and gender. Industrial Death rates vary by age. See sample rates in table below. The non-industrial death rates are used for all plans. The industrial death rates are used for Safety Plans (except for Local Prosecutor safety members where the corresponding Miscellaneous Plan does not have the Industrial Death Benefit).

	Non-Industrial Death (Not Job-Related)		**Industrial Death (Job-Related)**
Age	Male	Female	Male and Female
20	0.00047	0.00016	0.00003
25	0.00050	0.00026	0.00007
30	0.00053	0.00036	0.00010
35	0.00067	0.00046	0.00012
40	0.00087	0.00065	0.00013
45	0.00120	0.00093	0.00014
50	0.00176	0.00126	0.00015
55	0.00260	0.00176	0.00016
60	0.00395	0.00266	0.00017
65	0.00608	0.00419	0.00018
70	0.00914	0.00649	0.00019
75	0.01220	0.00878	0.00020
80	0.01527	0.01108	0.00021

Miscellaneous Plans usually have Industrial Death rates set to zero unless the agency has specifically contracted for Industrial Death benefits. If so, each Non-Industrial Death rate shown above will be split into two components: 99 percent will become the Non-Industrial Death rate and 1 percent will become the Industrial Death rate.

Post-Retirement Mortality

Rates vary by age, type of retirement and gender. See sample rates in table below. These rates are used for all plans.

	Healthy Recipients		Non-Industrially Disabled (Not Job-Related)		Industrially Disabled (Job-Related)	
Age	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
105	0.58527	0.56093	0.67923	0.61523	0.64127	0.60135
110	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

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. The mortality assumption will be reviewed with the next experience study expected to be completed for the June 30, 2013 valuation to determine an appropriate margin to be used.

Marital Status

For active members, a percentage married upon retirement is assumed according to the following table.

Member Category	Percent Married
Miscellaneous Member	85%
Local Police	90%
Local Fire	90%
Other Local Safety	90%
School Police	90%

Age of Spouse

It is assumed that female spouses are 3 years younger than male spouses. This assumption is used for all plans.

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 for Miscellaneous Plans. Rates vary by service for Safety Plans. See sample rates in tables below.

Public Agency Miscellaneous

Duration of Service	Entry Age 20	Entry Age 25	Entry Age 30	Entry Age 35	Entry Age 40	Entry Age 45
0	0.1742	0.1674	0.1606	0.1537	0.1468	0.1400
1	0.1545	0.1477	0.1409	0.1339	0.1271	0.1203
2	0.1348	0.1280	0.1212	0.1142	0.1074	0.1006
3	0.1151	0.1083	0.1015	0.0945	0.0877	0.0809
4	0.0954	0.0886	0.0818	0.0748	0.0680	0.0612
5	0.0212	0.0193	0.0174	0.0155	0.0136	0.0116
10	0.0138	0.0121	0.0104	0.0088	0.0071	0.0055
15	0.0060	0.0051	0.0042	0.0032	0.0023	0.0014
20	0.0037	0.0029	0.0021	0.0013	0.0005	0.0001
25	0.0017	0.0011	0.0005	0.0001	0.0001	0.0001
30	0.0005	0.0001	0.0001	0.0001	0.0001	0.0001
35	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Public Agency Safety

Duration of Service	Fire	Police	County Peace Officer
0	0.0710	0.1013	0.0997
1	0.0554	0.0636	0.0782
2	0.0398	0.0271	0.0566
3	0.0242	0.0258	0.0437
4	0.0218	0.0245	0.0414
5	0.0029	0.0086	0.0145
10	0.0009	0.0053	0.0089
15	0.0006	0.0027	0.0045
20	0.0005	0.0017	0.0020
25	0.0003	0.0012	0.0009
30	0.0003	0.0009	0.0006
35	0.0003	0.0009	0.0006

The Police Termination and Refund rates are used for Public Agency Local Prosecutors, Other Safety, Local Sheriff, and School Police.

Schools

Duration of Service	Entry Age 20	Entry Age 25	Entry Age 30	Entry Age 35	Entry Age 40	Entry Age 45
0	0.1730	0.1627	0.1525	0.1422	0.1319	0.1217
1	0.1585	0.1482	0.1379	0.1277	0.1174	0.1071
2	0.1440	0.1336	0.1234	0.1131	0.1028	0.0926
3	0.1295	0.1192	0.1089	0.0987	0.0884	0.0781
4	0.1149	0.1046	0.0944	0.0841	0.0738	0.0636
5	0.0278	0.0249	0.0221	0.0192	0.0164	0.0135
10	0.0172	0.0147	0.0122	0.0098	0.0074	0.0049
15	0.0115	0.0094	0.0074	0.0053	0.0032	0.0011
20	0.0073	0.0055	0.0038	0.0020	0.0002	0.0002
25	0.0037	0.0023	0.0010	0.0002	0.0002	0.0002
30	0.0015	0.0003	0.0002	0.0002	0.0002	0.0002
35	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

Termination with Vested Benefits

Rates vary by entry age and service for Miscellaneous Plans. Rates vary by service for Safety Plans. See sample rates in tables below.

Public Agency Miscellaneous

Duration of Service	Entry Age 20	Entry Age 25	Entry Age 30	Entry Age 35	Entry Age 40
5	0.0656	0.0597	0.0537	0.0477	0.0418
10	0.0530	0.0466	0.0403	0.0339	0.0000
15	0.0443	0.0373	0.0305	0.0000	0.0000
20	0.0333	0.0261	0.0000	0.0000	0.0000
25	0.0212	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000

Public Agency Safety

Duration of Service	Fire	Police	County Peace Officer
5	0.0162	0.0163	0.0265
10	0.0061	0.0126	0.0204
15	0.0058	0.0082	0.0130
20	0.0053	0.0065	0.0074
25	0.0047	0.0058	0.0043
30	0.0045	0.0056	0.0030
35	0.0000	0.0000	0.0000

- When a member is eligible to retire, the termination with vested benefits probability is set to zero.
- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.
- The Police Termination with vested benefits rates are used for Public Agency Local Prosecutors, Other Safety, Local Sheriff, and School Police.

Schools

Duration of Service	Entry Age 20	Entry Age 25	Entry Age 30	Entry Age 35	Entry Age 40
5	0.0816	0.0733	0.0649	0.0566	0.0482
10	0.0629	0.0540	0.0450	0.0359	0.0000
15	0.0537	0.0440	0.0344	0.0000	0.0000
20	0.0420	0.0317	0.0000	0.0000	0.0000
25	0.0291	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000

Non-Industrial (Not Job-Related) Disability

Rates vary by age and gender for Miscellaneous Plans.
Rates vary by age for Safety Plans.

	Miscellaneous		Fire	Police	County Peace Officer	Schools	
Age	Male	Female	Male and Female	Male and Female	Male and Female	Male	Female
20	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
25	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
30	0.0002	0.0002	0.0001	0.0002	0.0001	0.0002	0.0001
35	0.0006	0.0009	0.0001	0.0003	0.0004	0.0006	0.0004
40	0.0015	0.0016	0.0001	0.0004	0.0007	0.0014	0.0009
45	0.0025	0.0024	0.0002	0.0005	0.0013	0.0028	0.0017
50	0.0033	0.0031	0.0005	0.0008	0.0018	0.0044	0.0030
55	0.0037	0.0031	0.0010	0.0013	0.0010	0.0049	0.0034
60	0.0038	0.0025	0.0015	0.0020	0.0006	0.0043	0.0024

- The Miscellaneous Non-Industrial Disability rates are used for Local Prosecutors.
- The Police Non-Industrial Disability rates are used for Other Safety, Local Sheriff, and School Police.

Industrial (Job-Related) Disability

Rates vary by age and category.

Age	Fire	Police	County Peace Officer
20	0.0002	0.0007	0.0003
25	0.0012	0.0032	0.0015
30	0.0025	0.0064	0.0031
35	0.0037	0.0097	0.0046
40	0.0049	0.0129	0.0063
45	0.0061	0.0161	0.0078
50	0.0074	0.0192	0.0101
55	0.0721	0.0668	0.0173
60	0.0721	0.0668	0.0173

- The Police Industrial Disability rates are used for Local Sheriff and Other Safety.
- Fifty Percent of the Police Industrial Disability rates are used for School Police.
- One Percent of the Police Industrial Disability rates are used for Local Prosecutors.
- Normally, rates are zero for Miscellaneous Plans unless the agency has specifically contracted for Industrial Disability benefits. If so, each Miscellaneous Non-Industrial Disability rate will be split into two components: 50 percent will become the Non-Industrial Disability rate and 50 percent will become the Industrial Disability rate.

Service Retirement

Retirement rate vary by age, service, and formula, except for the safety ½ @ 55 and 2% @ 55 formulas, where retirement rates vary by age only.

Public Agency Miscellaneous 1.5% @ 65

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.008	0.011	0.013	0.015	0.017	0.019
51	0.007	0.010	0.012	0.013	0.015	0.017
52	0.010	0.014	0.017	0.019	0.021	0.024
53	0.008	0.012	0.015	0.017	0.019	0.022
54	0.012	0.016	0.019	0.022	0.025	0.028
55	0.018	0.025	0.031	0.035	0.038	0.043
56	0.015	0.021	0.025	0.029	0.032	0.036
57	0.020	0.028	0.033	0.038	0.043	0.048
58	0.024	0.033	0.040	0.046	0.052	0.058
59	0.028	0.039	0.048	0.054	0.060	0.067
60	0.049	0.069	0.083	0.094	0.105	0.118
61	0.062	0.087	0.106	0.120	0.133	0.150
62	0.104	0.146	0.177	0.200	0.223	0.251
63	0.099	0.139	0.169	0.191	0.213	0.239
64	0.097	0.136	0.165	0.186	0.209	0.233
65	0.140	0.197	0.240	0.271	0.302	0.339
66	0.092	0.130	0.157	0.177	0.198	0.222
67	0.129	0.181	0.220	0.249	0.277	0.311
68	0.092	0.129	0.156	0.177	0.197	0.221
69	0.092	0.130	0.158	0.178	0.199	0.224
70	0.103	0.144	0.175	0.198	0.221	0.248

Public Agency Miscellaneous 2% @ 60

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.011	0.015	0.018	0.021	0.023	0.026
51	0.009	0.013	0.016	0.018	0.020	0.023
52	0.013	0.018	0.022	0.025	0.028	0.031
53	0.011	0.016	0.019	0.022	0.025	0.028
54	0.015	0.021	0.025	0.028	0.032	0.036
55	0.023	0.032	0.039	0.044	0.049	0.055
56	0.019	0.027	0.032	0.037	0.041	0.046
57	0.025	0.035	0.042	0.048	0.054	0.060
58	0.030	0.042	0.051	0.058	0.065	0.073
59	0.035	0.049	0.060	0.068	0.076	0.085
60	0.062	0.087	0.105	0.119	0.133	0.149
61	0.079	0.110	0.134	0.152	0.169	0.190
62	0.132	0.186	0.225	0.255	0.284	0.319
63	0.126	0.178	0.216	0.244	0.272	0.305
64	0.122	0.171	0.207	0.234	0.262	0.293
65	0.173	0.243	0.296	0.334	0.373	0.418
66	0.114	0.160	0.194	0.219	0.245	0.274
67	0.159	0.223	0.271	0.307	0.342	0.384
68	0.113	0.159	0.193	0.218	0.243	0.273
69	0.114	0.161	0.195	0.220	0.246	0.276
70	0.127	0.178	0.216	0.244	0.273	0.306

Public Agency Miscellaneous 2% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.015	0.020	0.024	0.029	0.033	0.039
51	0.013	0.016	0.020	0.024	0.027	0.033
52	0.014	0.018	0.022	0.027	0.030	0.036
53	0.017	0.022	0.027	0.032	0.037	0.043
54	0.027	0.034	0.041	0.049	0.056	0.067
55	0.050	0.064	0.078	0.094	0.107	0.127
56	0.045	0.057	0.069	0.083	0.095	0.113
57	0.048	0.061	0.074	0.090	0.102	0.122
58	0.052	0.066	0.080	0.097	0.110	0.131
59	0.060	0.076	0.092	0.111	0.127	0.151
60	0.072	0.092	0.112	0.134	0.153	0.182
61	0.089	0.113	0.137	0.165	0.188	0.224
62	0.128	0.162	0.197	0.237	0.270	0.322
63	0.129	0.164	0.199	0.239	0.273	0.325
64	0.116	0.148	0.180	0.216	0.247	0.294
65	0.174	0.221	0.269	0.323	0.369	0.439
66	0.135	0.171	0.208	0.250	0.285	0.340
67	0.133	0.169	0.206	0.247	0.282	0.336
68	0.118	0.150	0.182	0.219	0.250	0.297
69	0.116	0.147	0.179	0.215	0.246	0.293
70	0.138	0.176	0.214	0.257	0.293	0.349

Public Agency Miscellaneous 2.5% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.026	0.033	0.040	0.048	0.055	0.062
51	0.021	0.026	0.032	0.038	0.043	0.049
52	0.021	0.026	0.032	0.038	0.043	0.049
53	0.026	0.033	0.040	0.048	0.055	0.062
54	0.043	0.054	0.066	0.078	0.089	0.101
55	0.088	0.112	0.136	0.160	0.184	0.208
56	0.055	0.070	0.085	0.100	0.115	0.130
57	0.061	0.077	0.094	0.110	0.127	0.143
58	0.072	0.091	0.111	0.130	0.150	0.169
59	0.083	0.105	0.128	0.150	0.173	0.195
60	0.088	0.112	0.136	0.160	0.184	0.208
61	0.083	0.105	0.128	0.150	0.173	0.195
62	0.121	0.154	0.187	0.220	0.253	0.286
63	0.105	0.133	0.162	0.190	0.219	0.247
64	0.105	0.133	0.162	0.190	0.219	0.247
65	0.143	0.182	0.221	0.260	0.299	0.338
66	0.105	0.133	0.162	0.190	0.219	0.247
67	0.105	0.133	0.162	0.190	0.219	0.247
68	0.105	0.133	0.162	0.190	0.219	0.247
69	0.105	0.133	0.162	0.190	0.219	0.247
70	0.125	0.160	0.194	0.228	0.262	0.296

Public Agency Miscellaneous 2.7% @ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.028	0.035	0.043	0.050	0.058	0.065
51	0.022	0.028	0.034	0.040	0.046	0.052
52	0.022	0.028	0.034	0.040	0.046	0.052
53	0.028	0.035	0.043	0.050	0.058	0.065
54	0.044	0.056	0.068	0.080	0.092	0.104
55	0.091	0.116	0.140	0.165	0.190	0.215
56	0.061	0.077	0.094	0.110	0.127	0.143
57	0.063	0.081	0.098	0.115	0.132	0.150
58	0.074	0.095	0.115	0.135	0.155	0.176
59	0.083	0.105	0.128	0.150	0.173	0.195
60	0.088	0.112	0.136	0.160	0.184	0.208
61	0.085	0.109	0.132	0.155	0.178	0.202
62	0.124	0.158	0.191	0.225	0.259	0.293
63	0.107	0.137	0.166	0.195	0.224	0.254
64	0.107	0.137	0.166	0.195	0.224	0.254
65	0.146	0.186	0.225	0.265	0.305	0.345
66	0.107	0.137	0.166	0.195	0.224	0.254
67	0.107	0.137	0.166	0.195	0.224	0.254
68	0.107	0.137	0.166	0.195	0.224	0.254
69	0.107	0.137	0.166	0.195	0.224	0.254
70	0.129	0.164	0.199	0.234	0.269	0.304

Public Agency Miscellaneous 3% @ 60

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.026	0.033	0.040	0.048	0.055	0.062
51	0.021	0.026	0.032	0.038	0.043	0.049
52	0.019	0.025	0.030	0.035	0.040	0.046
53	0.025	0.032	0.038	0.045	0.052	0.059
54	0.039	0.049	0.060	0.070	0.081	0.091
55	0.083	0.105	0.128	0.150	0.173	0.195
56	0.055	0.070	0.085	0.100	0.115	0.130
57	0.061	0.077	0.094	0.110	0.127	0.143
58	0.072	0.091	0.111	0.130	0.150	0.169
59	0.080	0.102	0.123	0.145	0.167	0.189
60	0.094	0.119	0.145	0.170	0.196	0.221
61	0.088	0.112	0.136	0.160	0.184	0.208
62	0.127	0.161	0.196	0.230	0.265	0.299
63	0.110	0.140	0.170	0.200	0.230	0.260
64	0.110	0.140	0.170	0.200	0.230	0.260
65	0.149	0.189	0.230	0.270	0.311	0.351
66	0.110	0.140	0.170	0.200	0.230	0.260
67	0.110	0.140	0.170	0.200	0.230	0.260
68	0.110	0.140	0.170	0.200	0.230	0.260
69	0.110	0.140	0.170	0.200	0.230	0.260
70	0.132	0.168	0.204	0.240	0.276	0.312

Public Agency Fire ½ @ 55 and 2% @ 55

Age	Rate	Age	Rate
50	0.01588	56	0.11079
51	0.00000	57	0.00000
52	0.03442	58	0.09499
53	0.01990	59	0.04409
54	0.04132	60	1.00000
55	0.07513		

Public Agency Police ½ @ 55 and 2% @ 55

Age	Rate	Age	Rate
50	0.02552	56	0.06921
51	0.00000	57	0.05113
52	0.01637	58	0.07241
53	0.02717	59	0.07043
54	0.00949	60	1.00000
55	0.16674		

Public Agency Police 2%@ 50

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.014	0.014	0.014	0.014	0.025	0.045
51	0.012	0.012	0.012	0.012	0.023	0.040
52	0.026	0.026	0.026	0.026	0.048	0.086
53	0.052	0.052	0.052	0.052	0.096	0.171
54	0.070	0.070	0.070	0.070	0.128	0.227
55	0.090	0.090	0.090	0.090	0.165	0.293
56	0.064	0.064	0.064	0.064	0.117	0.208
57	0.071	0.071	0.071	0.071	0.130	0.232
58	0.063	0.063	0.063	0.063	0.115	0.205
59	0.140	0.140	0.140	0.140	0.174	0.254
60	0.140	0.140	0.140	0.140	0.172	0.251
61	0.140	0.140	0.140	0.140	0.172	0.251
62	0.140	0.140	0.140	0.140	0.172	0.251
63	0.140	0.140	0.140	0.140	0.172	0.251
64	0.140	0.140	0.140	0.140	0.172	0.251
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to Local Prosecutors, Local Sheriff, School Police, and Other Safety.

Public Agency Fire 2%@50

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.007	0.007	0.007	0.007	0.010	0.015
51	0.008	0.008	0.008	0.008	0.013	0.019
52	0.017	0.017	0.017	0.017	0.027	0.040
53	0.047	0.047	0.047	0.047	0.072	0.107
54	0.064	0.064	0.064	0.064	0.098	0.147
55	0.087	0.087	0.087	0.087	0.134	0.200
56	0.078	0.078	0.078	0.078	0.120	0.180
57	0.090	0.090	0.090	0.090	0.139	0.208
58	0.079	0.079	0.079	0.079	0.122	0.182
59	0.073	0.073	0.073	0.073	0.112	0.168
60	0.114	0.114	0.114	0.114	0.175	0.262
61	0.114	0.114	0.114	0.114	0.175	0.262
62	0.114	0.114	0.114	0.114	0.175	0.262
63	0.114	0.114	0.114	0.114	0.175	0.262
64	0.114	0.114	0.114	0.114	0.175	0.262
65	1.000	1.000	1.000	1.000	1.000	1.000

Public Agency Police 3%@ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.019	0.019	0.019	0.019	0.040	0.060
51	0.024	0.024	0.024	0.024	0.049	0.074
52	0.024	0.024	0.024	0.024	0.051	0.077
53	0.059	0.059	0.059	0.059	0.121	0.183
54	0.069	0.069	0.069	0.069	0.142	0.215
55	0.116	0.116	0.116	0.116	0.240	0.363
56	0.076	0.076	0.076	0.076	0.156	0.236
57	0.058	0.058	0.058	0.058	0.120	0.181
58	0.076	0.076	0.076	0.076	0.157	0.237
59	0.094	0.094	0.094	0.094	0.193	0.292
60	0.141	0.141	0.141	0.141	0.290	0.438
61	0.094	0.094	0.094	0.094	0.193	0.292
62	0.118	0.118	0.118	0.118	0.241	0.365
63	0.094	0.094	0.094	0.094	0.193	0.292
64	0.094	0.094	0.094	0.094	0.193	0.292
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to Local Prosecutors, Local Sheriff, School Police, and Other Safety.

Public Agency Fire 3%@55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.012	0.012	0.012	0.018	0.028	0.033
51	0.008	0.008	0.008	0.012	0.019	0.022
52	0.018	0.018	0.018	0.027	0.042	0.050
53	0.043	0.043	0.043	0.062	0.098	0.114
54	0.057	0.057	0.057	0.083	0.131	0.152
55	0.092	0.092	0.092	0.134	0.211	0.246
56	0.081	0.081	0.081	0.118	0.187	0.218
57	0.100	0.100	0.100	0.146	0.230	0.268
58	0.081	0.081	0.081	0.119	0.187	0.219
59	0.078	0.078	0.078	0.113	0.178	0.208
60	0.117	0.117	0.117	0.170	0.267	0.312
61	0.078	0.078	0.078	0.113	0.178	0.208
62	0.098	0.098	0.098	0.141	0.223	0.260
63	0.078	0.078	0.078	0.113	0.178	0.208
64	0.078	0.078	0.078	0.113	0.178	0.208
65	1.000	1.000	1.000	1.000	1.000	1.000

Public Agency Police 3%@ 50

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.070	0.070	0.070	0.131	0.193	0.249
51	0.050	0.050	0.050	0.095	0.139	0.180
52	0.061	0.061	0.061	0.116	0.171	0.220
53	0.069	0.069	0.069	0.130	0.192	0.247
54	0.071	0.071	0.071	0.134	0.197	0.255
55	0.090	0.090	0.090	0.170	0.250	0.322
56	0.069	0.069	0.069	0.130	0.191	0.247
57	0.080	0.080	0.080	0.152	0.223	0.288
58	0.087	0.087	0.087	0.164	0.242	0.312
59	0.090	0.090	0.090	0.170	0.251	0.323
60	0.135	0.135	0.135	0.255	0.377	0.485
61	0.090	0.090	0.090	0.170	0.251	0.323
62	0.113	0.113	0.113	0.213	0.314	0.404
63	0.090	0.090	0.090	0.170	0.251	0.323
64	0.090	0.090	0.090	0.170	0.251	0.323
65	1.000	1.000	1.000	1.000	1.000	1.000

- These rates also apply to Local Prosecutors, Local Sheriff, School Police, and Other Safety.

Public Agency Fire 3%@50

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.034	0.034	0.034	0.048	0.068	0.080
51	0.046	0.046	0.046	0.065	0.092	0.109
52	0.069	0.069	0.069	0.097	0.138	0.163
53	0.084	0.084	0.084	0.117	0.166	0.197
54	0.103	0.103	0.103	0.143	0.204	0.241
55	0.127	0.127	0.127	0.177	0.252	0.298
56	0.121	0.121	0.121	0.169	0.241	0.285
57	0.101	0.101	0.101	0.141	0.201	0.238
58	0.118	0.118	0.118	0.165	0.235	0.279
59	0.100	0.100	0.100	0.140	0.199	0.236
60	0.150	0.150	0.150	0.210	0.299	0.354
61	0.100	0.100	0.100	0.140	0.199	0.236
62	0.125	0.125	0.125	0.175	0.249	0.295
63	0.100	0.100	0.100	0.140	0.199	0.236
64	0.100	0.100	0.100	0.140	0.199	0.236
65	1.000	1.000	1.000	1.000	1.000	1.000

Schools 2%@ 55

	Duration of Service					
Age	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.005	0.009	0.013	0.015	0.016	0.018
51	0.005	0.010	0.014	0.017	0.019	0.021
52	0.006	0.012	0.017	0.020	0.022	0.025
53	0.007	0.014	0.019	0.023	0.026	0.029
54	0.012	0.024	0.033	0.039	0.044	0.049
55	0.024	0.048	0.067	0.079	0.088	0.099
56	0.020	0.039	0.055	0.065	0.072	0.081
57	0.021	0.042	0.059	0.070	0.078	0.087
58	0.025	0.050	0.070	0.083	0.092	0.103
59	0.029	0.057	0.080	0.095	0.105	0.118
60	0.037	0.073	0.102	0.121	0.134	0.150
61	0.046	0.090	0.126	0.149	0.166	0.186
62	0.076	0.151	0.212	0.250	0.278	0.311
63	0.069	0.136	0.191	0.225	0.251	0.281
64	0.067	0.133	0.185	0.219	0.244	0.273
65	0.091	0.180	0.251	0.297	0.331	0.370
66	0.072	0.143	0.200	0.237	0.264	0.295
67	0.067	0.132	0.185	0.218	0.243	0.272
68	0.060	0.118	0.165	0.195	0.217	0.243
69	0.067	0.133	0.187	0.220	0.246	0.275
70	0.066	0.131	0.183	0.216	0.241	0.270

Miscellaneous

Superfunded Status

Prior to enactment of the Public Employees' Pension Reform Act (PEPRA) effective January 1, 2013, a plan in superfunded status (actuarial value of assets exceeding present value of benefits) would normally pay a zero employer contribution rate while also being permitted to use its superfunded assets to pay its employees' normal member contributions.

However, Section 7522.52(a) of PEPRA states, "In any fiscal year a public employer's contribution to a defined benefit plan, in combination with employee contributions to that defined benefit plan, shall not be less than the total normal cost rate…" This means that not only must employers pay their employer normal cost, regardless of plan surplus, but also that employers may no longer use superfunded assets to pay employee normal member contributions.

Superfunded status applies only to individual plans, not risk pools. For rate plans within a risk pool, actuarial value of assets is the sum of the rate plan's side fund plus the rate plan's pro-rata share of non-side fund assets.

Internal Revenue Code Section 415

The limitations on benefits imposed by Internal Revenue Code Section 415 were taken into account in this valuation. Each year the impact of any changes in this limitation since the prior valuation is included and amortized as part of the actuarial gain or loss base. This results in lower contributions for those employers contributing to the Replacement Benefit Fund and it also protects CalPERS from prefunding expected benefits in excess of limits imposed by federal tax law.

Internal Revenue Code Section 401(a)(17)

The limitations on compensation imposed by Internal Revenue Code Section 401(a)(17) were taken into account in this valuation. Each year the impact of any changes in this 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) requires new benefits and member contributions for new members as defined by PEPRA, that are hired after January 1, 2013. For non-pooled plans, these members will first be reflected in the June 30, 2013 non-pooled plan valuations. Members in pooled plans will be reflected in the new Miscellaneous and Safety risk pools created by the CalPERS Board in November 2012 in response to the passage of PEPRA, beginning with the June 30, 2013 valuation. Different assumptions for the new PEPRA members will be disclosed in the 2013 valuation.

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APPENDIX B

PRINCIPAL PLAN PROVISIONS

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The following is a description of the principal plan provisions used in calculating the liabilities of the Safety 2.0% at 50 Risk Pool. Plan provisions are divided based on whether they are standard, Class 1, Class 2 or Class 3 benefits. Standard benefits are applicable to all members of the risk pool while Class 1, 2 or 3 benefits vary among employers. Provided at the end of the listing in Appendix C is a table showing the percentage of members participating in the pool that are subject to Class 1 benefits.

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.

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. For non-pooled plans, these members will first be reflected in the June 30, 2013 non-pooled plan valuations. Members in pooled plans will be reflected in the new Miscellaneous and new Safety risk pools created by the CalPERS Board in November 2012 in response to the passage of PEPRA, also beginning with the June 30, 2013 valuation.

Service Retirement

Eligibility

A CalPERS 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). For employees hired into a plan with the 1.5% at 65 formula, eligibility for service retirement is age 55 with at least 5 years of service.

Benefit

The Service Retirement benefit is a monthly allowance equal to the product of the *benefit factor*, *years of service*, and *final compensation*.

- The *benefit factor* for this group of employees comes from the **2% at 50 or 1.5% at 65 Safety** benefit formula factor table. The factor depends on the member's age at retirement. Listed below are the factors for retirement at whole year ages:

Retirement Age	2% at 50 Safety Factor
50	2%
51	2.140%
52	2.280%
53	2.420%
54	2.560%
55 & Up	2.700%

- 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 a 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 36 or 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). The standard benefit available to all members is 36 months. Employers have the option of providing a final compensation equal to the highest 12 consecutive months by contracting for this Class 1 optional benefit. Final compensation must be defined by the highest 36 consecutive months' pay under the 1.5% at 65 formula.

- Employees must be covered by Social Security with the 1.5% at 65 formula. Social Security is optional for all other benefit formulas. For employees covered by the modified formula, the final compensation is offset by $133.33 (or by one third if the final compensation is less than $400). Employers have the option to contract for the Class 3 benefit that will eliminate the offset applicable to the final compensation of employees covered by a modified formula.

- The Miscellaneous Service Retirement benefit is not capped. The Safety Service Retirement benefit is capped at 90 percent of final compensation.

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 member becomes eligible to receive the deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 50 (55 for employees hired into a 1.5% @ 65 plan).

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 CalPERS employers, and with certain other Retirement Systems with which CalPERS 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.

Standard Benefit
The standard 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.

Improved Benefit
Employers have the option of providing this improved benefit by contracting for this Class 3 optional benefit.

The improved Non-Industrial Disability Retirement benefit is a monthly allowance equal to 30 percent of final compensation for the first 5 years of service, plus 1% for each additional year of service to a maximum of 50 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.

Industrial (Job Related) Disability Retirement

All safety members have this benefit.

Eligibility
An employee is eligible for Industrial Disability Retirement if he or she becomes disabled while working, where disabled means the member is unable to perform the duties of the job because of a work-related illness or injury which is expected to be permanent or to last indefinitely. A CalPERS member who has left active employment within this group is not eligible for this benefit, except to the extent described in the next paragraph.

Standard Benefit
The standard Industrial Disability Retirement benefit is a monthly allowance equal to 50 percent of final compensation. For a CalPERS member not actively employed in this group who became disabled while employed by some other CalPERS employer, the benefit is a return of or annuitization of the accumulated member contributions with respect to employment in this group. However, if a member is eligible for Service Retirement and if the Service Retirement benefit is more than the Industrial Disability Retirement benefit, the member may choose to receive the larger benefit.

Increased Benefit (75 percent of Final Compensation)
The increased Industrial Disability Retirement benefit is a monthly allowance equal to 75 percent of final compensation for total disability. For a CalPERS member not actively employed in this group who became disabled while employed by some other CalPERS employer, the benefit is a return of or annuitization of the accumulated member contributions with respect to employment in this group. However, if a member is eligible for Service Retirement and if the Service Retirement benefit is more than the Industrial Disability Retirement benefit, the member may choose to receive the larger benefit.

Improved Benefit (50 percent to 90 percent of Final Compensation)
The improved Industrial Disability Retirement benefit is a monthly allowance equal to the Workman's Compensation Appeals Board permanent disability rate percentage (if 50 percent or greater, with a maximum of 90 percent) times the final compensation. However, if a member is eligible for Service Retirement and if the Service Retirement benefit is more than the Industrial Disability Retirement benefit, the member may choose to receive the larger benefit. For a CalPERS member not actively employed in this group who became disabled while employed by some other CalPERS employer, the benefit is a return of the accumulated member contributions with respect to employment in this group.

Post-Retirement Death Benefit

Standard Lump Sum Payment
Upon the death of a retiree, a one-time lump sum payment of $500 will be made to the retiree's designated survivor(s), or to the retiree's estate.

Improved Lump Sum Payment
Employers have the option of providing any of these improved lump sum death benefit by contracting for any of these class 3 optional benefits.

Upon the death of a retiree, a one-time lump sum payment of $600, $2,000, $3,000, $4,000 or $5,000 will be made to the retiree's designated survivor(s), or to the retiree's estate.

Form of Payment for Retirement Allowance

Standard Form of Payment
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. The larger the amount to be provided to the beneficiary is, and the younger the beneficiary is, the greater the reduction to the retiree's allowance.

Improved Form of Payment (Post Retirement Survivor Allowance)
Employers have the option to contract for this Class 1 benefit providing an improved post retirement survivor allowance.

For retirement allowances with respect to service subject to the modified formula, 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. For retirement allowances with respect to service subject to the full formula, 50 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. This additional benefit is often referred to as post retirement survivor allowance (PRSA) or simply as survivor continuance.

In other words, 25 percent or 50 percent of the allowance, 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. This benefit will not be discontinued in the event the spouse remarries.

The remaining 75 percent or 50 percent of the retirement allowance, 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. CalPERS offers a variety of such benefit options, which the retiree pays for by taking a reduction to the option portion of his or her retirement allowance.

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 must be actively employed with the CalPERS employer providing this benefit to be 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.

Standard 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, plus a lump sum in the amount of one month's salary for each completed year of current service, up to a maximum of six months' salary. 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, 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 must be actively employed with the CalPERS employer providing this benefit to be 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.

Standard 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.

Optional Settlement 2W Death Benefit

Eligibility
An employee's *eligible survivor* may receive the Optional Settlement 2W Death benefit if the member dies while actively employed, has attained at least age 50, 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. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the 1957 Survivor benefit.

Standard Benefit
The Optional Settlement 2W Death benefit is a monthly allowance equal to the Service Retirement benefit that the member would have received had the member retired on the date of his or her death and elected Optional Settlement 2W. (A retiree who elects Optional Settlement 2W receives an allowance that has been reduced so that it will continue to be paid after his or her death to a surviving beneficiary.) The allowance is payable as long as the surviving spouse lives, at which time it is continued to any unmarried children under age 18, if applicable. There is a guarantee that the total amount paid will at least equal the Basic Death Benefit.

Special Death Benefit

Eligibility
An employee's *eligible survivor(s)* may receive the Special Death benefit if the member dies while actively employed and the death is job-related. 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 prior to the onset of the injury or illness that resulted in death. If there is no eligible spouse, an eligible survivor means the member's unmarried children under age 22. An eligible survivor who chooses to receive this benefit will not receive any other death benefit.

Improved Benefit
The Special Death benefit is a monthly allowance equal to 50 percent of final compensation, and will be increased whenever the compensation paid to active employees is increased but ceasing to increase when the member would have attained age 50. The allowance is payable to the surviving spouse until death at which time the allowance is continued to any unmarried children under age 22. There is a guarantee that the total amount paid will at least equal the Basic Death Benefit.

If the member's death is the result of an accident or injury caused by external violence or physical force incurred in the performance of the member's duty, and there are *eligible* surviving children (*eligible* means unmarried children under age 22) in addition to an eligible spouse, then an **additional monthly allowance** is paid equal to the following:

- if 1 eligible child: 12.5% of final compensation
- if 2 eligible children: 20.0% of final compensation
- if 3 or more eligible children: 25.0% of final compensation

Cost-of-Living Adjustments (COLA)

Standard Benefit
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.

Improved Benefit
Employers have the option of providing any of these improved cost-of-living adjustments by contracting for any one of these Class 1 optional benefits. An improved COLA is not available in conjunction with the 1.5% at 65 formula.

Beginning the second calendar year after the year of retirement, retirement and survivor allowances will be annually adjusted on a compound basis by either 3 percent, 4 percent or 5 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 80 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.

Employee Contributions

Each employee contributes toward his or her retirement based upon the following schedule.

The percent contributed below the monthly compensation breakpoint is 0%.
The monthly compensation breakpoint is $0 for full and supplemental formula members.
The monthly compensation breakpoint is $133.33 for employees covered by the modified formula except for those safety members with a 2.5% @ 55 formula where the breakpoint is $238.00.
The percent contributed above the monthly compensation breakpoint is 9% except for those safety members with a 2.5% @ 55 formula where the compensation breakpoint is 8%.

The employer may choose to "pick-up" these contributions for the employees (Employer Paid Member Contributions or EMPC). An employer may also include Employee Cost Sharing in the contract, where employees contribute an additional percentage of compensation based on any optional benefit for which a contract amendment was made on or after January 1, 1979.

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 Benefit

This is a pre-retirement death benefit available only to members not covered by Social Security. Any agency joining CalPERS subsequent to 1993 was required to provide this benefit if the members were not covered by Social Security. The benefit is optional for agencies joining CalPERS prior to 1994. Levels 1, 2 and 3 are now closed. Any new agency or any agency wishing to add this benefit or increase the current level must choose the 4th or Indexed Level.

This benefit is not included in the results presented in this valuation. More information on this benefit is available on the CalPERS website at www.calpers.ca.gov.

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APPENDIX C

PLAN OPTIONS AND VARIABLES

- **CLASSIFICATION OF OPTIONAL BENEFITS**
- **EXAMPLE OF INDIVIDUAL AGENCY'S RATE CALCULATION**
- **DISTRIBUTION OF CLASS 1 BENEFITS**

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Classification of Optional Benefits

Below is the list of the available optional benefit provisions and their initial classification upon establishment of risk pools. When new benefits become available as a result of legislation, the Chief Actuary will determine their classification in accordance with the criteria established in the Board policy.

Class 1

Class 1 benefits have been identified to be additional benefits which have a significant, ongoing effect on the total plan cost. In some cases, a Class 1 benefit may be an alternate benefit formula. These benefits vary by employer across the risk pool. Agencies contracting for a Class 1 benefit will be responsible for the past service liability associated with such benefit and will be required to pay a surcharge established by the actuary to cover the ongoing cost (normal cost) of the Class 1 benefit.

The table below shows the list of Class 1 benefits and their applicable surcharge for the Safety 2.0% at 50 Risk Pool. Last year's surcharges are shown for comparison.

	June 30, 2011	June 30, 2012
• One Year Final Compensation	0.842%	0.839%
• EPMC by contract, 7%	1.595%	1.591%
• EPMC by contract, 8%	1.822%	1.819%
• EPMC by contract, 9%	2.050%	2.046%
• 25% PRSA	1.403%	1.380%
• 50% PRSA	1.403%	1.380%
• 3% Annual COLA	1.755%	1.756%
• 4% Annual COLA	1.755%	1.756%
• 5% Annual COLA	1.755%	1.756%
• IDR For Local Miscellaneous Members	N/A	N/A
• Increased IDR Allowance to 75% of Compensation	4.069%	4.240%
• Improved Industrial Disability Allowance for Local Safety Members	4.069%	4.240%
• Employee Cost Sharing	varies	varies
• Employee Contribution Rate for CSUC Auxiliary Organizations Reduced to State Member Level - Covered by Social Security	N/A	N/A
• Employee Contribution Rate for CSUC Auxiliary Organizations Reduced to State Member Level - Not Covered by Social Security	N/A	N/A
• 2.5% @ 55 Safety	(0.774%)	(0.774%)
• 1/2 @ 55 Safety	N/A	N/A

For employers contracting for more than one Class 1 benefit, the surcharges listed in this table will be added together

- Employee cost sharing had been eliminated as a surcharge from some of the June 30, 2010 valuations and from all of the June 30, 2011 and later valuations. It is now shown on My|CalPERS as a rate adjustment.

Class 2

Class 2 benefits have been identified to be the ancillary benefits providing one-time increases in benefits. These benefits vary by employer across the risk pool. Agencies contracting for a Class 2 benefit will be responsible for the past service liability associated with such benefit.

The following benefits shall be classified as Class 2:

- One-time 1% to 6% Ad Hoc COLA Increases for members who retired or died prior to January 1, 1998 (Section 21328)
- "Golden Handshakes" – Section 20903 Two Years Additional Service Credit
- Credit for Prior Service Paid for by the Employer
- Military Service Credit (Section 20996)
- Credit for Local Retirement System Service for Employees of Agencies Contracted on a Prospective basis (Section 20530.1)
- Prior Service Credit for Employees of an Assumed Agency Function (Section 20936)
- Limit Prior Service to Members Employed on Contract Date (Section 20938)
- Public Service Credit for Limited Prior Service (Section 21031)
- Public Service Credit for Employees of an Assumed Agency or Function (Section 21025)

Class 3

Class 3 benefits have been identified to be additional benefits which have a minimal effect on the total plan cost. Class 3 benefits may vary by rate plan within each risk pool. However, the employer contribution rate will not vary within the risk pool due to the Class 3 benefits.

The following benefits shall be classified as Class 3:

- Full formula plus social security
- Post Retirement Lump Sum Death Benefit
- $600 lump sum retired death benefit (Section 21622)
- $2,000 lump sum retired death benefit (Section 21623.5)
- $3,000 lump sum retired death benefit (Section 21623.5)
- $4,000 lump sum retired death benefit (Section 21623.5)
- $5,000 lump sum retired death benefit (Section 21623.5)
- Improved non-industrial disability allowance (Section 21427)
- Special death benefit for local miscellaneous members (Section 21540.5)
- Service Credit Purchased by Member
- Partial Service Retirement (Section 21118)
- Optional Membership for Part Time Employees (Section 20325)
- Extension of Reciprocity Rights for Elective Officers (Section 20356)
- Removal of Contract Exclusions Prospectively Only (Section 20503)
- Alternate Death Benefit for Local Fire Members credited with 20 or more years of service (Section 21547.7)

Example Of Individual Agency's Rate Calculation

An individual employer rate is comprised of several components. These include the pool's net employer normal cost, payment on the pool's unfunded liability, additional surcharge payments for contracted Class 1 benefits, the normal cost phase-out and an agency's payment for their own side fund. An example of the total rate for an employer might look something like this:

Net Pool's Employer Normal Cost	14.593%
Rate Plan Surcharges	0.839%
Total Employer Normal Cost	15.432%
Plus: Plan's share of Pool's Payment on the Amortization Bases	5.490%
Side Fund Amortization Payment	2.600%
Total Employer Rate for fiscal year 2014-15	23.522%

Your plan's actual required contribution can be found in Section 1.

Distribution of Class 1 Benefits

Final Compensation	**% of members in the pool with contracted benefit**
One Year Final Compensation	39.3%
Three Years Final Compensation	60.8%
Post Retirement Survivor Continuance (PRSA)	
No PRSA	77.2%
With PRSA	22.8%
Cost-of-Living Adjustments (COLA)	
2% COLA	98.8%
3% COLA	0.2%
4% COLA	0.0%
5% COLA	1.0%
Industrial Disability Benefit	
None	0.6%
Standard Industrial Disability Benefit (50% of Final Compensation)	99.1%
Improved Industrial Disability Benefit (75% of Final Compensation)	0.0%
Improved Industrial Disability Benefit (50% - 90% of Final Compensation)	0.2%

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APPENDIX D

PARTICIPATING EMPLOYERS

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Employer Name

BALDWIN PARK UNIFIED SCHOOL DISTRICT
BEAR VALLEY COMMUNITY SERVICES DISTRICT
BODEGA BAY FIRE PROTECTION DISTRICT
CITY OF AUBURN
CITY OF AVALON
CITY OF BELVEDERE
CITY OF CALEXICO
CITY OF CALIFORNIA CITY
CITY OF CAMPBELL
CITY OF CARMEL-BY-THE-SEA
CITY OF COLUSA
CITY OF COTATI
CITY OF CRESCENT CITY
CITY OF DEL MAR
CITY OF DELANO
CITY OF EUREKA
CITY OF FORT BRAGG
CITY OF FOUNTAIN VALLEY
CITY OF GREENFIELD
CITY OF HERMOSA BEACH
CITY OF IMPERIAL
CITY OF IMPERIAL BEACH
CITY OF JACKSON
CITY OF KING CITY
CITY OF LA HABRA
CITY OF LAKEPORT
CITY OF LEMOORE
CITY OF MT. SHASTA
CITY OF ORANGE COVE
CITY OF OROVILLE
CITY OF PISMO BEACH
CITY OF RED BLUFF
CITY OF RIDGECREST
CITY OF RIO VISTA
CITY OF SAN CARLOS
CITY OF SANGER
CITY OF SEASIDE
CITY OF SELMA
CITY OF SOLANA BEACH
CITY OF SOUTH PASADENA
CITY OF TAFT
CITY OF TUSTIN
CITY OF WINTERS
CITY OF YREKA
CONTRA COSTA COMMUNITY COLLEGE DISTRICT
COPPEROPOLIS FIRE PROTECTION DISTRICT
COUNTY OF AMADOR
COUNTY OF DEL NORTE
COUNTY OF MONO
COUNTY OF PLUMAS
COUNTY OF TUOLUMNE
EAST KERN AIRPORT DISTRICT
EL DORADO COUNTY FIRE PROTECTION DISTRICT
ESTERO MUNICIPAL IMPROVEMENT DISTRICT
FORESTVILLE FIRE PROTECTION DISTRICT
GROVELAND COMMUNITY SERVICES DISTRICT
HAPPY VALLEY FIRE DISTRICT

APPENDIX D - PARTICIPATING EMPLOYERS

HIGGINS AREA FIRE PROTECTION DISTRICT
HUMBOLDT NO. 1 FIRE PROTECTION DISTRICT OF HUMBOLDT COUNTY
KELSEYVILLE FIRE PROTECTION DISTRICT
KENWOOD FIRE PROTECTION DISTRICT
LAKEPORT COUNTY FIRE PROTECTION DISTRICT
LINDA FIRE PROTECTION DISTRICT
MARIN COMMUNITY COLLEGE DISTRICT
MOKELUMNE RURAL FIRE DISTRICT
NORTH COUNTY FIRE PROTECTION DISTRICT OF MONTEREY COUNTY
OAKDALE RURAL FIRE PROTECTION DISTRICT
OAKLAND UNIFIED SCHOOL DISTRICT
PENINSULA FIRE PROTECTION DISTRICT
RANCHO ADOBE FIRE PROTECTION DISTRICT
RUSSIAN RIVER FIRE PROTECTION DISTRICT
SUISUN FIRE PROTECTION DISTRICT
TOWN OF MORAGA
UKIAH VALLEY FIRE DISTRICT
WESTWOOD COMMUNITY SERVICES DISTRICT

APPENDIX E

PARTICIPANT DATA

- SOURCE OF THE PARTICIPANT DATA
- DATA VALIDATION TESTS AND ADJUSTMENTS
- SUMMARY OF VALUATION DATA
- ACTIVE MEMBERS
- TRANSFERRED AND TERMINATED MEMBERS
- RETIRED MEMBERS AND BENEFICIARIES

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Source of the Participant Data

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

- 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 database, 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. The data is then checked for reasonableness and consistency with data from the prior valuation.

Checks on the data include:

- A reconciliation of the membership of the plans,
- Comparisons of various member statistics (average attained age, average entry age, average salary, etc.) for each plan with those from the prior year valuation,
- Comparisons of pension amounts for each retiree and beneficiary receiving payments with those from the prior year 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.

Summary of Valuation Data

		June 30, 2011	June 30, 2012
1.	**Number of Plans in the Risk Pool**	69	81
2.	**Active Members**		
	a) Counts	946	930
	b) Average Attained Age	38.70	38.43
	c) Average Entry Age on Rate Plan	29.90	29.79
	d) Average Years of Service	8.80	8.64
	e) Average Annual Covered Pay	$ 67,011	$ 64,501
	f) Annual Covered Payroll	$ 63,392,685	$ 59,986,230
	g) Projected Annual Payroll for Contribution Year	$ 69,270,899	$ 65,548,573
	h) Present Value of Future Payroll	$ 669,221,428	$ 633,046,400
3.	**Transferred Members**		
	a) Counts	820	720
	b) Average Attained Age	41.55	41.31
	c) Average Years of Service	3.97	3.85
	d) Average Annual Covered Pay	$ 82,941	$ 80,849
4.	**Terminated Members**		
	a) Counts	273	268
	b) Average Attained Age	40.80	41.13
	c) Average Years of Service	3.05	3.11
	d) Average Annual Covered Pay	$ 46,086	$ 47,081
5.	**Retired Members and Beneficiaries**		
	a) Counts*	1,080	1,044
	b) Average Attained Age	64.03	64.43
	c) Average Annual Benefits*	$ 19,548	$ 20,125
6.	**Active to Retired Ratio** [(2a) / (5a)]	0.88	0.89

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.

* Values may not match those on pages E-5 and E-6 due to inclusion of community property settlements.

Active Members

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 Active Members by Age and Service
Years of Service at Valuation Date

Attained Age	0-4	5-9	10-14	15-19	20-24	25+	Total
15-24	45	0	0	0	0	0	45
25-29	124	41	0	0	0	0	165
30-34	86	101	13	0	0	0	200
35-39	38	65	34	4	0	0	141
40-44	34	42	35	24	11	0	146
45-49	11	15	16	20	21	13	96
50-54	16	5	10	7	17	20	75
55-59	8	9	3	8	4	14	46
60-64	4	5	0	2	1	4	16
65 and over	0	0	0	0	0	0	0
All Ages	366	283	111	65	54	51	930

Distribution of Average Annual Salaries by Age and Service

Years of Service at Valuation Date

Attained Age	0-4	5-9	10-14	15-19	20-24	25+	Average
15-24	$44,806	$0	$0	$0	$0	$0	$44,806
25-29	49,998	55,841	0	0	0	0	51,450
30-34	52,796	62,535	68,976	0	0	0	58,766
35-39	51,675	61,841	70,337	76,434	0	0	61,564
40-44	63,665	65,211	68,788	81,524	95,552	0	70,676
45-49	78,281	69,703	64,886	76,499	84,926	87,494	77,038
50-54	91,654	77,472	81,402	85,065	84,809	88,407	86,309
55-59	67,348	81,730	50,376	78,487	66,536	84,139	76,032
60-64	59,100	77,653	0	81,032	76,153	124,779	85,125
65 and over	0	0	0	0	0	0	0
Average	54,611	63,324	69,361	79,657	85,529	89,855	64,501

Transferred and Terminated Members

Distribution of Transfers to Other CalPERS Plans by Age and Service

	Years of Service at Valuation Date							
Attained Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-25**	**25+**	**Total**	**Average Salary**
15-24	5	0	0	0	0	0	5	$27,011
25-29	49	2	0	0	0	0	51	62,282
30-34	104	13	1	0	0	0	118	73,087
35-39	129	19	4	0	0	0	152	77,766
40-44	128	31	7	3	0	0	169	88,039
45-49	68	35	18	2	2	0	125	87,719
50-54	39	10	7	2	2	1	61	87,239
55-59	12	7	0	1	1	2	23	85,802
60-64	6	4	3	1	0	0	14	83,448
65 and over	2	0	0	0	0	0	2	74,250
All Ages	542	121	40	9	5	3	720	80,849

Distribution of Terminated Participants with Funds on Deposit by Age and Service

	Years of Service at Valuation Date							
Attained Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-25**	**25+**	**Total**	**Average Salary**
15-24	3	0	0	0	0	0	3	$36,209
25-29	27	2	0	0	0	0	29	47,562
30-34	45	3	0	0	0	0	48	46,606
35-39	36	10	0	0	0	0	46	41,227
40-44	41	14	1	0	1	0	57	48,387
45-49	30	5	7	1	1	0	44	53,637
50-54	13	2	3	0	0	0	18	57,866
55-59	10	1	1	0	0	0	12	30,126
60-64	3	2	1	0	0	0	6	44,067
65 and over	3	0	1	1	0	0	5	42,120
All Ages	211	39	14	2	2	0	268	47,081

Retired Members and Beneficiaries

Distribution of Retirees and Beneficiaries by Age and Retirement Type*

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	1	0	1	0	2
30-34	0	0	3	0	1	0	4
35-39	0	0	6	0	0	0	6
40-44	0	1	16	0	1	1	19
45-49	0	0	36	0	1	1	38
50-54	63	4	40	2	1	7	117
55-59	103	3	60	0	2	6	174
60-64	119	1	64	0	2	13	199
65-69	95	4	74	1	2	10	186
70-74	69	4	44	0	1	17	135
75-79	37	3	18	0	1	20	79
80-84	27	1	10	0	1	20	59
85 and Over	10	0	5	0	0	11	26
All Ages	523	21	377	3	14	106	1,044

Distribution of Average Annual Amounts for Retirees and Beneficiaries by Age and Retirement Type*

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Average
Under 30	$0	$0	$27,765	$0	$6,217	$0	$16,991
30-34	0	0	19,808	0	37,300	0	24,181
35-39	0	0	20,374	0	0	0	20,374
40-44	0	15,803	10,107	0	36,193	6,951	11,614
45-49	0	0	22,298	0	27,160	5,339	21,980
50-54	16,963	15,056	17,225	10,258	36,762	23,921	17,459
55-59	25,760	13,374	19,671	0	37,835	28,318	23,674
60-64	26,334	5,795	21,401	0	1,177	14,190	23,598
65-69	19,167	14,409	21,562	6,667	20,105	20,444	20,029
70-74	18,658	8,940	20,500	0	19,081	8,459	17,689
75-79	17,416	10,646	17,627	0	18,634	15,758	16,803
80-84	21,293	26,337	21,801	0	226	9,979	17,273
85 and Over	13,688	0	22,791	0	0	12,128	14,779
All Ages	21,645	13,029	20,052	9,061	21,415	14,439	20,126

Retired Members and Beneficiaries (continued)

Distribution of Retirees and Beneficiaries by Years Retired and Retirement Type*

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Yrs	199	5	58	2	3	35	302
5-9	127	4	78	0	2	25	236
10-14	76	1	65	0	1	20	163
15-19	58	3	61	1	1	15	139
20-24	37	1	49	0	3	9	99
25-29	18	4	35	0	0	1	58
30 and Over	8	3	31	0	4	1	47
All Years	523	21	377	3	14	106	1,044

Distribution of Average Annual Amounts for Retirees and Beneficiaries by Years Retired and Retirement Type*

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Average
Under 5 Yrs	$27,573	$13,687	$24,225	$10,258	$23,559	$15,486	$25,145
5-9	20,633	21,745	22,245	0	18,635	14,955	20,566
10-14	14,860	3,863	18,737	0	1,277	14,241	16,179
15-19	18,768	11,784	19,401	6,667	36,762	13,422	18,360
20-24	18,298	2,688	18,084	0	21,626	12,232	17,584
25-29	14,640	11,349	16,729	0	0	10,068	15,595
30 and Over	6,800	10,300	17,630	0	22,236	8,323	15,512
All Years	21,645	13,029	20,052	9,061	21,415	14,439	20,126

* Counts of members do not include alternate payees receiving benefits while the member is still working. Therefore, the total counts may not match information on page E-2 of the report. Multiple records may exist for those who have service in more than one coverage group. This does not result in double counting of liabilities.

APPENDIX F

GLOSSARY OF ACTUARIAL TERMS

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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 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. This can be likened to a home mortgage that has 24 years of remaining payments and a second on that mortgage that has 10 years left. Each base or each mortgage note has its own terms (payment period, principal, etc.) but all bases are amortized using investment and payroll assumptions from the current valuation.

Generally in an actuarial valuation, the separate bases consist of changes in unfunded liabilities due to amendments, actuarial assumption changes, actuarial methodology changes, and 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, 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.

Class 1 Benefits

Class 1 benefits have been identified to be additional benefits which have a significant, ongoing effect on the total plan cost. In some cases, a Class 1 benefit may be an alternate benefit formula. These benefits vary by employer across the risk pool. Agencies contracting for a Class 1 benefit will be responsible for the past service liability associated with such benefit and will be required to pay a surcharge established by the actuary to cover the ongoing cost (normal cost) of the Class 1 benefit.

Class 2 Benefits

Class 2 benefits have been identified to be the ancillary benefits providing one-time increases in benefits. These benefits vary by employer across the risk pool. Agencies contracting for a Class 2 benefit will be responsible for the past service liability associated with such benefit.

Class 3 Benefits

Class 3 benefits have been identified to be additional benefits which have a minimal effect on the total plan cost. Class 3 benefits may vary by rate plan within each risk pool. However, the employer contribution rate will not vary within the risk pool due to the Class 3 benefits.

Classic member (under PEPRA)

A classic member is anyone in CALPERS not defined as a new member under PEPRA (see definition of new member below.)

Discount Rate

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 or Risk Pool. In most cases, this is the same as the date of hire.

(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 is at hire, the greater the Normal Cost. This is mainly because there is less time to earn investment income to fund the future benefits.)

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 produce stable employer contributions in amounts that increase at the same rate as the employer's payroll (i.e. level % of payroll).

Fresh Start

A Fresh Start is the single amortization base created when multiple amortization bases are collapsed into one base and amortized over a new funding period.

Funded Status

A measure of how well funded a plan or risk pool is. Or equivalently, how "on track" a plan or risk pool is with respect to assets vs. 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 for 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 (also called Total Normal Cost)

The annual cost of service accrual for the upcoming fiscal year for active employees. The required employee contributions are part of the Total Normal Cost. The remaining portion, called the employer normal cost, includes surcharges for applicable class 1 benefits and should be viewed as the long term employer contribution rate.

Pension Actuary

A person who is responsible for the calculations necessary to properly fund a pension plan.

PEPRA

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.

Risk Pool

Using the benefit of the law of large numbers, a risk pool is a collection of employer plans for the purpose of sharing risk. If a pooled plan has active members at the time of valuation, it belongs to the risk pool composed of all other pooled plans with the same benefit formula. If a plan has no active members at the time of valuation, it belongs to the inactive pool.

Rolling Amortization Period

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

Side Fund

At the time a plan joined a risk pool, a Side Fund was created to account for the difference between the funded status of the pool and the funded status of the plan. The plan's Side Fund is amortized on an annual basis, with the discount rate net of, for active plans, the payroll growth rate assumption. The actuarial investment return assumption is currently 7.5%. A positive Side Fund cause the plan's required employer contribution rate to be reduced by the Amortization of Side Fund rate component shown in the Required Employer Contributions section. A negative Side Fund cause the plan's required employer contribution rate to be increased by the Amortization of Side Fund rate component. In the absence of subsequent contract amendments or funding changes, a plan's Side Fund will disappear at the end of the Amortization Period.

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 of the Unfunded Liability is positive, the plan or pool will have to pay contributions exceeding the Normal Cost.