



CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

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# **Terminated Agency Risk Pool Actuarial Valuation**

As of June 30, 2013

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ACTUARIAL CERTIFICATION

## Actuarial Certification

To the best of our knowledge, this report is complete and accurate and contains sufficient information to disclose, fully and fairly, the funded condition of the Terminated Agency Risk Pool. This valuation is based on the member and financial data as of June 30, 2013 provided by the various CalPERS databases and the benefits under this risk pool with CalPERS as of the date this report was produced. 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 actuaries for CalPERS. All are members of the American Academy of Actuaries and the Society of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.



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## HIGHLIGHTS AND EXECUTIVE SUMMARY

- INTRODUCTION
- PURPOSE OF THE REPORT
- FUNDED STATUS OF THE RISK POOL
- SUBSEQUENT EVENTS
- CALIFORNIA ACTUARIAL ADVISORY PANEL RECOMMENDATIONS

HIGHLIGHTS AND EXECUTIVE SUMMARY

## Introduction

This is the first actuarial valuation report for the Terminated Agency Risk Pool of the California Public Employees' Retirement System (CalPERS) that is being presented to the Board of Administration. Actuarial valuations for this pool have been performed on a regular basis and its financial condition has been closely monitored. The Pool has always been overfunded. This report shows that the Terminated Agency Risk Pool is substantially overfunded as of June 30, 2013.

In December 2012 the Board's Investment Committee adopted an investment policy and asset allocation strategy for the Pool. In addition, the Board adopted a resolution regarding the discount rate to be used for valuing this Pool's liabilities. This report reflects these recent developments. (Further details on the investment policy and the discount rate determination may be found in the Assets Section and Appendix A, respectively.)

## Purpose of the Report

This Actuarial Valuation for the Terminated Agency Risk Pool of the California Public Employees' Retirement System (CalPERS) was performed by CalPERS' staff actuaries using data as of June 30, 2013 in order to:

- Set forth the funded status of this risk pool as of June 30, 2013
- Provide actuarial information as of June 30, 2013 to the CalPERS Board and other interested parties

Use of this report for other purposes may be inappropriate.

## Funded Status of the Risk Pool

	<b>June 30, 2012</b>	<b>June 30, 2013</b>
1. Present Value of Accrued Benefits		
a) Active Members	\$ 0	\$ 0
b) Transferred Members	23,614,442	15,732,770
c) Terminated Members	4,185,981	8,360,936
d) Members and Beneficiaries Receiving Payments	<u>56,721,006</u>	<u>54,029,719</u>
e) Total	\$ 84,521,429	\$ 78,123,425
2. Market Value of Assets	\$ 178,657,676	\$ 194,227,188
3. Unfunded Accrued Liability [(1e) - (2)]	(94,136,247)	(116,103,763)
4. Funded Ratio [(2)/(1)]	211.4%	248.6%

## California Actuarial Advisory Panel Recommendations

The report satisfies all relevant basic disclosure requirements under the Model Disclosure Elements for Actuarial Valuation Reports recommended by the California Actuarial Advisory Panel. As the Terminated Agencies do not pay contributions to the Pool, the basic disclosure requirement related to contributions are not relevant.

## LIABILITIES

- DEVELOPMENT OF ACCRUED AND UNFUNDED LIABILITIES

LIABILITIES

## Development of Accrued and Unfunded Liability

	<b>June 30, 2012</b>	<b>June 30, 2013</b>
1. Present Value of Benefits		
a) Active Members	\$ 0	\$ 0
b) Transferred Members	23,614,442	15,732,770
c) Terminated Members	4,185,981	8,360,936
d) Members and Beneficiaries Receiving Payments	<u>56,721,006</u>	<u>54,029,719</u>
e) Total	\$ 84,521,429	\$ 78,123,425
2. Present Value of Future Employer Normal Costs	\$ 0	\$ 0
3. Present Value of Future Employee Contributions	\$ 0	\$ 0
4. Accrued Liability		
a) Active Members	\$ 0	\$ 0
b) Transferred Members	23,614,442	15,732,770
c) Terminated Members	4,185,981	8,360,936
d) Members and Beneficiaries Receiving Payments	<u>56,721,006</u>	<u>54,029,719</u>
e) Total	\$ 84,521,429	\$ 78,123,425
5. Market Value of Assets	\$ 178,657,676	\$ 194,227,188
6. Unfunded Accrued Liability [(4e) - (5)]	(94,136,247)	(116,103,763)
7. Funded Ratio [(5)/(4)]	211.4%	248.6%

## ASSETS

- RECONCILIATION OF THE MARKET VALUE OF ASSETS
- ASSET ALLOCATION



SUMMARY OF ASSETS

## Reconciliation of the Market Value of Assets

1. Market Value of Assets as of June 30, 2012 Including Receivables	\$ 178,657,676
2. Receivables for Service Buybacks as of June 30, 2012	958,853
3. Market Value of Assets as of June 30, 2012 [1 - 2]	177,698,823
4. Employer Contributions	0
5. Employee Contributions	20,013
6. Benefit Payments to Retirees and Beneficiaries	(4,574,960)
7. Refunds	(106,193)
8. Lump Sum Payments	0
9. Transfers and Miscellaneous Adjustments	455,355
10. Investment Return	22,179,940
11. Market Value of Assets as of June 30, 2013 (w/o Pool Transfers)	\$ 195,672,978
12. Transfers into and out of the Risk Pool	(3,532,967)
13. Market Value of Assets as of June 30, 2013	\$ 192,140,011
14. Receivables for Service Buybacks as of June 30, 2013	2,087,177
15. Market Value of Assets as of June 30, 2013 Including Receivables [13 + 14]	194,227,188

## Asset Allocation

CalPERS Board has adopted an investment strategy for the Terminated Agency Risk Pool with the objective of minimizing funding risk and immunizing projected future benefit payments.

The assets of the Pool are invested as two independent segments:

1. The Immunization Segment will be invested in a blend of US Treasury Separate Trading of Registered Interest and Principal of Securities (STRIPS), US Treasury Inflation Protected Securities (TIPS) and cash or cash equivalents.
2. The Surplus Segment will be invested in the Public Employees' Retirement Fund (PERF).

This strategy is designed to minimize underfunding risk, and balance other risks including reinvestment risk, inflation risk, and implementation risk. In addition, a higher expected return is expected to be generated from the Surplus Segment that is invested with the rest of the PERF.

## RISK ANALYSIS

- ANALYSIS OF MORTALITY RATE SENSITIVITY

RISK ANALYSIS

## Analysis of Mortality Rate Sensitivity

The following analysis looks at the change in the June 30, 2013 funded ratio under two different mortality rate scenarios. Shown below are the funded ratios assuming mortality rates that are 10 percent lower and 10 percent higher than the current valuation mortality rate assumptions. This analysis gives an indication of the sensitivity of the funded ratio of the Terminated Agency Risk Pool to increasing or decreasing mortality rates over the long-term.

This type of analysis gives the reader a sense of the long-term risk to the risk pool's funded ratio.

<b>Funded Ratios</b>			
<b>As of June 30, 2013</b>	<b>Current Mortality Rates</b>	<b>-10% Mortality Rates</b>	<b>+ 10% Mortality Rates</b>
Funded Ratio	248.6%	240.1%	256.8%

A 10% increase (decrease) to the assumed mortality rates over the long-term would result in approximately an 8 percentage point increase (decrease) to the funded ratio.

### Discount Rate Sensitivity

The Terminated Agency Pool's funded ratio is not expected to be sensitive to changes in interest rates due to the Immunization Segment of the pool's market value of assets. Immunization of a significant portion of the risk pool's portfolio results in a funded status that is invariant to changes in the interest rate. Since the funded ratio is not expected to be sensitive to the discount rate for this risk pool, the most sensitive assumptions are the mortality rate assumptions. Consequently, a discount rate sensitivity analysis was replaced with a mortality rate sensitivity analysis for this risk pool.

## SUMMARY OF PARTICIPANT DATA

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

## SUMMARY OF PARTICIPANT DATA

### Source of the Participant Data

The data were extracted from various databases within CalPERS and placed in a database by a series of extract programs. Included in these 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 these 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 are 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 valuation,
- comparisons of pension amounts for each retiree and beneficiary receiving payments with those from the prior valuation,
- checks for invalid ages and dates, and
- reasonableness checks on various key data elements such as service and salary.

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

- Dates of hire and dates of entry were adjusted where necessary to be consistent with the service fields, the date of birth and each other.

SUMMARY OF PARTICIPANT DATA

## Summary of Valuation Data

	June 30, 2012	June 30, 2013
<b>1. Number of Plans in the Risk Pool</b>	90	90
<b>2. Active Members</b>		
a) Counts	0	0
<b>3. Transferred Members</b>		
a) Counts	110	84
b) Average Attained Age	50.73	49.27
c) Average Years of Service	4.14	5.26
d) Average Annual Covered Pay	\$ 85,049	\$ 88,454
<b>4. Terminated Members</b>		
a) Counts	239	223
b) Average Attained Age	52.49	53.32
c) Average Years of Service	2.53	2.54
d) Average Annual Covered Pay	\$ 29,342	\$ 40,743
<b>5. Retired Members and Beneficiaries</b>		
a) Counts*	740	684
b) Average Attained Age	76.55	77.36
c) Average Annual Benefits*	\$ 6,118	\$ 6,531

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 15 -17 due to inclusion of community property settlements.

SUMMARY OF PARTICIPANT DATA

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	20-24	25+	Total	Average Salary
15-24	0	0	0	0	0	0	0	\$0
25-29	2	0	0	0	0	0	2	44,333
30-34	7	0	0	0	0	0	7	85,372
35-39	6	1	0	0	0	0	7	90,331
40-44	10	2	1	2	0	0	15	92,915
45-49	7	1	2	0	1	0	11	84,073
50-54	9	1	0	0	4	0	14	87,124
55-59	13	5	0	0	0	0	18	86,234
60-64	3	0	2	0	0	0	5	74,425
65 and over	2	1	2	0	0	0	5	129,784
<b>All Ages</b>	<b>59</b>	<b>11</b>	<b>7</b>	<b>2</b>	<b>5</b>	<b>0</b>	<b>84</b>	<b>88,454</b>

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	20-24	25+	Total	Average Salary
15-24	0	0	0	0	0	0	0	\$0
25-29	4	0	0	0	0	0	4	22,090
30-34	2	0	0	0	0	0	2	15,426
35-39	10	1	0	0	0	0	11	35,063
40-44	25	3	0	0	0	0	28	50,199
45-49	26	7	0	0	0	0	33	53,443
50-54	41	6	0	2	0	0	49	41,332
55-59	32	5	4	0	0	0	41	29,969
60-64	22	8	1	0	0	0	31	48,179
65 and over	20	3	0	1	0	0	24	27,672
<b>All Ages</b>	<b>182</b>	<b>33</b>	<b>5</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>223</b>	<b>40,743</b>

SUMMARY OF PARTICIPANT DATA

## Retired Members and Beneficiaries

**Distribution of Retirees and Beneficiaries by Age and Retirement Type\***

<b>Attained Age</b>	<b>Service Retirement</b>	<b>Non-Industrial Disability</b>	<b>Industrial Disability</b>	<b>Non-Industrial Death</b>	<b>Industrial Death</b>	<b>Death After Retirement</b>	<b>Total</b>
Under 30	0	0	0	0	0	0	0
30-34	0	0	0	0	0	1	1
35-39	0	0	0	0	0	0	0
40-44	0	0	0	0	0	1	1
45-49	0	0	0	0	0	0	0
50-54	4	1	1	0	1	1	8
55-59	20	2	4	0	1	3	30
60-64	43	3	4	0	0	6	56
65-69	60	4	4	0	0	7	75
70-74	83	3	2	0	1	15	104
75-79	85	5	1	0	0	14	105
80-84	96	7	0	0	0	21	124
85 and Over	141	3	0	1	1	34	180
<b>All Ages</b>	<b>532</b>	<b>28</b>	<b>16</b>	<b>1</b>	<b>4</b>	<b>103</b>	<b>684</b>

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

<b>Attained Age</b>	<b>Service Retirement</b>	<b>Non-Industrial Disability</b>	<b>Industrial Disability</b>	<b>Non-Industrial Death</b>	<b>Industrial Death</b>	<b>Death After Retirement</b>	<b>Average</b>
Under 30	\$0	\$0	\$0	\$0	\$0	\$0	\$0
30-34	0	0	0	0	0	948	948
35-39	0	0	0	0	0	0	0
40-44	0	0	0	0	0	1,199	1,199
45-49	0	0	0	0	0	0	0
50-54	11,947	3,477	548	0	26,301	1,874	9,998
55-59	5,032	3,409	10,955	0	19,893	2,396	5,945
60-64	4,964	5,677	15,727	0	0	3,709	5,637
65-69	4,525	12,094	16,364	0	0	2,156	5,339
70-74	5,565	3,031	4,469	0	23,836	3,969	5,416
75-79	7,514	5,230	1,395	0	0	10,350	7,725
80-84	6,968	5,761	0	0	0	5,421	6,638
85 and Over	6,709	7,453	0	3,411	24,996	8,726	7,186
<b>All Ages</b>	<b>6,295</b>	<b>6,201</b>	<b>11,441</b>	<b>3,411</b>	<b>23,757</b>	<b>6,442</b>	<b>6,531</b>



SUMMARY OF PARTICIPANT DATA

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	62	0	0	0	0	27	89
5-9	68	1	3	0	0	23	95
10-14	75	2	5	0	1	17	100
15-19	65	5	2	0	1	14	87
20-24	60	2	3	1	0	11	77
25-29	119	4	0	0	0	7	130
30 and Over	83	14	3	0	2	4	106
<b>All Years</b>	<b>532</b>	<b>28</b>	<b>16</b>	<b>1</b>	<b>4</b>	<b>103</b>	<b>684</b>

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	\$5,845	\$0	\$0	\$0	\$0	\$8,125	\$6,537
5-9	4,682	5,649	6,529	0	0	6,273	5,135
10-14	5,078	11,847	17,077	0	26,301	4,393	5,909
15-19	7,815	7,332	21,947	0	19,893	5,261	7,840
20-24	7,819	2,886	818	3,411	0	8,632	7,477
25-29	6,497	4,327	0	0	0	5,511	6,378
30 and Over	6,470	6,039	10,581	0	24,416	4,495	6,794
<b>All Years</b>	<b>6,295</b>	<b>6,201</b>	<b>11,441</b>	<b>3,411</b>	<b>23,757</b>	<b>6,442</b>	<b>6,531</b>

\* 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 24 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 A

- STATEMENT OF ACTUARIAL DATA, METHODS AND ASSUMPTIONS

APPENDIX A

## Data

As stated in the Actuarial Certification, the data, which serve as the basis of this valuation, have been obtained from the various CalPERS databases. We have reviewed the valuation data and believe that they are 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 do not always contain the latest salary information for former members now in reciprocal systems and does not recognize the potential for usually 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

The actuarial accrued liability for members currently receiving benefits and for members entitled to deferred benefits (i.e., transferred members and separated members) is equal to the present value of the benefits expected to be paid.

As there are no contributions or amortization requirements for the Terminated Agency Pool, there is no need to dampen fluctuations in the Market Value of Assets to derive an Actuarial Value of Assets. Therefore, the Actuarial Value of Assets has been set equal to the Market Value of Assets.

The excess of the actuarial accrued liability over the market value of plan assets is called the unfunded actuarial accrued liability.

## ACTUARIAL ASSUMPTIONS

### Economic Assumptions

#### Discount Rate

3.723% compounded annually (net of expenses). This assumption is used for all plans.

This rate is determined based on Board Resolution ACT-11-04, and Attachment 3 of the Agenda Item 4.b. of the August 2011 Benefit and Program Administration Committee Meeting entitled Methodology for Setting the Discount Rate for Local Agencies Terminating Their Contract for Retirement Benefits and for the Terminated Agency Pool.

The following procedure is followed to determine the discount rate:

- (a) determine the duration of the pension liabilities of the TAP as of valuation date (June 30, 2013)
- (b) determine the weights that should be applied to the 10 Year and 30 year US Treasury durations (at spot rates at the valuation date), to equal the duration calculated in (a)
- (c) apply the weights determined in (b) to the 10 Year and 30 Year US Treasury yields .

#### Salary Growth

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

<b>Public Agency Miscellaneous</b>			
<u>Duration of Service</u>	<u>Entry Age 20</u>	<u>Entry Age 30</u>	<u>Entry Age 40</u>
0	0.122	0.116	0.102
1	0.099	0.094	0.083
2	0.086	0.081	0.071
3	0.077	0.072	0.063
4	0.070	0.065	0.057
5	0.064	0.060	0.052
10	0.046	0.043	0.039
15	0.042	0.040	0.036
20	0.039	0.038	0.034
25	0.037	0.036	0.033
30	0.035	0.034	0.032

<b>Public Agency Fire</b>			
<u>Duration of Service</u>	<u>Entry Age 20</u>	<u>Entry Age 30</u>	<u>Entry Age 40</u>
0	0.200	0.198	0.168
1	0.149	0.146	0.125
2	0.120	0.116	0.099
3	0.098	0.094	0.081
4	0.082	0.078	0.067
5	0.069	0.064	0.055
10	0.047	0.046	0.042
15	0.044	0.042	0.039
20	0.042	0.039	0.036
25	0.040	0.037	0.034
30	0.038	0.036	0.034

APPENDIX A

**Public Agency Police**

<u>Duration of Service</u>	<u>Entry Age 20</u>	<u>Entry Age 30</u>	<u>Entry Age 40</u>
0	0.150	0.147	0.131
1	0.116	0.112	0.101
2	0.095	0.092	0.083
3	0.081	0.078	0.070
4	0.070	0.067	0.060
5	0.061	0.058	0.052
10	0.045	0.043	0.037
15	0.045	0.043	0.037
20	0.045	0.043	0.037
25	0.045	0.043	0.037
30	0.045	0.043	0.037

**Public Agency County Peace Officers**

<u>Duration of Service</u>	<u>Entry Age 20</u>	<u>Entry Age 30</u>	<u>Entry Age 40</u>
0	0.177	0.167	0.150
1	0.134	0.126	0.114
2	0.108	0.103	0.094
3	0.090	0.086	0.079
4	0.076	0.073	0.067
5	0.065	0.062	0.058
10	0.047	0.045	0.041
15	0.046	0.045	0.039
20	0.046	0.045	0.038
25	0.046	0.045	0.038
30	0.046	0.044	0.038

**Schools**

<u>Duration of Service</u>	<u>Entry Age 20</u>	<u>Entry Age 30</u>	<u>Entry Age 40</u>
0	0.090	0.088	0.082
1	0.078	0.075	0.070
2	0.070	0.068	0.063
3	0.065	0.063	0.058
4	0.061	0.059	0.054
5	0.058	0.056	0.051
10	0.046	0.045	0.041
15	0.042	0.041	0.038
20	0.039	0.038	0.035
25	0.037	0.035	0.033
30	0.035	0.033	0.031

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

**Inflation**

2.47% compounded annually. This assumption is used for all plans.

APPENDIX A

**Non-valued Potential Additional Liabilities**

The potential liability loss for a cost-of-living increase exceeding the 2.47% 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% 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% 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).

Age	Non-Industrial Death (Not Job-Related)		Industrial Death (Job-Related)
	Male	Female	Male and Female
20	0.00031	0.00020	0.00003
25	0.00040	0.00023	0.00007
30	0.00049	0.00025	0.00010
35	0.00057	0.00035	0.00012
40	0.00075	0.00050	0.00013
45	0.00106	0.00071	0.00014
50	0.00155	0.00100	0.00015
55	0.00228	0.00138	0.00016
60	0.00308	0.00182	0.00017
65	0.00400	0.00257	0.00018
70	0.00524	0.00367	0.00019
75	0.00713	0.00526	0.00020
80	0.00990	0.00814	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% will become the Non-Industrial Death rate and 1% 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.

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Age	Healthy Recipients		Non-Industrially Disabled (Not Job-Related)		Industrially Disabled (Job-Related)	
	Male	Female	Male	Female	Male	Female
50	0.00501	0.00466	0.01680	0.01158	0.00501	0.00466
55	0.00599	0.00416	0.01973	0.01149	0.00599	0.00416
60	0.00710	0.00436	0.02289	0.01235	0.00754	0.00518
65	0.00829	0.00588	0.02451	0.01607	0.01122	0.00838
70	0.01305	0.00993	0.02875	0.02211	0.01635	0.01395
75	0.02205	0.01722	0.03990	0.03037	0.02834	0.02319
80	0.03899	0.02902	0.06083	0.04725	0.04899	0.03910
85	0.06969	0.05243	0.09731	0.07762	0.07679	0.06251
90	0.12974	0.09887	0.14804	0.12890	0.12974	0.09887
95	0.22444	0.18489	0.22444	0.21746	0.22444	0.18489
100	0.32536	0.30017	0.32536	0.30017	0.32536	0.30017
105	0.58527	0.56093	0.58527	0.56093	0.58527	0.56093
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, 2013 valuation. For purposes of the post-retirement mortality rates, the revised rates include 20 years of projected on-going mortality improvement using Scale BB published by the Society of Actuaries. For more details, please refer to the experience study report that can be found at the following link:

<http://www.calpers.ca.gov/eip-docs/about/pubs/employer/2014-experience-study.pdf>

**Marital Status**

For active members, 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	Miscellaneous Load Factor	Safety Load Factor
50	190%	310%
51	110%	190%
52	110%	105%
53 through 54	100%	105%
55	100%	140%
56 and above	100%	100%

APPENDIX A

**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



APPENDIX A

**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

APPENDIX A

**Non-Industrial (Not Job-Related) Disability**

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

Age	Miscellaneous		Fire	Police	County Peace Officer	Schools	
	Male	Female	Male and Female	Male and Female	Male and Female	Male	Female
20	0.00017	0.00010	0.0001	0.0001	0.0001	0.00028	0.00026
25	0.00017	0.00010	0.0001	0.0001	0.0001	0.00010	0.00012
30	0.00019	0.00024	0.0001	0.0002	0.0001	0.00011	0.00016
35	0.00049	0.00081	0.0001	0.0003	0.0004	0.00053	0.00043
40	0.00122	0.00155	0.0001	0.0004	0.0007	0.00149	0.00101
45	0.00191	0.00218	0.0002	0.0005	0.0013	0.00295	0.00188
50	0.00213	0.00229	0.0005	0.0008	0.0018	0.00388	0.00244
55	0.00221	0.00179	0.0010	0.0013	0.0010	0.00358	0.00205
60	0.00222	0.00135	0.0015	0.0020	0.0006	0.00306	0.00139

- 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	0.00007	0.00000	0.00042
25	0.00025	0.00165	0.00131
30	0.00074	0.00476	0.00249
35	0.00158	0.00788	0.00370
40	0.00300	0.01100	0.00513
45	0.00530	0.01412	0.00672
50	0.02772	0.01846	0.00919
55	0.04088	0.04785	0.01505
60	0.05833	0.06024	0.01740

- 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% will become the Non-Industrial Disability rate and 50% 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.

APPENDIX A

**Public Agency Miscellaneous 1.5% @ 65**

Age	Duration of Service					
	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**

Age	Duration of Service					
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.010	0.013	0.015	0.018	0.019	0.021
51	0.009	0.011	0.014	0.016	0.017	0.019
52	0.011	0.014	0.017	0.020	0.022	0.024
53	0.010	0.012	0.015	0.017	0.020	0.021
54	0.015	0.019	0.023	0.025	0.029	0.031
55	0.022	0.029	0.035	0.040	0.045	0.049
56	0.018	0.024	0.028	0.033	0.036	0.040
57	0.024	0.032	0.038	0.043	0.049	0.053
58	0.027	0.036	0.043	0.049	0.055	0.061
59	0.033	0.044	0.054	0.061	0.068	0.076
60	0.056	0.077	0.092	0.105	0.117	0.130
61	0.071	0.097	0.118	0.134	0.149	0.166
62	0.117	0.164	0.198	0.224	0.250	0.280
63	0.122	0.171	0.207	0.234	0.261	0.292
64	0.114	0.159	0.193	0.218	0.244	0.271
65	0.150	0.209	0.255	0.287	0.321	0.358
66	0.114	0.158	0.192	0.217	0.243	0.270
67	0.141	0.196	0.238	0.270	0.301	0.337
68	0.103	0.143	0.174	0.196	0.219	0.245
69	0.109	0.153	0.185	0.209	0.234	0.261
70	0.117	0.162	0.197	0.222	0.248	0.277

APPENDIX A

**Public Agency Miscellaneous 2% @ 55**

Age	Duration of Service					
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.014	0.018	0.021	0.025	0.027	0.031
51	0.012	0.014	0.017	0.020	0.021	0.025
52	0.013	0.017	0.019	0.023	0.025	0.028
53	0.015	0.020	0.023	0.027	0.030	0.034
54	0.026	0.033	0.038	0.045	0.051	0.059
55	0.048	0.061	0.074	0.088	0.100	0.117
56	0.042	0.053	0.063	0.075	0.085	0.100
57	0.044	0.056	0.067	0.081	0.091	0.107
58	0.049	0.062	0.074	0.089	0.100	0.118
59	0.057	0.072	0.086	0.103	0.118	0.138
60	0.067	0.086	0.103	0.123	0.139	0.164
61	0.081	0.103	0.124	0.148	0.168	0.199
62	0.116	0.147	0.178	0.214	0.243	0.288
63	0.114	0.144	0.174	0.208	0.237	0.281
64	0.108	0.138	0.166	0.199	0.227	0.268
65	0.155	0.197	0.238	0.285	0.325	0.386
66	0.132	0.168	0.203	0.243	0.276	0.328
67	0.122	0.155	0.189	0.225	0.256	0.304
68	0.111	0.141	0.170	0.204	0.232	0.274
69	0.114	0.144	0.174	0.209	0.238	0.282
70	0.130	0.165	0.200	0.240	0.272	0.323

**Public Agency Miscellaneous 2.5% @ 55**

Age	Duration of Service					
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.004	0.009	0.019	0.029	0.049	0.094
51	0.004	0.009	0.019	0.029	0.049	0.094
52	0.004	0.009	0.020	0.030	0.050	0.095
53	0.008	0.014	0.025	0.036	0.058	0.104
54	0.024	0.034	0.050	0.066	0.091	0.142
55	0.066	0.088	0.115	0.142	0.179	0.241
56	0.042	0.057	0.078	0.098	0.128	0.184
57	0.041	0.057	0.077	0.097	0.128	0.183
58	0.045	0.061	0.083	0.104	0.136	0.192
59	0.055	0.074	0.098	0.123	0.157	0.216
60	0.066	0.088	0.115	0.142	0.179	0.241
61	0.072	0.095	0.124	0.153	0.191	0.255
62	0.099	0.130	0.166	0.202	0.248	0.319
63	0.092	0.121	0.155	0.189	0.233	0.302
64	0.091	0.119	0.153	0.187	0.231	0.299
65	0.122	0.160	0.202	0.245	0.297	0.374
66	0.138	0.179	0.226	0.272	0.329	0.411
67	0.114	0.149	0.189	0.229	0.279	0.354
68	0.100	0.131	0.168	0.204	0.250	0.322
69	0.114	0.149	0.189	0.229	0.279	0.354
70	0.127	0.165	0.209	0.253	0.306	0.385

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**Public Agency Miscellaneous 2.7% @ 55**

Age	Duration of Service					
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.004	0.009	0.014	0.035	0.055	0.095
51	0.002	0.006	0.011	0.030	0.050	0.090
52	0.006	0.012	0.017	0.038	0.059	0.099
53	0.010	0.017	0.024	0.046	0.068	0.110
54	0.032	0.044	0.057	0.085	0.113	0.160
55	0.076	0.101	0.125	0.165	0.205	0.265
56	0.055	0.074	0.093	0.127	0.160	0.214
57	0.050	0.068	0.086	0.118	0.151	0.204
58	0.055	0.074	0.093	0.127	0.161	0.215
59	0.061	0.082	0.102	0.138	0.174	0.229
60	0.069	0.093	0.116	0.154	0.192	0.250
61	0.086	0.113	0.141	0.183	0.225	0.288
62	0.105	0.138	0.171	0.218	0.266	0.334
63	0.103	0.135	0.167	0.215	0.262	0.329
64	0.109	0.143	0.177	0.226	0.275	0.344
65	0.134	0.174	0.215	0.270	0.326	0.401
66	0.147	0.191	0.235	0.294	0.354	0.433
67	0.121	0.158	0.196	0.248	0.300	0.372
68	0.113	0.147	0.182	0.232	0.282	0.352
69	0.117	0.153	0.189	0.240	0.291	0.362
70	0.141	0.183	0.226	0.283	0.341	0.418

**Public Agency Miscellaneous 3% @ 60**

Age	Duration of Service					
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.012	0.018	0.024	0.039	0.040	0.091
51	0.009	0.014	0.019	0.034	0.034	0.084
52	0.014	0.020	0.026	0.043	0.044	0.096
53	0.016	0.023	0.031	0.048	0.050	0.102
54	0.026	0.036	0.045	0.065	0.070	0.125
55	0.043	0.057	0.072	0.096	0.105	0.165
56	0.042	0.056	0.070	0.094	0.103	0.162
57	0.049	0.065	0.082	0.108	0.119	0.180
58	0.057	0.076	0.094	0.122	0.136	0.199
59	0.076	0.100	0.123	0.157	0.175	0.244
60	0.114	0.148	0.182	0.226	0.255	0.334
61	0.095	0.123	0.152	0.190	0.214	0.288
62	0.133	0.172	0.211	0.260	0.294	0.378
63	0.129	0.166	0.204	0.252	0.285	0.368
64	0.143	0.185	0.226	0.278	0.315	0.401
65	0.202	0.260	0.318	0.386	0.439	0.542
66	0.177	0.228	0.279	0.340	0.386	0.482
67	0.151	0.194	0.238	0.292	0.331	0.420
68	0.139	0.179	0.220	0.270	0.306	0.391
69	0.190	0.245	0.299	0.364	0.414	0.513
70	0.140	0.182	0.223	0.274	0.310	0.396

APPENDIX A

**Public Agency Fire ½ @ 55 and 2% @ 55**

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
50	0.015880	56	0.110790
51	0.000001	57	0.000001
52	0.034420	58	0.094990
53	0.019900	59	0.044090
54	0.041320	60	1.000000
55	0.075130		

**Public Agency Police ½ @ 55 and 2% @ 55**

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
50	0.025520	56	0.069210
51	0.000001	57	0.051130
52	0.016370	58	0.072410
53	0.027170	59	0.070430
54	0.009490	60	1.000000
55	0.166740		

**Public Agency Police 2% @ 50**

<u>Age</u>	<u>Duration of Service</u>					
	<u>5 Years</u>	<u>10 Years</u>	<u>15 Years</u>	<u>20 Years</u>	<u>25 Years</u>	<u>30 Years</u>
50	0.005	0.005	0.005	0.005	0.017	0.089
51	0.005	0.005	0.005	0.005	0.017	0.087
52	0.018	0.018	0.018	0.018	0.042	0.132
53	0.044	0.044	0.044	0.044	0.090	0.217
54	0.065	0.065	0.065	0.065	0.126	0.283
55	0.086	0.086	0.086	0.086	0.166	0.354
56	0.067	0.067	0.067	0.067	0.130	0.289
57	0.066	0.066	0.066	0.066	0.129	0.288
58	0.066	0.066	0.066	0.066	0.129	0.288
59	0.139	0.139	0.139	0.139	0.176	0.312
60	0.123	0.123	0.123	0.123	0.153	0.278
61	0.110	0.110	0.110	0.110	0.138	0.256
62	0.130	0.130	0.130	0.130	0.162	0.291
63	0.130	0.130	0.130	0.130	0.162	0.291
64	0.130	0.130	0.130	0.130	0.162	0.291
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.

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**Public Agency Fire 2%@50**

Age	Duration of Service					
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.009	0.009	0.009	0.009	0.013	0.020
51	0.013	0.013	0.013	0.013	0.020	0.029
52	0.018	0.018	0.018	0.018	0.028	0.042
53	0.052	0.052	0.052	0.052	0.079	0.119
54	0.067	0.067	0.067	0.067	0.103	0.154
55	0.089	0.089	0.089	0.089	0.136	0.204
56	0.083	0.083	0.083	0.083	0.127	0.190
57	0.082	0.082	0.082	0.082	0.126	0.189
58	0.088	0.088	0.088	0.088	0.136	0.204
59	0.074	0.074	0.074	0.074	0.113	0.170
60	0.100	0.100	0.100	0.100	0.154	0.230
61	0.072	0.072	0.072	0.072	0.110	0.165
62	0.099	0.099	0.099	0.099	0.152	0.228
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**

Age	Duration of Service					
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.004	0.004	0.004	0.004	0.015	0.086
51	0.014	0.014	0.014	0.014	0.034	0.114
52	0.026	0.026	0.026	0.026	0.060	0.154
53	0.038	0.038	0.038	0.038	0.083	0.188
54	0.071	0.071	0.071	0.071	0.151	0.292
55	0.061	0.061	0.061	0.061	0.131	0.261
56	0.072	0.072	0.072	0.072	0.153	0.295
57	0.065	0.065	0.065	0.065	0.140	0.273
58	0.066	0.066	0.066	0.066	0.142	0.277
59	0.118	0.118	0.118	0.118	0.247	0.437
60	0.065	0.065	0.065	0.065	0.138	0.272
61	0.084	0.084	0.084	0.084	0.178	0.332
62	0.108	0.108	0.108	0.108	0.226	0.405
63	0.084	0.084	0.084	0.084	0.178	0.332
64	0.084	0.084	0.084	0.084	0.178	0.332
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.

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**Public Agency Fire 3%@55**

Age	Duration of Service					
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.001	0.001	0.001	0.006	0.016	0.069
51	0.002	0.002	0.002	0.006	0.018	0.071
52	0.012	0.012	0.012	0.021	0.040	0.098
53	0.032	0.032	0.032	0.049	0.085	0.149
54	0.057	0.057	0.057	0.087	0.144	0.217
55	0.073	0.073	0.073	0.109	0.179	0.259
56	0.064	0.064	0.064	0.097	0.161	0.238
57	0.063	0.063	0.063	0.095	0.157	0.233
58	0.065	0.065	0.065	0.099	0.163	0.241
59	0.088	0.088	0.088	0.131	0.213	0.299
60	0.105	0.105	0.105	0.155	0.251	0.344
61	0.118	0.118	0.118	0.175	0.282	0.380
62	0.087	0.087	0.087	0.128	0.210	0.295
63	0.067	0.067	0.067	0.100	0.165	0.243
64	0.067	0.067	0.067	0.100	0.165	0.243
65	1.000	1.000	1.000	1.000	1.000	1.000

**Public Agency Police 3%@ 50**

Age	Duration of Service					
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.050	0.050	0.050	0.099	0.240	0.314
51	0.034	0.034	0.034	0.072	0.198	0.260
52	0.033	0.033	0.033	0.071	0.198	0.259
53	0.039	0.039	0.039	0.080	0.212	0.277
54	0.045	0.045	0.045	0.092	0.229	0.300
55	0.052	0.052	0.052	0.105	0.248	0.323
56	0.042	0.042	0.042	0.087	0.221	0.289
57	0.043	0.043	0.043	0.088	0.223	0.292
58	0.054	0.054	0.054	0.109	0.255	0.333
59	0.054	0.054	0.054	0.108	0.253	0.330
60	0.060	0.060	0.060	0.121	0.272	0.355
61	0.048	0.048	0.048	0.098	0.238	0.311
62	0.061	0.061	0.061	0.122	0.274	0.357
63	0.057	0.057	0.057	0.115	0.263	0.343
64	0.069	0.069	0.069	0.137	0.296	0.385
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.



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**Public Agency Fire 3%@50**

Age	Duration of Service					
	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
50	0.020	0.020	0.020	0.040	0.130	0.192
51	0.008	0.008	0.008	0.023	0.107	0.164
52	0.023	0.023	0.023	0.043	0.136	0.198
53	0.023	0.023	0.023	0.043	0.135	0.198
54	0.027	0.027	0.027	0.048	0.143	0.207
55	0.043	0.043	0.043	0.070	0.174	0.244
56	0.053	0.053	0.053	0.085	0.196	0.269
57	0.054	0.054	0.054	0.086	0.197	0.271
58	0.052	0.052	0.052	0.084	0.193	0.268
59	0.075	0.075	0.075	0.116	0.239	0.321
60	0.065	0.065	0.065	0.102	0.219	0.298
61	0.076	0.076	0.076	0.117	0.241	0.324
62	0.068	0.068	0.068	0.106	0.224	0.304
63	0.027	0.027	0.027	0.049	0.143	0.208
64	0.094	0.094	0.094	0.143	0.277	0.366
65	1.000	1.000	1.000	1.000	1.000	1.000

**Schools 2%@ 55**

Age	Duration of Service					
	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

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## Miscellaneous

### **Superfunded Status**

If a rate plan is superfunded (actuarial value of assets exceeds the present value of benefits), as of the most recently completed annual valuation, the employer may cover their employees' member contributions (both taxed and tax-deferred) using their employer assets during the fiscal year for which this valuation applies. This would entail transferring assets within the Public Employees' Retirement Fund (PERF) from the employer account to the member accumulated contribution accounts. This change was implemented effective January 1, 1999 pursuant to Chapter 231 (Assembly Bill 2099) which added Government Code Section 20816.

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.

### **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.

## APPENDIX B

- SUMMARY OF PRINCIPAL PLAN PROVISIONS

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## DESCRIPTION OF PRINCIPAL PLAN PROVISIONS

The following is a description of the principal plan provisions used in calculating costs and liabilities. We have indicated whether a plan provision is standard or optional. Standard benefits are applicable to all members while optional benefits vary among employers. Optional benefits that apply to a single period of time, such as Golden Handshakes, have not been included. 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.

### 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)

#### Benefit

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

- The *benefit factor* depends on the benefit formula specified in your agency's contract. The table below shows the factors for each of the available formulas. Factors vary by the member's age at retirement. Listed are the factors for retirement at whole year ages:

#### Miscellaneous Plan Formulas

Retirement Age	2% at 60	2% at 55	2.5% at 55	2.7% at 55	3% at 60
50	1.092%	1.426%	2.0%	2.0%	2.0%
51	1.156%	1.522%	2.1%	2.14%	2.1%
52	1.224%	1.628%	2.2%	2.28%	2.2%
53	1.296%	1.742%	2.3%	2.42%	2.3%
54	1.376%	1.866%	2.4%	2.56%	2.4%
55	1.460%	2.0%	2.5%	2.7%	2.5%
56	1.552%	2.052%	2.5%	2.7%	2.6%
57	1.650%	2.104%	2.5%	2.7%	2.7%
58	1.758%	2.156%	2.5%	2.7%	2.8%
59	1.874%	2.210%	2.5%	2.7%	2.9%
60	2.0%	2.262%	2.5%	2.7%	3.0%
61	2.134%	2.314%	2.5%	2.7%	3.0%
62	2.272%	2.366%	2.5%	2.7%	3.0%
63 & Up	2.418%	2.418%	2.5%	2.7%	3.0%

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**Safety Plan Formulas**

Retirement Age	½ at 55 *	2% at 55	2% at 50	3% at 55	3% at 50
50	1.783%	1.426%	2.0%	2.40%	3.0%
51	1.903%	1.522%	2.14%	2.52%	3.0%
52	2.035%	1.628%	2.28%	2.64%	3.0%
53	2.178%	1.742%	2.42%	2.76%	3.0%
54	2.333%	1.866%	2.56%	2.88%	3.0%
55 & Up	2.5%	2.0%	2.7%	3.0%	3.0%

\* For this formula, the benefit factor also varies by entry age. The factors shown are for members with an entry age of 35 or larger. If entry age is less than 35, then the age 55 benefit factor is 50% divided by the difference between age 55 and entry age. The benefit factor for ages prior to age 55 is the same proportion of the age 55 benefit factor as in the above table.

- 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. An agency may contract for an optional benefit where 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 is 36 months. Employers have the option of providing a final compensation equal to the highest 12 consecutive months.
- For employees covered by Social Security, the Modified formula is the standard benefit. Under this type of formula, the final compensation is offset by \$133.33 (or by one third if the final compensation is less than \$400). Employers may contract for the Full benefit with Social Security that will eliminate the offset applicable to the final compensation. For employees not covered by Social Security, the Full benefit is paid with no offsets. Auxiliary organizations of the CSUC system may elect reduced contribution rates, in which case the offset is \$317 if members are not covered by Social Security or \$513 if members are covered by Social Security.
- The Miscellaneous Service Retirement benefit is not capped. The Safety Service Retirement benefit is capped at 90% 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.

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### **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 employed by 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% 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% of Final Compensation.

### **Improved Benefit**

Employers have the option of providing the improved Non-Industrial Disability Retirement benefit. This benefit provides a monthly allowance equal to 30% of final compensation for the first 5 years of service, plus 1% for each additional year of service to a maximum of 50% 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. For miscellaneous members, employers have the option of providing this benefit. An employer may choose to provide the Increased benefit option or the Improved benefit option.

### **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 below.

### **Standard Benefit**

The standard Industrial Disability Retirement benefit is a monthly allowance equal to 50% of final compensation.

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### **Increased Benefit (75% of Final Compensation)**

The increased Industrial Disability Retirement benefit is a monthly allowance equal to 75% of final compensation for total disability.

### **Improved Benefit (50% to 90% 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% or greater, with a maximum of 90%) times the 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 accumulated member contributions with respect to employment in this group. With the standard or increased benefit, a member may also choose to receive the annuitization of the accumulated member contributions.

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.

## 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 an improved lump sum death benefit of \$600, \$2,000, \$3,000, \$4,000 or \$5,000.

## 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. Such reduction takes into account the amount to be provided to the beneficiary and the probable duration of payments (based on the ages of the member and beneficiary) made subsequent to the member's death.

### **Improved Form of Payment (Post Retirement Survivor Allowance)**

Employers have the option to contract for the post retirement survivor allowance.

For retirement allowances with respect to service subject to the modified formula, 25% 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 or supplemental formula, 50% 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% or 50% 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.

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The remaining 75% or 50% 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. Benefit options applicable to the option portion are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the option portion.

### Pre-Retirement Death Benefits

#### Basic Death Benefit

This is a standard 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 may choose to receive that death benefit instead of this Basic Death benefit.

##### **Benefit**

The Basic Death Benefit is a lump sum in the amount of the member's accumulated contributions, where interest is currently credited at 7.5% 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

This is a standard 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 who is eligible for any other pre-retirement death benefit may choose to receive that death benefit instead of this 1957 Survivor benefit.

##### **Benefit**

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

#### Optional Settlement 2W Death Benefit

This is an optional benefit.



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**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 who is eligible for any other pre-retirement death benefit may choose to receive that death benefit instead of this Optional Settlement 2W Death benefit.

**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. The total amount paid will be at least equal to the Basic Death Benefit.

Special Death Benefit

This is a standard benefit for safety members. An employer may elect to provide this benefit for miscellaneous members.

**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.

**Benefit**

The Special Death benefit is a monthly allowance equal to 50% 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

Alternate Death Benefit for Local Fire Members

This is an optional benefit available only to local fire members.

**Eligibility**

An employee's *eligible survivor(s)* may receive the Alternate Death benefit in lieu of the Basic Death Benefit or the 1957 Survivor Benefit if the member dies while actively employed and has at least 20 years of total CalPERS

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service. 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 18.

**Benefit**

The Alternate 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.) If the member has not yet attained age 50, the benefit is equal to that which would be payable if the member had retired at age 50, based on service credited at the time of death. 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. The total amount paid will be at least equal to the Basic Death Benefit.

Cost-of-Living Adjustments

**Standard Benefit**

The Retirement Law provides for the payment of an annual cost-of-living adjustment (COLA) to be paid each May, beginning the second calendar year after the year of retirement. The basic COLA provision is 2%. The COLA adjustment is limited to the lesser of two compounded numbers – the rate of inflation or the COLA contracted by the employer. This means that members may receive increases smaller than the COLA provision in years where the rate of inflation is lower than the COLA provision. Similarly, members may see increases larger than inflation and even the COLA provision in some years.

**Improved Benefit**

Employers have the option of providing an improved cost-of-living adjustment of 3%, 4% or 5%.

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% 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 retirement formula. The standard employee contribution is as described below.

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

The monthly compensation breakpoint is \$0 for full and supplemental formula members and \$133.33 for employees covered by the modified formula.

The percent contributed above the monthly compensation breakpoint depends upon the benefit formula, as shown in the table below.

<b>Benefit Formula</b>	<b>Percent Contributed above the Breakpoint</b>
Miscellaneous, 2% at 60	7%
Miscellaneous, 2% at 55	7%
Miscellaneous, 2.5% at 55	8%
Miscellaneous, 2.7% at 55	8%
Miscellaneous, 3% at 60	8%

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Safety, 1/2 at 55	Varies by entry age
Safety, 2% at 55	7%
Safety, 2% at 50	9%
Safety, 3% at 55	9%
Safety, 3% at 50	9%

The employer may choose to “pick-up” these contributions for the employees (Employer Paid Member Contributions or EPMC). An employer may also include Employee Cost Sharing in the contract, where employees contribute an additional percentage of compensation.

- Auxiliary organizations of the CSUC system may elect reduced contribution rates, in which case the offset is \$317 and the contribution rate is 6% if members are not covered by Social Security. If members are covered by Social Security the offset is \$513 and the contribution rate is 5%.

### 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% 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 4<sup>th</sup> 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](http://www.calpers.ca.gov).

## APPENDIX C

- LIST OF TERMINATED AGENCIES

## Terminated Agency Names

This listing includes (1) Terminated Agencies whose members have accrued CalPERS benefits as of June 30, 2013 and (2) Terminated Agencies whose members no longer have accrued CalPERS benefits.

AROMAS TRI-COUNTY FIRE DISTRICT  
ASSOCIATED STUDENTS OF CALIFORNIA STATE UNIVERSITY, CHICO  
BAY AREA LIBRARY AND INFORMATION SYSTEM  
BAY AREA SEWAGE SERVICES AGENCY  
CALIFORNIA EGG MARKETING/RESEARCH AGREEMENT (1ST LEVEL)  
CALIFORNIA STATE UNIVERSITY FOUNDATION  
CALIFORNIA STATE UNIVERSITY, DOMINGUEZ HILLS FOUNDATION  
CALIFORNIA STATE UNIVERSITY, FULLERTON FOUNDATION  
CALIFORNIA TAHOE REGIONAL PLANNING AGENCY  
CAMANCHE REGIONAL PARK DISTRICT  
CARMEL VALLEY FIRE PROTECTION DISTRICT  
CENTRAL COAST REGIONAL CRIMINAL JUSTICE PLANNING BOARD  
CENTRAL SIERRA PLANNING COUNCIL  
CHICO STATE UNIVERSITY FOUNDATION  
CITY OF LOYALTON  
CITY OF PITTSBURG  
CITY OF WESTMORLAND  
CITY OF WESTMORLAND  
COLLEGE OF THE DESERT, ASSOCIATED STUDENTS OF  
COOPERATIVE LIBRARY AGENCY FOR SYSTEMS AND SERVICES  
CORONA CITY REDEVELOPMENT AGENCY  
DEER SPRINGS FIRE PROTECTION DISTRICT  
DESCANSO COMMUNITY WATER DISTRICT  
EEL RIVER WATER COUNCIL  
EL PUEBLO DE LOS ANGELES STATE HISTORICAL MONUMENT COMMISSION  
EL TORO WATER DISTRICT  
ETNA CEMETERY DISTRICT  
FALLBROOK HOSPITAL DISTRICT  
FREMONT (JOHN C) HOSPITAL DISTRICT  
FRESNO CITY REDEVELOPMENT AGENCY  
FRESNO STATE COLLEGE AGRICULTURAL FOUNDATION  
GILROY RURAL FIRE PROTECTION DISTRICT  
GOLDEN EMPIRE TRANSIT DISTRICT  
HALCUMB CEMETERY DISTRICT  
HAMILTON CITY COMMUNITY SERVICES DISTRICT  
HEFFERNAN MEMORIAL HOSPITAL DISTRICT  
HUMBOLDT BAY WASTEWATER AUTHORITY  
IDYLLWILD WATER DISTRICT  
INDEPENDENT DATA PROCESSING CENTER  
INLAND MANPOWER ASSOCIATION  
JEFFERSON SCHOOL DISTRICT FEDERAL CREDIT UNION  
KAWEAH DELTA HOSPITAL DISTRICT  
LANEY COLLEGE BOOKSTORE  
LONG BEACH PROMOTION AND SERVICE CORPORATION  
LOWER SWEETWATER FIRE PROTECTION DISTRICT  
MADERA COUNTY ECONOMIC DEVELOPMENT COMMISSION  
MARK TWAIN HOSPITAL DISTRICT  
MEADOW VISTA COUNTY WATER DISTRICT  
NORTHRIDGE STATE UNIVERSITY STUDENT CENTER, INC.  
ORANGE COUNTY INTERGOVERNMENTAL COORDINATING COUNCIL  
ORANGE COVE FIRE PROTECTION DISTRICT OF FRESNO AND TULARE COUNTIES  
PALO VERDE CEMETERY DISTRICT  
PARADISE FIRE PROTECTION DISTRICT

PASO ROBLES DISTRICT CEMETERY  
PIONEER COMMUNITY SERVICES DISTRICT  
PLACER CONSOLIDATED FIRE PROTECTION DISTRICT  
PLACER CONSOLIDATED FIRE PROTECTION DISTRICT  
PLUMAS COUNTY HOUSING AUTHORITY  
PROVIDENT CENTRAL CREDIT UNION  
SACRAMENTO STATE UNIVERSITY ASSOCIATED STUDENTS  
SAN BENITO HOSPITAL DISTRICT  
SAN DIEGO STATE UNIVERSITY FOUNDATION  
SAN FRANCISCO STATE UNIVERSITY FRANCISCAN SHOPS  
SAN FRANCISCO STATE UNIVERSITY FREDERICK BURKE FOUNDATION  
SAN JOSE HOUSING AUTHORITY  
SAN JOSE STATE UNIVERSITY SPARTAN SHOPS, INC.  
SAN JOSE STATE UNIVERSITY, ASSOCIATED STUDENTS  
SAN MARCOS CEMETERY DISTRICT  
SAN MATEO LOCAL AGENCY FORMATION COMMISSION  
SANITATION DISTRICTS OF ORANGE COUNTY  
SANTA BARBARA COUNTY HOUSING AUTHORITY  
SANTA CLARA CITY REDEVELOPMENT AGENCY  
SANTA CLARA COUNTY TRAFFIC AUTHORITY  
SANTA CRUZ PORT DISTRICT  
SARATOGA CEMETERY DISTRICT  
SCHOOL PERSONNEL CREDIT UNION  
SELECTION CONSULTING CENTER  
SHASTA-TRINITY SCHOOLS INSURANCE GROUP  
SOUTH LAKE COUNTY FIRE PROTECTION DISTRICT  
SOUTH LAKE COUNTY FIRE PROTECTION DISTRICT  
SOUTHEAST RECREATION AND PARK DISTRICT  
SOUTHERN MONO HOSPITAL DISTRICT  
SPRINGVILLE PUBLIC UTILITY DISTRICT  
STUDENT UNION OF SAN JOSE STATE UNIVERSITY  
SUNLINE TRANSIT AGENCY  
TULARE COUNTY HOUSING AUTHORITY  
VICTORVILLE FIRE PROTECTION DISTRICT  
WEAVERVILLE FIRE PROTECTION DISTRICT  
WEST BAY RAPID TRANSIT AUTHORITY  
WEST CONTRA COSTA HOSPITAL DISTRICT

## APPENDIX D

- GLOSSARY OF ACTUARIAL TERMS

## • 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.



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**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.

**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.

**Normal Cost**

The annual cost of service accrual for the upcoming fiscal year for active employees. The Normal Cost, including surcharges for applicable class 1 benefit should be viewed as the long term contribution rate.

**Pension Actuary**

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

**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.

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**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.

**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 the Present Value of Benefits. When this condition exists on a given valuation date for a given plan, employee contributions for the rate year covered by that valuation may 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.