

1959 Survivor Benefit Program Actuarial Valuation *As of June 30, 2020*



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Actuarial Certification



April 2021

To the best of our knowledge, this report is complete and accurate and contains sufficient information to fully and fairly disclose the funded condition of the 1959 Survivor Program for Public Agency 1st, 2nd, 3rd, 4th, and Indexed Level, and the State and Schools 5th Level Pools. This valuation is based on the survivor and membership data provided to the Actuarial Office, the statement of assets provided by the CalPERS Financial Office, and the benefits provided under this program. It is our opinion that this valuation has been performed by qualified actuaries 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 program, as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.

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

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Highlights and Executive Summary

Introduction

The 1959 Survivor program was designed to provide pre-retirement death benefits comparable to those provided by Social Security, formally the Federal Old Age and Survivor Insurance (OASI) program, to CalPERS' members not covered by Social Security.

Purpose of Report

This actuarial valuation of the 1959 Survivor Program for Public Agency 1st, 2nd, 3rd, 4th, and Indexed level, and the State and Schools 5th level pools within the California Public Employees' Retirement System (CalPERS) was performed by CalPERS staff actuaries as of June 30, 2020 in order to:

- Set forth the funded status of the program, reflecting the assets and funding liabilities of this program as of June 30, 2020.
- Establish the actuarially required premiums for all levels and employee premiums in the Indexed, and State and Schools 5th Level for the fiscal year July 1, 2021 through June 30, 2022; and
- Provide actuarial information as of June 30, 2020 to the CalPERS Board of Administration and other interested parties.

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

Funded Status of the Plan

Shown below are the Accrued Liability, Market Value of Assets (MVA), and Funded Ratio of all pools within the 1959 Survivor Benefit Program as of June 30, 2020.

Plan	Accrued Liability ¹	Market Value of Assets	Funded Ratio
State 5 th Level Pool	\$151,004,628	\$112,099,536	74.2%
Schools 5 th Level Pool	14,267,527	88,551,569	620.7%
PA 1 st Level Pool	2,941,704	57,807,635	1,965.1%
PA 2 nd Level Pool	2,405,625	13,389,672	556.6%
PA 3 rd Level Pool	30,990,981	128,410,622	414.3%
PA 4 th Level Pool	143,651,151	153,766,711	107.0%
PA Indexed Level Pool	19,718,925	27,295,626	138.4%
Total	\$ 364,980,541	\$581,321,371	159.3%

(1) By definition, under the Term Insurance Method, the present value of future benefits and the accrued liability are equal. Under the Entry Age Normal Method, which is being used to fund the benefit in the Indexed Pool, the accrued liability is defined as the difference between the present value of future benefits and the present value of future normal costs.

Highlights and Executive Summary

Required Employer and Employee Monthly Premiums

The actuarially required employer and employee monthly premiums per covered member per month for the 1959 Survivor Program for the fiscal year July 1, 2021 through June 30, 2022 are shown below. The results for fiscal year July 1, 2020 through June 30, 2021 are shown for comparison. Except for the Public Agency Indexed Level pool, these monthly premiums are determined using a Modified Term Insurance funding method. Monthly premiums for the Public Agency Indexed Level pool are determined using the Entry Age Normal funding method.

Required Monthly Premiums

Plan	2020-21 Premiums			2021-22 Premiums		
	Employer	Employee	Total	Employer	Employee	Total
State 5 th Level Pool ¹	\$5.95	\$5.95	\$11.90	\$5.85	\$5.85	\$11.70
Schools 5 th Level Pool ¹	\$0.00	\$2.00	\$2.00	\$0.00	\$2.00	\$2.00
PA 1 st Level Pool ²	\$0.00	\$2.00	\$2.00	\$0.00	\$2.00	\$2.00
PA 2 nd Level Pool ²	\$0.00	\$2.00	\$2.00	\$0.00	\$2.00	\$2.00
PA 3 rd Level Pool ²	\$0.00	\$2.00	\$2.00	\$0.00	\$2.00	\$2.00
PA 4 th Level Pool ²	\$5.20	\$2.00	\$7.20	\$4.70	\$2.00	\$6.70
PA Indexed Level Pool ¹	\$2.40	\$2.40	\$4.80	\$2.35	\$2.35	\$4.70

(1) Section 21581 of the California Public Employees' Retirement Law requires mandatory cost sharing when the total premium exceeds \$4.00. Mandatory \$2.00 member monthly premium required.

(2) Mandatory \$2.00 member monthly premium required.

The required employee premium for the State 5th level pool will change from \$5.95 to \$5.85 per member, per month (or from \$2.75 to \$2.70 for biweekly paid members) for fiscal year 2021-22. This is in accordance with Statute 21581(c), which specifies that when the total required premium (after amortization of surplus/unfunded liability) exceeds \$4.00, the employer and the member shall evenly share the required monthly premium.

The required employee premium for the Indexed level pool will change from \$2.40 to \$2.35 per member, per month (or from \$1.11 to \$1.09 for biweekly paid members) for fiscal year 2021-22. This is in accordance with Statute 21581(b), which specifies that when the total required premium (after amortization of surplus/unfunded liability) exceeds \$4.00, the employer and the member shall evenly share the required monthly premium. This decrease is due to very favorable experience in the past year.

Employee required premiums for Public Agency 1st, 2nd, and 3rd level pools shall remain the same as in the prior year: \$2.00 per member, per month. There are no employer required premiums for these pools.

Employee required premiums for Public Agency 4th pool shall remain the same as in the prior year: \$2.00 per member, per month. Employer premiums are \$4.70 per member, per month. This decrease is due to a variety of factors including a decrease in the Reserve for Unclaimed Benefits, and demographic experience.

Highlights and Executive Summary (continued)

Changes Since the Prior Year's Valuation

Actuarial Methods and Assumptions

Since the prior year's valuation, there have been no changes to the actuarial assumptions. There was a single modification to the methods. The calculation of the Normal Cost was changed from dividing a weighted average of the Present Value of Future Benefits (PVB) from the prior ten years, by the weighted average of number of members from the prior ten years to a weighted average of the Normal Cost from the prior ten years.

Plan Provisions

No changes were made since the prior valuation. A complete description of the principal plan provisions used in the June 30, 2020 valuation may be found in Appendix B of this report.

Subsequent Changes

CalPERS recently adopted a Funding Risk Mitigation Policy that will reduce the funding risk over time. Under this policy, good investment performance that significantly outperforms the discount rate triggers adjustments to the discount rate, expected investment return and strategic asset allocation targets. This policy has been paused due to the upcoming Asset Liability Management Review by the Board of Administration.

Assets

Reconciliation of the Market Value of Assets

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Assets

Reconciliation of the Market Value of Assets

Shown below are the changes in the market value of assets for the various pools.

State 5 th Level	June 30, 2019	June 30, 2020
Beginning Balance	\$110,568,331	\$112,515,580
Contributions (Employer and Employee) Received During Fiscal Year	9,611,056	9,842,751
Benefit Payments During Fiscal Year	(14,692,785)	(15,267,404)
Net Transfer of Assets Into and Out of this Pool	—	—
Investment Earnings Credited	7,028,978	5,008,609
Ending Balance	\$112,515,580	\$112,099,536
Fund Return for Year	6.51%	4.56%

Schools 5 th Level	June 30, 2019	June 30, 2020
Beginning Balance	\$82,038,098	\$86,061,386
Contributions (Employer and Employee) Received During Fiscal Year	221,774	222,817
Benefit Payments During Fiscal Year	(1,392,374)	(1,525,424)
Net Transfer of Assets Into and Out of this Pool	—	—
Investment Earnings Credited	5,193,887	3,792,790
Ending Balance	\$86,061,386	\$88,551,569
Fund Return for Year	6.38%	4.44%

Public Agency 1 st Level	June 30, 2019	June 30, 2020
Beginning Balance	\$52,177,082	\$55,422,944
Contributions (Employer and Employee) Received During Fiscal Year	175,579	171,624
Benefit Payments During Fiscal Year	(253,809)	(244,256)
Net Transfer of Assets Into and Out of this Pool	—	—
Investment Earnings Credited	3,324,092	2,457,324
Ending Balance	\$55,422,944	\$57,807,635
Fund Return for Year	6.38%	4.44%

Public Agency 2 nd Level	June 30, 2019	June 30, 2020
Beginning Balance	\$12,307,348	\$12,962,320
Contributions (Employer and Employee) Received During Fiscal Year	97,661	100,185
Benefit Payments During Fiscal Year	(223,425)	(244,156)
Net Transfer of Assets Into and Out of this Pool	—	—
Investment Earnings Credited	780,735	571,322
Ending Balance	\$12,962,320	\$13,389,672
Fund Return for Year	6.38%	4.43%

Public Agency 3 rd Level	June 30, 2019	June 30, 2020
Beginning Balance	\$ 120,740,841	\$ 126,394,624
Contributions (Employer and Employee) Received During Fiscal Year	1,085,094	1,089,159
Benefit Payments During Fiscal Year	(2,718,172)	(2,840,022)
Net Transfer of Assets Into and Out of this Pool	(363,314)	(1,787,874)
Investment Earnings Credited	7,650,174	5,554,735
Ending Balance	\$126,394,624	\$128,410,622
Fund Return for Year	6.39%	4.46%

Assets

Reconciliation of the Market Value of Assets (continued)

Public Agency 4 th Level	June 30, 2019	June 30, 2020
Beginning Balance	\$151,267,552	\$153,251,364
Contributions (Employer and Employee) Received During Fiscal Year	5,745,508	5,940,086
Benefit Payments During Fiscal Year	(13,148,563)	(13,395,446)
Net Transfer of Assets Into and Out of this Pool	363,314	1,787,874
Investment Earnings Credited	9,023,552	6,182,833
Ending Balance	\$153,251,364	\$153,766,711
Fund Return for Year	6.11%	4.11%

Public Agency Indexed Level	June 30, 2019	June 30, 2020
Beginning Balance	\$25,933,332	\$26,787,538
Contributions (Employer and Employee) Received During Fiscal Year	551,907	754,720
Benefit Payments During Fiscal Year	(1,293,463)	(1,378,305)
Net Transfer of Assets Into and Out of this Pool	—	—
Investment Earnings Credited	1,595,762	1,131,674
Ending Balance	\$26,787,538	\$27,295,626
Fund Return for Year	6.24%	4.27%

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Liabilities and Funding Requirements

Comparison of Current and Prior Year Results

Shown below are the comparisons of key valuation results for the current valuation date compared to corresponding values from the prior valuation date.

State 5 th Level	June 30, 2019	June 30, 2020
Covered Active Members	78,011	78,713
Survivors Included in the Valuation		
Deferred (eligible, but not currently receiving benefits)	279	293
Receiving Benefits	1,435	1,419
Total	1,714	1,712
Accrued Liabilities	\$151,352,423	\$151,004,628
Market Value of Assets (MVA)	112,515,580	112,099,536
Unfunded Liability/(Excess Assets)	38,836,843	38,905,092
Required Employer Monthly Premium Per Member		
Before Amortization of Unfunded Liability/(Excess Assets)	\$7.20	\$7.10
After Amortization of Unfunded Liability/(Excess Assets)	\$11.90	\$11.70
After Employer/Employee Premium Sharing	\$5.95	\$5.85
Funded Ratio Based on MVA	74.3%	74.2%
Schools 5 th Level	June 30, 2019	June 30, 2020
Covered Active Members	11,190	11,219
Survivors Included in the Valuation		
Deferred (eligible, but not currently receiving benefits)	18	17
Receiving Benefits	150	143
Total	168	160
Accrued Liabilities	\$15,546,665	\$14,267,527
Market Value of Assets (MVA)	86,061,386	88,551,569
Unfunded Liability/(Excess Assets)	(70,514,721)	(74,284,042)
Required Employer Monthly Premium Per Member		
Before Amortization of Unfunded Liability/(Excess Assets)	\$5.40	\$5.80
After Amortization of Unfunded Liability/(Excess Assets)	\$0.00	\$0.00
After Employer/Employee Premium Sharing	\$0.00	\$0.00
Funded Ratio Based on MVA	553.6%	620.7%

Liabilities and Funding Requirements

Comparison of Current and Prior Year Results (continued)

Public Agency 1 st Level	June 30, 2019	June 30, 2020
Covered Active Members	7,290	7,170
Survivors Included in the Valuation		
Deferred (eligible, but not currently receiving benefits)	28	30
Receiving Benefits	106	105
Total	134	135
Accrued Liabilities	\$3,032,539	\$2,941,704
Market Value of Assets (MVA)	55,422,944	57,807,635
Unfunded Liability/(Excess Assets)	(52,390,405)	(54,865,931)
Required Employer Monthly Premium Per Member		
Total Premium Required	\$1.40	\$1.30
Premium Required After Employee Contributions	\$0.00	\$0.00
Employer Premium After Amortization of Unfunded Liability/(Excess Assets)	\$0.00	\$0.00
Funded Ratio Based on MVA	1,827.6%	1,965.1%
Public Agency 2 nd Level	June 30, 2019	June 30, 2020
Covered Active Members	4,158	4,198
Survivors Included in the Valuation		
Deferred (eligible, but not currently receiving benefits)	16	15
Receiving Benefits	77	76
Total	93	91
Accrued Liabilities	\$2,560,774	\$2,405,625
Market Value of Assets (MVA)	12,962,320	13,389,672
Unfunded Liability/(Excess Assets)	(10,401,546)	(10,984,046)
Required Employer Monthly Premium Per Member		
Total Premium Required	\$1.70	\$1.70
Premium Required After Employee Contributions	\$0.00	\$0.00
Employer Premium After Amortization of Unfunded Liability/(Excess Assets)	\$0.00	\$0.00
Funded Ratio Based on MVA	506.2%	556.6%
Public Agency 3 rd Level	June 30, 2019	June 30, 2020
Covered Active Members	45,811	45,256
Survivors Included in the Valuation		
Deferred (eligible, but not currently receiving benefits)	182	181
Receiving Benefits	593	592
Total	775	773
Accrued Liabilities	\$31,845,095	\$30,990,981
Market Value of Assets (MVA)	126,394,624	128,410,622
Unfunded Liability/(Excess Assets)	(94,549,529)	(97,419,641)
Required Employer Monthly Premium Per Member		
Total Premium Required	\$2.70	\$2.60
Premium Required After Employee Contributions	\$0.70	\$0.60
Employer Premium After Amortization of Unfunded Liability/(Excess Assets)	\$0.00	\$0.00
Funded Ratio Based on MVA	396.9%	414.3%

Liabilities and Funding Requirements

Comparison of Current and Prior Year Results (continued)

Public Agency 4 th Level	June 30, 2019	June 30, 2020
Covered Active Members	73,021	73,311
Survivors Included in the Valuation		
Deferred (eligible, but not currently receiving benefits)	216	210
Receiving Benefits	1,015	1,013
Total	1,231	1,223
Accrued Liabilities	\$145,555,960	\$143,651,151
Market Value of Assets (MVA)	153,251,364	153,766,711
Unfunded Liability/(Excess Assets)	(7,695,404)	(10,115,561)
Required Employer Monthly Premium Per Member		
Total Premium Required	\$7.60	\$7.40
Premium Required After Employee Contributions	\$5.60	\$5.40
Employer Premium After Amortization of Unfunded Liability/(Excess Assets)	\$5.20	\$4.70
Funded Ratio Based on MVA	105.3%	107.0%
Public Agency Indexed Level	June 30, 2019	June 30, 2020
Covered Active Members	11,094	11,146
Survivors Included in the Valuation		
Deferred (eligible, but not currently receiving benefits)	18	20
Receiving Benefits	118	112
Total	136	132
Accrued Liabilities	\$19,880,662	\$19,718,925
Market Value of Assets (MVA)	26,787,538	27,295,626
Unfunded Liability/(Excess Assets)	(6,906,876)	(7,576,701)
Required Employer Monthly Premium Per Member		
Before Amortization of Unfunded Liability/(Excess Assets)	\$8.60	\$8.80
After Amortization of Unfunded Liability/(Excess Assets)	\$4.80	\$4.70
After Employer/Employee Premium Sharing	\$2.40	\$2.35
Funded Ratio Based on MVA	134.7%	138.4%

Liabilities and Funding Requirements

Development of Normal Costs

The following six tables shows the development of the Normal Cost using the Modified Term Method.

State 5th Level Pool

Year	Present Value of Future Benefits (PVB)	Members	Weight	Normal Cost (PVB / Members / 12)
2010	\$9,154,254	79,587	1%	\$9.59
2011	5,373,209	77,714	3%	5.76
2012	6,139,925	71,759	5%	7.13
2013	7,338,701	71,180	7%	8.59
2014	7,028,821	72,848	9%	8.04
2015	6,512,517	74,372	11%	7.30
2016	7,840,308	75,782	13%	8.62
2017	6,137,840	76,638	15%	6.67
2018	4,438,508	77,362	17%	4.78
2019	6,939,992	78,011	19%	7.41
Final Weighted Average Normal Cost				\$7.10

Schools 5th Level Pool

Year	Present Value of Future Benefits (PVB)	Members	Weight	Normal Cost (PVB / Members / 12)
2010	\$798,230	10,203	1%	\$6.52
2011	800,042	9,811	3%	6.80
2012	664,187	10,123	5%	5.47
2013	434,050	9,944	7%	3.64
2014	350,143	10,287	9%	2.84
2015	688,776	10,490	11%	5.47
2016	196,198	10,259	13%	1.59
2017	865,145	10,557	15%	6.83
2018	966,679	10,894	17%	7.39
2019	1,187,318	11,190	19%	8.84
Final Weighted Average Normal Cost				\$5.80

Public Agencies 1st Level Pool

Year	Present Value of Future Benefits (PVB)	Members	Weight	Normal Cost (PVB / Members / 12)
2010	\$2,140,841	138,470	1%	\$1.29
2011	2,206,308	134,255	3%	1.37
2012	2,907,446	132,754	5%	1.83
2013	2,455,873	129,796	7%	1.58
2014	1,768,146	132,024	9%	1.12
2015	1,880,141	134,879	11%	1.16
2016	2,246,151	139,581	13%	1.34
2017	2,396,671	141,063	15%	1.42
2018	2,433,276	140,339	17%	1.44
2019	2,062,284	141,374	19%	1.22
Final Weighted Average Normal Cost				\$1.30

Liabilities and Funding Requirements

Development of Normal Costs (continued)

Public Agencies 2nd Level Pool

Year	Present Value of Future Benefits (PVB)	Members	Weight	Normal Cost (PVB / Members / 12)
2010	\$2,676,787	138,470	1%	\$1.61
2011	2,758,413	134,255	3%	1.71
2012	3,635,518	132,754	5%	2.28
2013	3,070,402	129,796	7%	1.97
2014	2,210,692	132,024	9%	1.40
2015	2,350,573	134,879	11%	1.45
2016	2,808,255	139,581	13%	1.68
2017	2,996,568	141,063	15%	1.77
2018	3,042,610	140,339	17%	1.81
2019	2,578,366	141,374	19%	1.52
Final Weighted Average Normal Cost				\$1.70

Public Agencies 3rd Level Pool

Year	Present Value of Future Benefits (PVB)	Members	Weight	Normal Cost (PVB / Members / 12)
2010	\$4,168,467	138,470	1%	\$2.51
2011	4,294,152	134,255	3%	2.67
2012	5,662,785	132,754	5%	3.55
2013	4,779,675	129,796	7%	3.07
2014	3,442,027	132,024	9%	2.17
2015	3,658,916	134,879	11%	2.26
2016	4,371,918	139,581	13%	2.61
2017	4,665,865	141,063	15%	2.76
2018	4,739,268	140,339	17%	2.81
2019	4,013,972	141,374	19%	2.37
Final Weighted Average Normal Cost				\$2.60

Public Agencies 4th Level Pool

Year	Present Value of Future Benefits (PVB)	Members	Weight	Normal Cost (PVB / Members / 12)
2010	\$11,894,559	138,470	1%	\$7.16
2011	12,264,909	134,255	3%	7.61
2012	15,990,219	132,754	5%	10.04
2013	13,604,179	129,796	7%	8.73
2014	9,670,598	132,024	9%	6.10
2015	10,379,812	134,879	11%	6.41
2016	12,451,264	139,581	13%	7.43
2017	13,188,005	141,063	15%	7.79
2018	13,382,146	140,339	17%	7.95
2019	11,485,567	141,374	19%	6.77
Final Weighted Average Normal Cost				\$7.40

Liabilities and Funding Requirements

Development of Funding Requirements

The following table develops the annual premiums required for fiscal year 2021-22 for the State 5th and Schools 5th Level Pools.

June 30, 2020	State 5 th Level	Schools 5 th Level
1) Development of Unfunded Liability		
a) Present Value of Future Benefits for Current Survivors as of 6/30/2020	\$149,177,628	\$13,376,527
b) Reserve for Unclaimed Benefits as of 6/30/2020	1,827,000	891,000
c) Total Accrued Liabilities as of 6/30/2020 [(1a) + (1b)]	151,004,628	14,267,527
d) Market Value of Assets as of 6/30/2020	112,099,536	88,551,569
e) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(1c) - (1d)]	\$38,905,092	(\$74,284,042)
2) Development of Normal Cost		
a) Total Per Member, Per Month 2020/2021 Term Insurance Normal Cost rounded to the nearest \$0.10	\$7.10	\$5.80
3) 2021 Projected Unfunded Liability		
a) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(1e)]	\$38,905,092	(\$74,284,042)
b) Projected Normal Cost Contributions with Interest 7/1/2020 – 6/30/2021	6,971,083	750,732
c) Projected UAL Payment 7/1/2020 – 6/30/2021	4,145,298	(750,732)
d) Projected Required Contributions 7/1/2020 – 6/30/2021 [(3b) + (3c)]	11,116,381	—
e) Projected Employee Contributions 7/1/2020 – 6/30/2021	5,569,200	268,800
f) Changes in Contributions due to Contribution (Gain)/Loss ¹	134,669	(55,082)
g) Excess Assets due to Employee Contributions [maximum, (\$0, (3e) - (3d))]	—	268,800
h) Projected UAL/(Excess Assets) as of 6/30/2021 [(3a) * 1.07 - ((3c) + (3f) + (3g)) * 1.07^{1/2}]	\$37,201,216	(\$78,928,433)
4) Required Contribution		
a) Required Normal Cost Per Member, Per Month [(2c)]	\$7.10	\$5.80
b) Projected Active Members as of 6/30/2021	78,700	11,200
c) Required Normal Cost Contribution [(4a) * (4b) * 12 * (1.07) ^{1/2}]	\$6,935,954	\$806,342
d) Amortization of the UAL/(Excess Assets) ²	4,153,846	(806,342)
e) Total Required Contributions [(4c) + (4d)]	11,089,800	0.00
f) Required Contributions Per Member, Per Month [(4e) / (4b) / 12], rounded to the nearest \$0.10	\$11.70	\$0.00
g) Amortization Period	See Table on Pg. 18	30-year
5) 2021/2022 Required Employer and Employee Premiums with Cost Sharing Provision		
a) Required Employee Premium Per Member, Per Month [maximum, (\$2, (4f) / 2)]	\$5.85	\$2.00
b) Required Employer Premium Per Member, Per Month [maximum, (\$0, (4f) - (5a))]	\$5.85	\$0.00

(1) This reflects differences in calculated Normal Costs from the prior year and the current year, as well as differences in Actual and Estimated covered members

(2) See amortization schedule on Page 18

Liabilities and Funding Requirements

Development of Funding Requirements (continued)

The following table develops the annual premiums required for fiscal year 2021-22 for the Public Agency 1st, 2nd, 3rd, and 4th Level Pools.

June 30, 2020	Public Agency 1 st Level	Public Agency 2 nd Level	Public Agency 3 rd Level	Public Agency 4 th Level
1) Development of Unfunded Liability				
a) Present Value of Future Benefits for Current Survivors as of 6/30/2020	\$2,846,664	\$2,321,925	\$30,390,381	\$141,165,951
b) Reserve for Unclaimed Benefits as of 6/30/2020	95,040	83,700	600,600	2,485,200
c) Total Accrued Liabilities as of 6/30/2020 [(1a) + (1b)]	2,941,704	2,405,625	30,990,981	143,651,151
d) Market Value of Assets as of 6/30/2020	57,807,635	13,389,672	128,410,622	153,766,711
e) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(1c) - (1d)]	(\$54,865,931)	(\$10,984,046)	(\$97,419,641)	(\$10,115,561)
2) Development of Normal Cost				
a) Total Per Member, Per Month 2020/2021 Term Insurance Normal Cost rounded to the nearest \$0.10	\$1.30	\$1.70	\$2.60	\$7.40
3) 2021 Projected Unfunded Liability				
a) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(1e)]	(\$54,865,931)	(\$10,984,046)	(\$97,419,641)	(\$10,115,561)
b) Projected Normal Cost Contributions with Interest 7/1/2020 – 6/30/2021	126,860	88,628	1,534,979	6,886,675
c) Projected UAL Payment 7/1/2020 – 6/30/2021	(126,860)	(88,628)	(1,534,979)	(596,980)
d) Projected Required Contributions 7/1/2020 – 6/30/2021 [(3b) + (3c)]	—	—	—	6,289,695
e) Projected Employee Contributions 7/1/2020 – 6/30/2021	175,200	100,800	1,099,200	1,752,000
f) Changes in Contributions due to Contribution (Gain)/Loss ²	10,788	41	71,933	166,990
g) Excess Assets due to Employee Contributions [maximum, (\$0, (3e) - (3d))]	175,200	100,800	1,099,200	—
h) Projected UAL/(Excess Assets) as of 6/30/2021 [(3a) * 1.07 - ((3c) + (3f) + (3g)) * 1.07^{1/2}]	(\$58,767,708)	(\$11,765,563)	(\$103,862,650)	(\$10,378,864)
4) Required Contribution				
a) Required Normal Cost Per Member, Per Month [(2c)]	\$1.30	\$1.70	\$2.60	\$7.40
b) Projected Active Members as of 6/30/2021	7,200	4,200	45,300	73,300
c) Required Normal Cost Contribution [(4a) * (4b) * 12 * (1.07) ^{1/2}]	\$116,185	\$88,628	\$1,461,991	\$6,733,003
d) Amortization of the UAL/(Excess Assets)	(116,185)	(88,628)	(1,461,991)	(808,574)
e) Total Required Contributions [(4c) + (4d)]	0.00	0.00	0.00	5,924,429
f) Required Contributions Per Member, Per Month [(4e) / (4b) / 12], rounded to the nearest \$0.10	\$0.00	\$0.00	\$0.00	\$6.70
g) Amortization Period	30-year	30-year	30-year	30-year
5) 2021/2022 Required Employer/Employee Premiums				
a) Required Employee Premium Per Member, Per Month [\$2]	\$2.00	\$2.00	\$2.00	\$2.00
b) Required Employer Premium Per Member, Per Month [maximum, (\$0, (4f) - (5a))]	\$0.00	\$0.00	\$0.00	\$4.70

(1) Mortality experience and survivor distribution are assumed to be homogeneous across all Public Agency pools and are added together to develop normal costs in order to improve credibility of the data. This is further explained in the Actuarial Funding Methods section.

(2) This reflects differences in calculated Normal Costs from the prior year and the current year, as well as differences in Actual and Estimated members.

Liabilities and Funding Requirements

Development of Funding Requirements (continued)

The following table develops the annual premiums required for fiscal year 2021-22 for the Public Agency Indexed Level Pool.

June 30, 2020	Public Agency Indexed Level
1) Development of Unfunded Liability	
a) Present Value of Future Benefits for Current Survivors as of 6/30/2020	\$15,411,553
b) Present Value of Future Benefits for Active Members as of 6/30/2020	12,671,081
c) Reserve for Unclaimed Benefits as of 6/30/2020	62,412
d) Total Present Value of Future Benefits as of 6/30/2020 [(1a) + (1b)]	\$28,082,633
e) Present Value of Future Normal Costs as of 6/30/2020	8,426,121
f) Total Accrued Liabilities as of 6/30/2020 [(1c) + (1d) - (1e)]	19,718,925
g) Market Value of Assets as of 6/30/2020	\$27,295,626
h) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(1f) - (1g)]	(\$7,576,701)
2) Development of Normal Cost	
a) Required Entry Age Normal Cost	\$1,178,722
b) Active Members as of 6/30/2020	11,146
c) Total Per Member, Per Month 2020/2021 Entry Age Normal Cost [(2a) / (2b) / 12], rounded to the nearest \$0.10	\$8.80
3) 2021 Projected Unfunded Liability	
a) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(1h)]	(\$7,576,701)
b) Projected Normal Cost Contributions with Interest 7/1/2020 – 6/30/2021	1,184,935
c) Projected UAL Payment 7/1/2020 – 6/30/2021	(543,339)
d) Projected Required Contributions 7/1/2020 – 6/30/2021 [(3b) + (3c)]	641,596
e) Projected Employee Contributions 7/1/2020 – 6/30/2021	319,680
f) Changes in Contributions due to Contribution (Gain)/Loss ¹	(28,848)
g) Excess Assets due to Employee Contributions [maximum, (\$0, (3e) - (3d))]	—
h) Projected UAL/(Excess Assets) as of 6/30/2021 [(3a) * 1.07 - ((3c) + (3f) + (3g)) * 1.07^{1/2}]	(\$7,515,196)
4) Required Contribution	
a) Required Normal Cost Per Member, Per Month [(2c)]	\$8.80
b) Projected Active Members as of 6/30/2021	11,100
c) Required Normal Cost Contribution [(4a) * (4b) * 12 * (1.07) ^{1/2}]	\$1,212,492
d) Amortization of the UAL/(Excess Assets)	(585,478)
e) Total Required Contributions [(4c) + (4d)]	627,014
f) Required Contributions Per Member, Per Month [(4e) / (4b) / 12], rounded to the nearest \$0.10	\$4.70
g) Amortization Period	30-year
5) 2021/2022 Required Employer and Employee Premiums with Cost Sharing Provision	
a) Required Employee Premium Per Member, Per Month [maximum (\$2, (4f) / 2)]	\$2.35
b) Required Employer Premium Per Member, Per Month [maximum (\$0, (4f) - (5a))]	\$2.35

(1) This reflects differences in calculated Normal Costs from the prior year and the current year, as well as differences in Actual and Estimated members.

Liabilities and Funding Requirements

Schedule of Amortization Bases

The schedule below shows the development of the required payments on the Amortization Bases in accordance with the Amortization Policy. In accordance with Board policy, a plan with a funding excess will have their funding excess amortized over a minimum of 30 years.

State 5th Level Pool

	Date Established	Remaining Period	Original Period	Balance 6/30/2020	Payment 2020-21	Projected Balance 6/30/2021	Payment 2021-22	Projected Balance 6/30/2022	Projected Payment 2022-23
Fresh Start Bases Prior to 2019	6/30/2019	14	15	\$38,484,676	\$4,084,859	\$36,953,192	\$4,084,858	\$35,314,505	\$4,084,858
Fresh Start 2019 Bases	6/30/2019	4	5	256,339	60,439	211,764	60,439	164,069	60,439
Fresh Start 2020 Bases	6/30/2020	5	5	164,077	134,669	36,260	8,549	29,955	8,549
Total				\$38,905,092	\$4,279,967	\$37,201,216	\$4,153,846	\$35,508,529	\$4,153,846

(Gain)/Loss Analysis 6/30/2019 – 6/30/2020

The following table develops the asset and demographic gains and losses between June 30, 2019 and June 30, 2020 for the State and Schools 5th Level Pools.

	State 5 th Level	Schools 5 th Level
1) Prior Year Unfunded Accrued Liability/(Excess Assets) Development		
a) Accrued Liability as of 6/30/2019	\$151,352,423	\$15,546,665
b) Market Value of Assets as of 6/30/2019	112,515,580	86,061,386
c) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2019 [(1a) - (1b)]	\$38,836,842	(\$70,514,721)
2) Development of Projected Unfunded Accrued Liability/(Excess Assets) for 6/30/2020		
a) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2019 [(1c)]	\$38,836,842	(\$70,514,721)
b) Projected Unfunded Accrued Liability/(Excess Assets) Payment with Interest 7/1/2019 – 6/30/2020	4,145,298	(750,732)
c) Projected Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(2a) * 1.07 - (2b)]	37,410,123	(74,700,019)
3) Development of Projected Assets		
a) Market Value of Assets as of 6/30/2019	\$112,515,580	\$86,061,386
b) Net Cash Flows 7/1/2019 – 6/30/2020	(5,424,653)	(1,302,607)
c) Net Transfer of Assets Into and Out of this Pool	—	—
d) Expected Assets as of 6/30/2020 [(3a) * 1.07 + ((3b) + (3c)) * 1.07^{1/2}]	\$114,780,366	\$90,738,255
4) Current Year Unfunded Liability/(Excess Assets) Development		
a) Accrued Liability as of 6/30/2020	\$151,004,628	\$14,267,527
b) Market Value of Assets as of 6/30/2020	112,099,536	88,551,569
c) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(4a) - (4b)]	\$38,905,092	(\$74,284,042)
5) Development of (Gain)/Loss due to changes in Reserve for Unclaimed Benefits		
a) Reserve for Unclaimed Benefits as of 6/30/2019	\$2,961,000	\$1,773,000
b) Reserve for Unclaimed Benefits as of 6/30/2020	1,827,000	891,000
c) (Gain)/Loss due to changes in Reserve for Unclaimed Benefits [(5b) - (5a)]	(1,134,000)	(882,000)
6) (Gain)/Loss for the Period of 6/30/2019 – 6/30/2020		
a) Total (Gain)/Loss [(4c) - (2c)]	\$1,494,969	\$415,977
b) Investment (Gain)/Loss [(3d) - (4b)]	2,680,830	2,186,686
c) (Gain)/Loss due to changes in Reserve for Unclaimed Benefits [(5c)]	(1,134,000)	(882,000)
d) Non-Investment (Gain)/Loss [(6a) - (6b) - (6c)]	(51,861)	(888,709)

Liabilities and Funding Requirements

(Gain)/Loss Analysis 6/30/2019 – 6/30/2020 (continued)

The following table develops the asset and demographic gains and losses between June 30, 2019 and June 30, 2020 for the Public Agency 1st, 2nd, 3rd, and 4th Level Pools.

	Public Agency 1 st Level	Public Agency 2 nd Level	Public Agency 3 rd Level	Public Agency 4 th Level
1) Prior Year Unfunded Accrued Liability/(Excess Assets) Development				
a) Accrued Liability as of 6/30/2019	\$3,032,539	\$2,560,774	\$31,845,095	\$145,555,960
b) Market Value of Assets as of 6/30/2019	55,422,944	12,962,320	126,394,624	153,251,364
c) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2019 [(1a) - (1b)]	(\$52,390,404)	(\$10,401,546)	(\$94,549,528)	(\$7,695,404)
2) Development of Projected Unfunded Accrued Liability/(Excess Assets) for 6/30/2020				
a) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2019 [(1c)]	(\$52,390,404)	(\$10,401,546)	(\$94,549,528)	(\$7,695,404)
b) Projected Unfunded Accrued Liability/(Excess Assets) Payment with Interest 7/1/2019 – 6/30/2020	(126,860)	(88,628)	(1,534,979)	(596,979)
c) Projected Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(2a) * 1.07 - (2b)]	(55,930,873)	(11,041,026)	(99,633,016)	(7,637,103)
3) Development of Projected Assets				
a) Market Value of Assets as of 6/30/2019	\$55,422,944	\$12,962,320	\$126,394,624	\$153,251,364
b) Net Cash Flows 7/1/2019 – 6/30/2020	(72,632)	(143,970)	(1,750,862)	(7,455,359)
c) Net Transfer of Assets Into and Out of this Pool	—	—	(1,787,874)	1,787,874
d) Expected Assets as of 6/30/2020 [(3a) * 1.07 + ((3b) + (3c)) * 1.07^{1/2}]	\$59,227,418	\$13,720,758	\$131,581,750	\$158,116,467
4) Current Year Unfunded Liability/(Excess Assets) Development				
a) Accrued Liability as of 6/30/2020	\$2,941,704	\$2,405,625	\$30,990,981	\$143,651,151
b) Market Value of Assets as of 6/30/2020	57,807,635	13,389,672	128,410,622	153,766,711
c) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(4a) - (4b)]	(\$54,865,931)	(\$10,984,046)	(\$97,419,641)	(\$10,115,561)
5) Development of (Gain)/Loss due to changes in the Reserve for Unclaimed Benefits				
a) Reserve for Unclaimed Benefits as of 6/30/2019	\$192,240	\$137,700	\$1,104,600	\$3,784,800
b) Reserve for Unclaimed Benefits as of 6/30/2020	95,040	83,700	600,600	2,485,200
c) (Gain)/Loss due to changes in Reserve for Unclaimed Benefits [(5b) - (5a)]	(97,200)	(54,000)	(504,000)	(1,299,600)
6) (Gain)/Loss for the Period of 6/30/2019 – 6/30/2020				
a) Total (Gain)/Loss [(4c) - (2c)]	\$1,064,942	\$56,979	\$2,213,375	(\$2,478,457)
b) Investment (Gain)/Loss [(3d) - (4b)]	1,419,783	331,086	3,171,128	4,349,756
c) (Gain)/Loss due to changes in Reserve for Unclaimed Benefits [(5c)]	(97,200)	(54,000)	(504,000)	(1,299,600)
d) Non-Investment (Gain)/Loss [(6a) - (6b) - (6c)]	(257,642)	(220,107)	(453,753)	(5,528,613)

Liabilities and Funding Requirements

(Gain)/Loss Analysis 6/30/2019 – 6/30/2020 (continued)

The following table develops the asset and demographic gains and losses between June 30, 2019 and June 30, 2020 for the Public Agency Indexed Level Pool.

	Public Agency Indexed Level
1) Prior Year Unfunded Accrued Liability/(Excess Assets) Development	
a) Accrued Liability as of 6/30/2019	\$19,880,662
b) Market Value of Assets as of 6/30/2019	26,787,538
c) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2019 [(1a) - (1b)]	(\$6,906,876)
2) Development of Projected Unfunded Accrued Liability/(Excess Assets) for 6/30/2020	
a) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2019 [(1c)]	(\$6,906,876)
b) Projected Unfunded Accrued Liability/(Excess Assets) Payment with Interest 7/1/2019 – 6/30/2020	(543,339)
c) Projected Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(2a) * 1.07 - (2b)]	(6,847,018)
3) Development of Projected Assets	
a) Market Value of Assets as of 6/30/2019	\$26,787,538
b) Net Cash Flows 7/1/2019 – 6/30/2020	(623,585)
c) Net Transfer of Assets Into and Out of this Pool	—
d) Expected Assets as of 6/30/2020 [(3a) * 1.07 + ((3b) + (3c)) * 1.07^{1/2}]	\$28,017,624
4) Current Year Unfunded Liability/(Excess Assets) Development	
a) Accrued Liability as of 6/30/2020	\$19,718,925
b) Market Value of Assets as of 6/30/2020	27,295,626
c) Unfunded Accrued Liability/(Excess Assets) as of 6/30/2020 [(4a) - (4b)]	(\$7,576,701)
5) Development of (Gain)/Loss due to changes in the Reserve for Unclaimed Benefits	
a) Reserve for Unclaimed Benefits as of 6/30/2019	\$133,740
b) Reserve for Unclaimed Benefits as of 6/30/2020	62,412
c) (Gain)/Loss due to changes in Reserve for Unclaimed Benefits [(5b) - (5a)]	(71,328)
6) (Gain)/Loss for the Period of 6/30/2019 – 6/30/2020	
a) Total (Gain)/Loss [(4c) - (2c)]	(\$729,683)
b) Investment (Gain)/Loss [(3d) - (4b)]	721,997
c) (Gain)/Loss due to changes in Reserve for Unclaimed Benefits [(5c)]	(71,328)
c) Non-Investment (Gain)/Loss [(6a) - (6b) - (6c)]	(1,380,353)

Risk Analysis

- 22 Analysis of Future Investment Return Scenarios
- 23 Analysis of Discount Rate Sensitivity
- 24 Analysis of Mortality Sensitivity

Risk Analysis

Analysis of Future Investment Return Scenarios

To give the reader a sense of the short term investment risk to contributions, FY 2022-23 contributions are shown below based on the following FY 2020-21 investment return scenarios:

- -11% investment return (5th percentile return)
- 7% investment return (50th percentile return)
- 25% investment return (95th percentile return)
- 12.6% investment return, this is the Year-to-Date return as of January 31, 2021

The tables below show FY 2022-23 projected employee and employer contributions under the investment return scenarios mentioned above.

(11%) Return

	2022-23 Employer Monthly Premium	2022-23 Employee Monthly Premium
State 5 th Level	\$8.40	\$8.40
Schools 5 th Level	0.00	2.00
PA 1 st Level	0.00	2.00
PA 2 nd Level	0.00	2.00
PA 3 rd Level	0.00	2.00
PA 4 th Level	7.20	2.00
PA Indexed Level	3.80	3.80

7% Return

	2022-23 Employer Monthly Premium	2022-23 Employee Monthly Premium
State 5 th Level	\$5.85	\$5.85
Schools 5 th Level	0.00	2.00
PA 1 st Level	0.00	2.00
PA 2 nd Level	0.00	2.00
PA 3 rd Level	0.00	2.00
PA 4 th Level	4.70	2.00
PA Indexed Level	2.40	2.40

25% Return

	2022-23 Employer Monthly Premium	2022-23 Employee Monthly Premium
State 5 th Level	\$3.35	\$3.35
Schools 5 th Level	0.00	2.00
PA 1 st Level	0.00	2.00
PA 2 nd Level	0.00	2.00
PA 3 rd Level	0.00	2.00
PA 4 th Level	2.30	2.00
PA Indexed Level	0.00	2.00

12.6% Return

	2022-23 Employer Monthly Premium	2022-23 Employee Monthly Premium
State 5 th Level	\$5.10	\$5.10
Schools 5 th Level	0.00	2.00
PA 1 st Level	0.00	2.00
PA 2 nd Level	0.00	2.00
PA 3 rd Level	0.00	2.00
PA 4 th Level	4.00	2.00
PA Indexed Level	1.90	2.00

Risk Analysis

Analysis of Discount Rate Sensitivity

To give the reader a sense of long-term investment risk to contributions, 2021-22 contributions are presented below using discount rates that are 1 percent lower and 1 percent higher than the valuation discount rate of 7 percent. This analysis will give an indication of the potential required contributions if the PERF had investment returns of 6 percent or 8 percent over the long-term.

6% Discount Rate (-1%)

	2021-22 Employer Monthly Premium	2021-22 Employee Monthly Premium
State 5 th Level	\$8.00	\$8.00
Schools 5 th Level	0.00	2.00
PA 1 st Level	0.00	2.00
PA 2 nd Level	0.00	2.00
PA 3 rd Level	0.00	2.00
PA 4 th Level	5.80	2.00
PA Indexed Level	3.95	3.95

Increase in Contribution

	2021-22 Employer Monthly Premium	2021-22 Employee Monthly Premium
State 5 th Level	\$2.15	\$2.15
Schools 5 th Level	0.00	0.00
PA 1 st Level	0.00	0.00
PA 2 nd Level	0.00	0.00
PA 3 rd Level	0.00	0.00
PA 4 th Level	1.10	0.00
PA Indexed Level	1.60	1.60

8% Discount Rate (+1%)

	2021-22 Employer Monthly Premium	2021-22 Employee Monthly Premium
State 5 th Level	\$4.20	\$4.20
Schools 5 th Level	0.00	2.00
PA 1 st Level	0.00	2.00
PA 2 nd Level	0.00	2.00
PA 3 rd Level	0.00	2.00
PA 4 th Level	2.80	2.00
PA Indexed Level	0.00	2.00

Decrease in Contribution

	2021-22 Employer Monthly Premium	2021-22 Employee Monthly Premium
State 5 th Level	(\$1.65)	(\$1.65)
Schools 5 th Level	0.00	0.00
PA 1 st Level	0.00	0.00
PA 2 nd Level	0.00	0.00
PA 3 rd Level	0.00	0.00
PA 4 th Level	(1.90)	0.00
PA Indexed Level	(2.35)	(0.35)

Risk Analysis

Analysis of Mortality Sensitivity

To give the reader a sense of the long-term mortality risk to contributions, 2021-22 contributions are shown below using mortality rates that are 10 percent lower and 10 percent higher than the mortality tables used in the valuation. These mortality rates were only applied to individuals who were receiving a benefit or in a deferral status as of the valuation date. This analysis will give an indication of the potential required contributions if mortality were to be 10 percent lower or 10 percent higher than expected over the long term.

Lower Mortality Rates (-10%)

	2021-22 Employer Monthly Premium	2021-22 Employee Monthly Premium
State 5 th Level	\$6.35	\$6.35
Schools 5 th Level	0.00	2.00
PA 1 st Level	0.00	2.00
PA 2 nd Level	0.00	2.00
PA 3 rd Level	0.00	2.00
PA 4 th Level	5.10	2.00
PA Indexed Level	2.50	2.50

Increase in Contribution

	2021-22 Employer Monthly Premium	2021-22 Employee Monthly Premium
State 5 th Level	\$0.50	\$0.50
Schools 5 th Level	0.00	0.00
PA 1 st Level	0.00	0.00
PA 2 nd Level	0.00	0.00
PA 3 rd Level	0.00	0.00
PA 4 th Level	0.40	0.00
PA Indexed Level	0.15	0.15

Higher Mortality Rate (+10%)

	2021-22 Employer Monthly Premium	2021-22 Employee Monthly Premium
State 5 th Level	\$5.45	\$5.45
Schools 5 th Level	0.00	2.00
PA 1 st Level	0.00	2.00
PA 2 nd Level	0.00	2.00
PA 3 rd Level	0.00	2.00
PA 4 th Level	4.50	2.00
PA Indexed Level	2.20	2.20

Decrease in Contribution

	2021-22 Employer Monthly Premium	2021-22 Employee Monthly Premium
State 5 th Level	(\$0.40)	(\$0.40)
Schools 5 th Level	0.00	0.00
PA 1 st Level	0.00	0.00
PA 2 nd Level	0.00	0.00
PA 3 rd Level	0.00	0.00
PA 4 th Level	(0.20)	0.00
PA Indexed Level	(0.15)	(0.15)

Appendices

A-1 Appendix A – Statement of Actuarial Methods and Assumptions

B-1 Appendix B – Summary of Principal Plan Provisions

C-1 Appendix C – Demographic and Experience Information

D-1 Appendix D – 1959 Survivor Deaths Per Year

E-1 Appendix E – List of Contracting Agencies

F-1 Appendix F – Glossary of Actuarial Terms

Appendix A – Statement of Actuarial Methods and Assumptions

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.

Actuarial Funding Method for Public Agency 1st, 2nd, 3rd, and 4th Level, and State and Schools 5th Level Pools

The actuarial funding method used, as provided in State statute for Public Agency 1st, 2nd, 3rd, and 4th level, and State and Schools 5th level pools, is called the Term Insurance method. This is a terminal funding arrangement with no pre-funding of the survivor benefits payable on account of deaths expected to occur beyond those in the coming year.

The Normal Cost for the year is equal to the Expected Claims (present value of benefits arising from deaths) that will occur in the coming fiscal year. The expected claims for the coming fiscal year is determined as the expected claim value divided by the expected member months for the coming fiscal year. The Normal Cost (or Expected Claims) per member, per month for the coming fiscal year is equal to a weighted average of ten years of Normal Costs. The Normal Cost (or Actual Claims divided by Actual Members) for each of the previous years are calculated as the Present Value of Benefits divided by the member counts. The ten years used in this calculation end one year before the valuation date. The most recent year is excluded, and the chart below shows the weights given to the years prior to and including the valuation year. The Present Value of Benefits for current Survivors are recalculated each year, using the current assumptions. The reason for excluding the claims from the most recent year is that when new deaths occur each year, it is often unknown which benefit will ultimately apply (i.e. 1957 Survivor, Industrial Death, Pre-Retirement Option 2, or 1959 Survivor). Many times, new deaths are initially placed under the 1959 Survivor roll, but ultimately are reclassified to another roll some time later. This can create extreme volatility in the Normal Cost calculation between valuation years, especially for smaller pools.

Weights for Historical Data to Calculate Expected Claims

The table below displays the weights applied to historical Present Value of Benefits and member counts to develop the expected claims per member, per month.

Data 't' Years Ago	Weights
0	0.0%
1	19.0%
2	17.0%
3	15.0%
4	13.0%
5	11.0%
6	9.0%
7	7.0%
8	5.0%
9	3.0%
10	1.0%

A Reserve for Unclaimed Benefits is included in the Accrued Liability. This is done by finding all survivors that are eligible to receive a benefit but are not currently being paid the benefit. This population is assumed to be spouses that were in deferral but have not received a benefit yet due to unforeseen reasons. The amount of this reserve is calculated as the difference between each individual's age as of the valuation date rounded to the nearest whole year minus the age for which their deferral ends, multiplied by their monthly benefit amount. Based on expected lifetimes, the maximum assumed age for receiving benefits is 86.

Appendix A - Statement of Actuarial Methods and Assumptions

Actuarial Funding Method for Public Agency 1st, 2nd, 3rd and 4th Level, and State and Schools 5th Level Pools (continued)

Based upon current mortality tables, an individual who starts receiving a benefit at age 62 is expected to continue receiving until age 86.4 based, while an individual who starts receiving a benefit at age 60 is expected to continue receiving until age 86.1.

The Accrued Liability is equal to the Present Value of Benefits payable to current survivors, plus the Reserve for Unclaimed Benefits. If the Accrued Liability exceeds the Market Value of Assets, the difference is called the Unfunded Liability. On the other hand, if the Market Value of Assets exceeds the Accrued Liability, the difference is called Excess Assets.

The required employer monthly premium is the total required monthly premium less the \$2.00 per month member contributions as required by State Statute Section 21581. For all levels, existing excess assets in the pool will be amortized and directly used to offset required employer contributions. However, for the State and Schools 5th Level pools, if the total required monthly premium after amortization of excess assets exceeds \$4.00, the member and the employer shall evenly share the required monthly premium. For the current valuation date, the unfunded liability for the State 5th Level pool was amortized using CalPERS amortization policy. Excess assets for the Schools 5th Level pool, and Public Agency 1st, 2nd, and 3rd Level pools were sufficient to offset required employer contributions, based on June 30, 2020 data and assumptions. Excess assets for the Public Agency 4th Level were amortized over a 30-year period, and are not sufficient to fully offset the required employer contribution. The resulting employer contribution for the 4th Level is \$4.70 per covered member per month.

Actuarial Funding Method for Public Agency Indexed Level Pool

The funding method used for the Public Agency Indexed Level pool is the Entry Age Normal method. Under this method, projected benefits are determined for all members and the associated liabilities are spread in a manner that produces an annual cost that increases by approximately 2 percent in each year.

The Normal Cost for the Public Agency Indexed Level pool is the portion of the total Entry Age Normal Cost, as described in the preceding paragraph that is allocated to the current fiscal year. Since there is no cost allocated to the current fiscal year for those already receiving benefits or are in a deferred status, only active members have a Normal Cost. The population demographics, excluding population growth, are assumed to remain stable for purposes of projecting the Normal Cost to the year for which the contribution requirement is being determined.

A Reserve for Unclaimed Benefits is included in the Accrued Liability. This is done by finding all survivors that are eligible to receive a benefit but are not currently being paid the benefit. This population is assumed to be spouses that were in deferral but have not received a benefit yet due to unforeseen reasons. The amount of this reserve is calculated as the difference between each individual's age as of the valuation date rounded to the nearest whole year minus the age for which their deferral ends, multiplied by their monthly benefit amount. Based on expected lifetimes, the maximum assumed age for receiving benefits is 86. Based upon current mortality tables, an individual who starts receiving a benefit at age 62 is expected to continue receiving until age 86.4 based, while an individual who starts receiving a benefit at age 60 is expected to continue receiving until age 86.1.

The Accrued Liability is equal to the Present Value of Future Benefits for both current survivors and active members, less the Present Value of Future Normal Costs.

The total required monthly premium is the sum of the individual Normal Costs divided by the number of member months. The required employer monthly premium is the total required monthly premium less the \$2.00 per month member contributions as required by State Statute Section 21581. Existing excess assets in the pool will be amortized and directly used to offset required employer contributions. However, if the total required monthly premium after amortization of excess assets exceeds \$4.00, the member and the employer shall evenly share the required monthly premium. Excess assets for the Public Agency Indexed Level are amortized over a 30-year period. The resulting employer contribution for the Indexed Level is \$2.35 per covered member per month.

Appendix A - Statement of Actuarial Methods and Assumptions

Asset Valuation Method

Commencing with the June 30, 2013 valuation, assets were and continue to be valued on a Market Value basis.

Method for Projecting Active Counts

The projected counts this year assume a stable population. Projected counts are necessary to determine employer premiums.

Actuarial Assumptions

In 2017, CalPERS completed its most recent asset liability management study incorporating actuarial assumptions and strategic asset allocation. In December 2017, the CalPERS Board of Administration adopted relatively modest changes to the asset allocation that reduced the expected volatility of returns. The adopted asset allocation was expected to have a long-term blended return that continued to support a discount rate assumption of 7.00%, any subsequent analysis of the expected investment return of CalPERS assets or changes to the investment allocation may result in a change to this discount rate schedule. The Board also approved several changes to the demographic assumptions that more closely aligned with actual experience.

For more details and additional rationale for the selection of the actuarial assumptions, please refer to the CalPERS Experience Study and Review of Actuarial Assumptions report from December 2017 that can be found on the CalPERS website under: "Forms and Publications". Click on "View All" and search for Experience Study.

All actuarial assumptions represent an estimate of future experience rather than observations of the estimates inherent in market data.

The actuarial assumptions used in this valuation include the investment return rate and the mortality rates for current beneficiaries. These assumptions are shown below. Actual mortality rates for active members of all pools combined are shown in Appendix D and are used in the calculation of the annual normal costs, except for the Public Agency Indexed Level.

Economic Assumptions

The prescribed discount rate assumption, adopted by the Board on December 21, 2016, is 7.00% compounded annually (net of investment and administrative expenses) as of June 30, 2020.

Demographic Assumptions:

The mortality assumptions are based on mortality rates resulting from the most recent CalPERS Experience Study adopted by the CalPERS Board. For purposes of the mortality rates, the revised rates include 15 years of projected on-going mortality improvement using 90 percent of Scale MP 2016 published by the Society of Actuaries. For more details, please refer to the experience study report that can be found on the CalPERS website.

Sample mortality rates for those who are receiving are shown in the following table:

Attained Age	Healthy Recipients		Attained Age	Healthy Recipients	
	Male	Female		Male	Female
35	0.00049	0.00027	75	0.02316	0.01635
40	0.00064	0.00037	80	0.03977	0.03007
45	0.00080	0.00054	85	0.07122	0.05418
50	0.00372	0.00346	90	0.13044	0.10089
55	0.00437	0.00410	95	0.21658	0.17698
60	0.00671	0.00476	100	0.32222	0.28151
65	0.00928	0.00637	105	0.46691	0.43491
70	0.01339	0.00926	110	1.00000	1.00000

Appendix A - Statement of Actuarial Methods and Assumptions

Indexed Level Claims Assumptions

The Public Agency Indexed Level Pool's Accrued Liability and Entry Age Normal Cost for active members are calculated based on the actuarial assumptions for the plan that the members are currently in. For instance, if a member is currently working for an employer that provides a pension in a miscellaneous 2% @ 55 plan, then the corresponding assumptions from the miscellaneous 2% @ 55 plan would be used. Additionally, if the member was working in safety police 2.7% @ 57 plan, then all the assumptions from the 2.7% @ 57 would be used. This is done to reflect the trends in the retirement based on the retirement formula and member category that an individual is working in.

The actuarial assumptions for each of these plans are as follows:

Eligible Survivor Status

For active members of both the Miscellaneous and Safety plans, the probability of having eligible survivor(s) at the date of death is assumed according to the following table:

Age at Death	Percent Having Eligible Survivor(s)
Age 20 and Under	30%
Between Ages 21 and 24	50%
Between Ages 25 and 29	70%
Between Ages 30 and 39	90%
Between Ages 40 and 49	95%
Between Ages 50 and 54	90%
Age 55 and Above	85%

Average claims are developed at every age using actual experience from the program. These average claims are then multiplied by the percentages in the above table. The results are used to estimate expected claims in the active population.

Benefit amounts and Present Value of benefits were based on average claim experience. A sample of the average claim experience is shown in the table below:

Age at Death	Present Value of Average Claim ¹ at the Time of Death ²
Age 20 and Under	\$34,461
25	105,384
30	143,852
35	137,040
40	128,914
45	110,495
50	88,743
55	72,587
60	66,160
65	64,077
70	64,456
75	63,988
Age 80 and Above	57,940

(1) Average claims were calculated using actual experience from the 1959 Survivor program and smoothed using a polynomial regression model.

(2) Values are based on an initial benefit of \$500/\$1,000/\$1,500 for one, two, or three survivors, respectively. This was the benefit level on June 30, 2000, when the Indexed Level first became effective. The valuation program increases these amounts by 2 percent per year up to the current valuation year.

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level

Pre-Retirement Mortality

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 (Not Job-Related) and Industrial (Job-Related) Death

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

Attained Age	Pre-Retirement Mortality			
	Non-Industrial Death		Industrial Death	
	Male	Female	Male	Female
20	0.00022	0.00007	0.00004	0.00004
25	0.00029	0.00011	0.00006	0.00006
30	0.00038	0.00015	0.00007	0.00007
35	0.00049	0.00027	0.00009	0.00009
40	0.00064	0.00037	0.00010	0.00010
45	0.00080	0.00054	0.00012	0.00012
50	0.00116	0.00079	0.00013	0.00013
55	0.00172	0.00120	0.00015	0.00015
60	0.00255	0.00166	0.00016	0.00016

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.

Termination with Refund

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

Years of Service	Public Agency Miscellaneous					
	Entry Age					
	20	25	30	35	40	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

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Termination with Refund (continued)

Years of Service	Public Agency Safety		
	Fire	Police	County Peace Officer
0	0.1298	0.1013	0.1188
1	0.0674	0.0636	0.0856
2	0.0320	0.0271	0.0617
3	0.0237	0.0258	0.0445
4	0.0087	0.0245	0.0321
5	0.0052	0.0086	0.0121
10	0.0005	0.0053	0.0053
15	0.0004	0.0027	0.0025
20	0.0003	0.0017	0.0012
25	0.0002	0.0012	0.0005
30	0.0002	0.0009	0.0003
35	0.0001	0.0009	0.0002

The police termination and refund rates are also used for Public Agency Local Prosecutors, Other Safety, Local Sheriff, and School Police.

Termination with Vested Benefits

Rates vary by entry age and sex. See sample rates in tables below.

Years of Service	Public Agency Miscellaneous				
	Entry Age				
	20	25	30	35	40
5	0.0422	0.0422	0.0393	0.0364	0.0344
10	0.0278	0.0278	0.0271	0.0263	0.0215
15	0.0192	0.0192	0.0174	0.0156	0.0120
20	0.0139	0.0139	0.0109	0.0079	0.0047
25	0.0083	0.0083	0.0048	0.0014	0.0007
30	0.0015	0.0015	0.0007	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000

Years of Service	Public Agency Safety		
	Fire	Police	County Peace Officer
5	0.0094	0.0163	0.0187
10	0.0064	0.0126	0.0134
15	0.0048	0.0082	0.0092
20	0.0038	0.0062	0.0064
25	0.0026	0.0058	0.0042
30	0.0014	0.0056	0.0022
35	0.0000	0.0000	0.0000

The police termination with vested benefits rates are also used for Public Agency Local Prosecutors, Other Safety, Local Sheriff, and School Police.

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

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

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

Attained Age	Public Agency Miscellaneous	
	Non-Industrial Disability	
	Male	Female
20	0.0002	0.0001
25	0.0002	0.0001
30	0.0002	0.0002
35	0.0004	0.0007
40	0.0010	0.0014
45	0.0015	0.0019
50	0.0016	0.0020
55	0.0016	0.0015
60	0.0015	0.0011

The miscellaneous non-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.

Attained Age	Public Agency Safety					
	Non-Industrial Disability			Industrial Disability		
	Fire	Police	County Peace Officer	Fire	Police	County Peace Officer
20	0.0001	0.0001	0.0001	0.0001	0.0000	0.0004
25	0.0001	0.0001	0.0001	0.0002	0.0017	0.0013
30	0.0001	0.0002	0.0001	0.0006	0.0048	0.0025
35	0.0001	0.0003	0.0004	0.0012	0.0079	0.0037
40	0.0001	0.0004	0.0007	0.0023	0.0110	0.0051
45	0.0002	0.0005	0.0013	0.0040	0.0141	0.0067
50	0.0005	0.0008	0.0018	0.0208	0.0185	0.0092
55	0.0007	0.0013	0.0010	0.0307	0.0479	0.0151
60	0.0007	0.0020	0.0006	0.0438	0.0602	0.0174

The police non-industrial disability rates are also used for Other Safety, Local Sheriff, and School Police. 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.

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Service Retirement

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

Attained Age	Public Agency Miscellaneous 1.5% @ 65					
	Years of Service					
	5	10	15	20	25	30
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
70	0.103	0.144	0.175	0.178	0.199	0.224

Attained Age	Public Agency Miscellaneous 2% @ 60					
	Years of Service					
	5	10	15	20	25	30
50	0.020	0.020	0.020	0.020	0.020	0.150
51	0.006	0.019	0.027	0.031	0.035	0.038
52	0.011	0.024	0.031	0.034	0.037	0.040
53	0.010	0.015	0.021	0.027	0.033	0.040
54	0.025	0.025	0.029	0.035	0.041	0.048
55	0.019	0.026	0.033	0.092	0.136	0.146
56	0.030	0.034	0.038	0.060	0.093	0.127
57	0.030	0.046	0.061	0.076	0.090	0.104
58	0.040	0.044	0.059	0.080	0.101	0.122
59	0.024	0.044	0.063	0.083	0.103	0.122
60	0.070	0.074	0.089	0.113	0.137	0.161
61	0.080	0.086	0.093	0.118	0.156	0.195
62	0.100	0.117	0.133	0.190	0.273	0.357
63	0.140	0.157	0.173	0.208	0.255	0.301
64	0.140	0.153	0.165	0.196	0.239	0.283
65	0.140	0.178	0.215	0.264	0.321	0.377
70	0.140	0.178	0.215	0.264	0.321	0.377

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Service Retirement (continued)

Attained Age	Public Agency Miscellaneous 2% @ 55					
	Years of Service					
	5	10	15	20	25	30
50	0.008	0.013	0.018	0.021	0.022	0.033
51	0.009	0.016	0.020	0.023	0.026	0.036
52	0.015	0.018	0.020	0.021	0.025	0.030
53	0.016	0.020	0.024	0.028	0.031	0.035
54	0.018	0.022	0.026	0.030	0.034	0.038
55	0.040	0.040	0.056	0.093	0.109	0.154
56	0.034	0.050	0.066	0.092	0.107	0.138
57	0.042	0.048	0.058	0.082	0.096	0.127
58	0.046	0.054	0.062	0.090	0.106	0.131
59	0.045	0.055	0.066	0.097	0.115	0.144
60	0.058	0.075	0.093	0.126	0.143	0.169
61	0.065	0.088	0.111	0.146	0.163	0.189
62	0.136	0.118	0.148	0.190	0.213	0.247
63	0.130	0.133	0.174	0.212	0.249	0.285
64	0.113	0.129	0.165	0.196	0.223	0.249
65	0.145	0.173	0.201	0.233	0.266	0.289
70	0.150	0.171	0.192	0.239	0.304	0.330

Attained Age	Public Agency Miscellaneous 2.5% @ 55					
	Years of Service					
	5	10	15	20	25	30
50	0.008	0.014	0.020	0.026	0.033	0.050
51	0.008	0.015	0.023	0.030	0.037	0.059
52	0.009	0.016	0.023	0.030	0.037	0.061
53	0.014	0.021	0.028	0.035	0.042	0.063
54	0.014	0.022	0.030	0.039	0.047	0.068
55	0.020	0.038	0.055	0.073	0.122	0.192
56	0.025	0.047	0.069	0.091	0.136	0.196
57	0.030	0.048	0.065	0.083	0.123	0.178
58	0.035	0.054	0.073	0.093	0.112	0.153
59	0.035	0.054	0.073	0.092	0.131	0.183
60	0.044	0.072	0.101	0.130	0.158	0.197
61	0.050	0.078	0.105	0.133	0.161	0.223
62	0.055	0.093	0.130	0.168	0.205	0.268
63	0.090	0.124	0.158	0.192	0.226	0.279
64	0.080	0.112	0.144	0.175	0.207	0.268
65	0.120	0.156	0.193	0.229	0.265	0.333
70	0.120	0.156	0.193	0.229	0.265	0.333

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Service Retirement (continued)

Attained Age	Public Agency Miscellaneous 2.7% @ 55					
	Years of Service					
	5	10	15	20	25	30
50	0.003	0.010	0.016	0.034	0.033	0.045
51	0.009	0.016	0.023	0.042	0.038	0.047
52	0.015	0.019	0.024	0.040	0.036	0.046
53	0.012	0.020	0.028	0.047	0.046	0.060
54	0.020	0.027	0.035	0.054	0.056	0.073
55	0.033	0.055	0.078	0.113	0.156	0.234
56	0.039	0.067	0.095	0.135	0.169	0.227
57	0.050	0.067	0.084	0.113	0.142	0.198
58	0.043	0.066	0.089	0.124	0.151	0.201
59	0.050	0.070	0.090	0.122	0.158	0.224
60	0.060	0.086	0.112	0.150	0.182	0.238
61	0.071	0.094	0.117	0.153	0.184	0.241
62	0.091	0.122	0.152	0.194	0.226	0.279
63	0.143	0.161	0.179	0.209	0.222	0.250
64	0.116	0.147	0.178	0.221	0.254	0.308
65	0.140	0.174	0.208	0.254	0.306	0.389
70	0.150	0.181	0.212	0.243	0.291	0.350

Attained Age	Public Agency Miscellaneous 3% @ 60					
	Years of Service					
	5	10	15	20	25	30
50	0.013	0.019	0.026	0.042	0.038	0.064
51	0.035	0.037	0.039	0.052	0.047	0.062
52	0.023	0.030	0.038	0.055	0.051	0.056
53	0.025	0.032	0.040	0.057	0.056	0.066
54	0.035	0.042	0.050	0.067	0.066	0.076
55	0.040	0.052	0.064	0.085	0.095	0.120
56	0.043	0.056	0.070	0.094	0.102	0.150
57	0.045	0.060	0.074	0.099	0.109	0.131
58	0.053	0.056	0.059	0.099	0.126	0.185
59	0.050	0.068	0.085	0.113	0.144	0.202
60	0.089	0.106	0.123	0.180	0.226	0.316
61	0.100	0.117	0.133	0.212	0.230	0.298
62	0.130	0.155	0.180	0.248	0.282	0.335
63	0.120	0.163	0.206	0.270	0.268	0.352
64	0.150	0.150	0.150	0.215	0.277	0.300
65	0.200	0.242	0.283	0.330	0.300	0.342
70	0.220	0.255	0.291	0.326	0.358	0.388

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Service Retirement (continued)

Attained Age	Public Agency Miscellaneous 2% @ 62					
	Years of Service					
	5	10	15	20	25	30
50	0.000	0.000	0.000	0.000	0.000	0.000
51	0.000	0.000	0.000	0.000	0.000	0.000
52	0.005	0.008	0.012	0.015	0.019	0.031
53	0.007	0.011	0.014	0.018	0.021	0.032
54	0.007	0.011	0.015	0.019	0.023	0.034
55	0.010	0.019	0.028	0.036	0.061	0.096
56	0.014	0.026	0.038	0.050	0.075	0.108
57	0.018	0.029	0.039	0.050	0.074	0.107
58	0.023	0.035	0.048	0.060	0.073	0.099
59	0.025	0.038	0.051	0.065	0.092	0.128
60	0.031	0.051	0.071	0.091	0.111	0.138
61	0.038	0.058	0.079	0.100	0.121	0.167
62	0.044	0.074	0.104	0.134	0.164	0.214
63	0.077	0.105	0.134	0.163	0.192	0.237
64	0.072	0.101	0.129	0.158	0.187	0.242
65	0.108	0.141	0.173	0.206	0.239	0.300
70	0.120	0.156	0.193	0.229	0.265	0.333

Public Agency Police ½ @ 55 and 2% @ 55	
Attained Age	Rate
50	0.0255
51	0.0000
52	0.0164
53	0.0272
54	0.0095
55	0.1667
56	0.0692
57	0.0511
58	0.0724
59	0.0704
60	0.3000

Public Agency Fire ½ @ 55 and 2% @ 55	
Attained Age	Rate
50	0.0159
51	0.0000
52	0.0344
53	0.0199
54	0.0413
55	0.0751
56	0.1108
57	0.0000
58	0.0950
59	0.0441
60	1.0000

The Police rates also apply to County Peace officers, Local Prosecutors, Local Sheriff, School Police, and Other Safety.

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Service Retirement (continued)

Attained Age	Public Agency Police 2% @ 50					
	Years of Service					
	5	10	15	20	25	30
50	0.050	0.050	0.050	0.050	0.050	0.100
51	0.040	0.040	0.040	0.040	0.058	0.094
52	0.040	0.040	0.040	0.040	0.061	0.087
53	0.040	0.040	0.040	0.040	0.082	0.123
54	0.040	0.040	0.040	0.046	0.098	0.158
55	0.072	0.072	0.072	0.096	0.141	0.255
56	0.066	0.066	0.066	0.088	0.129	0.228
57	0.060	0.060	0.060	0.080	0.118	0.213
58	0.080	0.080	0.080	0.088	0.138	0.228
59	0.080	0.080	0.080	0.092	0.140	0.228
60	0.150	0.150	0.150	0.150	0.150	0.228
61	0.144	0.144	0.144	0.144	0.144	0.170
62	0.150	0.150	0.150	0.150	0.150	0.213
63	0.150	0.150	0.150	0.150	0.150	0.213
64	0.150	0.150	0.150	0.150	0.150	0.319
65	1.000	1.000	1.000	1.000	1.000	1.000

These rates also apply to County Peace officers, Local Prosecutors, Local Sheriff, School Police, and Other Safety.

Attained Age	Public Agency Fire 2% @ 50					
	Years of Service					
	5	10	15	20	25	30
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

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Service Retirement (continued)

Attained Age	Public Agency Police 3% @ 55					
	Years of Service					
	5	10	15	20	25	30
50	0.035	0.035	0.035	0.035	0.070	0.090
51	0.028	0.028	0.028	0.029	0.065	0.101
52	0.032	0.032	0.032	0.039	0.066	0.109
53	0.028	0.028	0.028	0.043	0.075	0.132
54	0.038	0.038	0.038	0.074	0.118	0.333
55	0.070	0.070	0.070	0.120	0.175	0.340
56	0.060	0.060	0.060	0.110	0.165	0.330
57	0.060	0.060	0.060	0.110	0.165	0.320
58	0.080	0.080	0.080	0.100	0.185	0.350
59	0.090	0.090	0.095	0.130	0.185	0.350
60	0.150	0.150	0.150	0.150	0.185	0.350
61	0.120	0.120	0.120	0.120	0.160	0.350
62	0.150	0.150	0.150	0.150	0.200	0.350
63	0.150	0.150	0.150	0.150	0.200	0.400
64	0.150	0.150	0.150	0.150	0.175	0.350
65	1.000	1.000	1.000	1.000	1.000	1.000

These rates also apply to County Peace officers, Local Prosecutors, Local Sheriff, School Police, and Other Safety.

Attained Age	Public Agency Fire 3% @ 55					
	Years of Service					
	5	10	15	20	25	30
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

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Service Retirement (continued)

Attained Age	Public Agency Police 3% @ 50					
	Years of Service					
	5	10	15	20	25	30
50	0.050	0.050	0.050	0.100	0.155	0.400
51	0.040	0.040	0.040	0.090	0.140	0.380
52	0.040	0.040	0.040	0.070	0.115	0.350
53	0.040	0.040	0.040	0.080	0.135	0.350
54	0.040	0.040	0.040	0.090	0.145	0.350
55	0.070	0.070	0.070	0.120	0.175	0.340
56	0.060	0.060	0.060	0.110	0.165	0.330
57	0.060	0.060	0.060	0.110	0.165	0.320
58	0.080	0.080	0.080	0.100	0.185	0.350
59	0.090	0.090	0.095	0.130	0.185	0.350
60	0.150	0.150	0.150	0.150	0.185	0.350
61	0.120	0.120	0.120	0.120	0.160	0.350
62	0.150	0.150	0.150	0.150	0.200	0.350
63	0.150	0.150	0.150	0.150	0.200	0.400
64	0.150	0.150	0.150	0.150	0.175	0.350
65	1.000	1.000	1.000	1.000	1.000	1.000

These rates also apply to County Peace officers, Local Prosecutors, Local Sheriff, School Police, and Other Safety.

Attained Age	Public Agency Fire 3% @ 50					
	Years of Service					
	5	10	15	20	25	30
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

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Service Retirement (continued)

Attained Age	Public Agency Police 2% @ 57					
	Years of Service					
	5	10	15	20	25	30
50	0.040	0.040	0.040	0.040	0.040	0.080
51	0.028	0.028	0.028	0.028	0.040	0.066
52	0.028	0.028	0.028	0.028	0.043	0.061
53	0.028	0.028	0.028	0.028	0.057	0.086
54	0.028	0.028	0.028	0.032	0.069	0.110
55	0.050	0.050	0.050	0.067	0.099	0.179
56	0.046	0.046	0.046	0.062	0.090	0.160
57	0.054	0.054	0.054	0.072	0.106	0.191
58	0.060	0.060	0.060	0.066	0.103	0.171
59	0.060	0.060	0.060	0.069	0.105	0.171
60	0.113	0.113	0.113	0.113	0.113	0.171
61	0.108	0.108	0.108	0.108	0.108	0.128
62	0.113	0.113	0.113	0.113	0.113	0.159
63	0.113	0.113	0.113	0.113	0.113	0.159
64	0.113	0.113	0.113	0.113	0.113	0.239
65	1.000	1.000	1.000	1.000	1.000	1.000

These rates also apply to County Peace officers, Local Prosecutors, Local Sheriff, School Police, and Other Safety.

Attained Age	Public Agency Fire 2% @ 57					
	Years of Service					
	5	10	15	20	25	30
50	0.005	0.005	0.005	0.005	0.008	0.012
51	0.006	0.006	0.006	0.006	0.009	0.013
52	0.012	0.012	0.012	0.012	0.019	0.028
53	0.033	0.033	0.033	0.033	0.050	0.075
54	0.045	0.045	0.045	0.045	0.069	0.103
55	0.061	0.061	0.061	0.061	0.094	0.140
56	0.055	0.055	0.055	0.055	0.084	0.126
57	0.081	0.081	0.081	0.081	0.125	0.187
58	0.059	0.059	0.059	0.059	0.091	0.137
59	0.055	0.055	0.055	0.055	0.084	0.126
60	0.085	0.085	0.085	0.085	0.131	0.196
61	0.085	0.085	0.085	0.085	0.131	0.196
62	0.085	0.085	0.085	0.085	0.131	0.196
63	0.085	0.085	0.085	0.085	0.131	0.196
64	0.085	0.085	0.085	0.085	0.131	0.196
65	1.000	1.000	1.000	1.000	1.000	1.000

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Service Retirement (continued)

Attained Age	Public Agency Police 2.5% @ 57					
	Years of Service					
	5	10	15	20	25	30
50	0.050	0.050	0.050	0.050	0.050	0.100
51	0.038	0.038	0.038	0.038	0.055	0.089
52	0.038	0.038	0.038	0.038	0.058	0.082
53	0.036	0.036	0.036	0.036	0.073	0.111
54	0.036	0.036	0.036	0.041	0.088	0.142
55	0.061	0.061	0.061	0.082	0.120	0.217
56	0.056	0.056	0.056	0.075	0.110	0.194
57	0.060	0.060	0.060	0.080	0.118	0.213
58	0.072	0.072	0.072	0.079	0.124	0.205
59	0.072	0.072	0.072	0.083	0.126	0.205
60	0.135	0.135	0.135	0.135	0.135	0.205
61	0.130	0.130	0.130	0.130	0.130	0.153
62	0.135	0.135	0.135	0.135	0.135	0.191
63	0.135	0.135	0.135	0.135	0.135	0.191
64	0.135	0.135	0.135	0.135	0.135	0.287
65	1.000	1.000	1.000	1.000	1.000	1.000

These rates also apply to County Peace officers, Local Prosecutors, Local Sheriff, School Police, and Other Safety.

Attained Age	Public Agency Fire 2.5% @ 57					
	Years of Service					
	5	10	15	20	25	30
50	0.007	0.007	0.007	0.007	0.010	0.015
51	0.008	0.008	0.008	0.008	0.012	0.018
52	0.016	0.016	0.016	0.016	0.025	0.038
53	0.042	0.042	0.042	0.042	0.064	0.096
54	0.057	0.057	0.057	0.057	0.088	0.132
55	0.074	0.074	0.074	0.074	0.114	0.170
56	0.066	0.066	0.066	0.066	0.102	0.153
57	0.090	0.090	0.090	0.090	0.139	0.208
58	0.071	0.071	0.071	0.071	0.110	0.164
59	0.066	0.066	0.066	0.066	0.101	0.151
60	0.102	0.102	0.102	0.102	0.157	0.235
61	0.102	0.102	0.102	0.102	0.157	0.236
62	0.102	0.102	0.102	0.102	0.157	0.236
63	0.102	0.102	0.102	0.102	0.157	0.236
64	0.102	0.102	0.102	0.102	0.157	0.236
65	1.000	1.000	1.000	1.000	1.000	1.000

Appendix A - Statement of Actuarial Methods and Assumptions

Additional Actuarial Assumptions Applicable to the Public Agency Indexed Level (continued)

Service Retirement (continued)

Attained Age	Public Agency Police 2.7% @ 57					
	Years of Service					
	5	10	15	20	25	30
50	0.0500	0.0500	0.0500	0.0500	0.0500	0.1000
51	0.0400	0.0400	0.0400	0.0400	0.0575	0.0942
52	0.0380	0.0380	0.0380	0.0380	0.0580	0.0825
53	0.0380	0.0380	0.0380	0.0380	0.0774	0.1169
54	0.0380	0.0380	0.0380	0.0437	0.0931	0.1497
55	0.0684	0.0684	0.0684	0.0912	0.1340	0.2423
56	0.0627	0.0627	0.0627	0.0836	0.1228	0.2168
57	0.0600	0.0600	0.0600	0.0800	0.1175	0.2125
58	0.0800	0.0800	0.0800	0.0880	0.1375	0.2275
59	0.0800	0.0800	0.0800	0.0920	0.1400	0.2275
60	0.1500	0.1500	0.1500	0.1500	0.1500	0.2275
61	0.1440	0.1440	0.1440	0.1440	0.1440	0.1700
62	0.1500	0.1500	0.1500	0.1500	0.1500	0.2125
63	0.1500	0.1500	0.1500	0.1500	0.1500	0.2125
64	0.1500	0.1500	0.1500	0.1500	0.1500	0.3188
65	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

These rates also apply to County Peace officers, Local Prosecutors, Local Sheriff, School Police, and Other Safety.

Attained Age	Public Agency Fire 2.7% @ 57					
	Years of Service					
	5	10	15	20	25	30
50	0.0065	0.0065	0.0065	0.0065	0.0101	0.0151
51	0.0081	0.0081	0.0081	0.0081	0.0125	0.0187
52	0.0164	0.0164	0.0164	0.0164	0.0254	0.0380
53	0.0442	0.0442	0.0442	0.0442	0.0680	0.1018
54	0.0606	0.0606	0.0606	0.0606	0.0934	0.1397
55	0.0825	0.0825	0.0825	0.0825	0.1269	0.1900
56	0.0740	0.0740	0.0740	0.0740	0.1140	0.1706
57	0.0901	0.0901	0.0901	0.0901	0.1387	0.2077
58	0.0790	0.0790	0.0790	0.0790	0.1217	0.1821
59	0.0729	0.0729	0.0729	0.0729	0.1123	0.1681
60	0.1135	0.1135	0.1135	0.1135	0.1747	0.2615
61	0.1136	0.1136	0.1136	0.1136	0.1749	0.2618
62	0.1136	0.1136	0.1136	0.1136	0.1749	0.2618
63	0.1136	0.1136	0.1136	0.1136	0.1749	0.2618
64	0.1136	0.1136	0.1136	0.1136	0.1749	0.2618
65	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Appendix B – Summary of Principal Plan Provisions

The 1959 Survivor program was designed to provide pre-retirement death benefits comparable to those provided by Social Security, formally the Federal Old Age and Survivor Insurance (OASI) program, to CalPERS' members not covered by Social Security.

Eligibility

The benefit is available only to those members not covered by Social Security OASI benefits. For public agencies, this benefit is provided by contract with CalPERS. Only those public agencies that contract for the 1st, 2nd, 3rd, 4th, or Indexed level of the program are eligible for the benefits valued in this report. Public Agency 1st and 2nd levels have been closed since January 1, 1994 and 3rd level has been closed since July 1, 2001. For State and Schools members, the 5th level benefit is provided by State statute to certain groups of employees. Members who are eligible for the benefit are given a one-time option to join at the time of contract. Members hired subsequent to the time of contract are automatically enrolled in the program.

Spousal or Domestic Partner Benefit

The benefit is a monthly payment to eligible surviving spouses or domestic partners age 62 or older for Public Agency 1st, 2nd, and 3rd Levels and age 60 or older for all other levels. The benefit is also payable under these deferred ages for spouses or partners that have care of children under the age of 22. As an example, assume an agency contracts for the 3rd Level benefit and an active member dies and leaves behind a 35-year-old spouse and 2 children, ages 5 and 15. The following table describes how the benefit would be paid over the course of time.

Event	Monthly Benefit Paid
Member Death	\$840
1 st Child Turns 22	\$700
2 nd Child Turns 22 ¹	\$0
Spouse Turns 62 ²	\$350

(1) At this time, the spouse would be 52 years old and would not receive any benefit until age 62.

(2) Spouse would continue to receive this benefit until his/her death.

Child Benefit

Children are eligible if they are not married or in a registered domestic partnership and are under the age of 22 whether or not a spouse or domestic partner exists. For 3 or more children, the 3-survivor benefit is paid; for 2 children, the 2-survivor benefit is paid and so forth (see tables below). In all cases, unless a child is disabled, the benefit stops at age 22. If a child is disabled, the benefit is paid until the disability ceases.

Parental Benefits

If there is no eligible spouse or domestic partner or children, parent(s) dependent for at least half of their support from the deceased member may be eligible for benefits. The parent(s) must be over age 62 for Public Agency 1st, 2nd, and 3rd Levels and over age 60 for all other levels.

Appendix B - Summary of Principal Plan Provisions (continued)

Monthly Benefit Amounts

The monthly benefit amount depends upon the coverage level within the program.

1st, 2nd, and 3rd Level (For Members of Public Agencies who Contract)

	1 st Level	2 nd Level	3 rd Level
Spouse or Domestic Partner with Two or More Eligible Children; or Three or More Eligible Children	\$430	\$538	\$840
Spouse or Domestic Partner with One Eligible Child; or Two Eligible Children Only	360	450	700
Spouse or Domestic Partner Age 62 or Older; or One Eligible Child Only; or Eligible Dependent parents	180	225	350

4th Level and Indexed Level (For Members of Public Agencies who Contract) and 5th Level (State and Schools Members)

	4 th Level	Indexed Level	State and Schools 5 th Level
Spouse or Domestic Partner with Two or More Eligible Children; or Three or More Eligible Children	\$2,280	\$2,273 ¹	\$1,800
Spouse or Domestic Partner with One Eligible Child; or Two Eligible Children Only	1,900	1,516 ¹	1,500
Spouse or Domestic Partner Age 60 or Older; or One Eligible Child Only; or Eligible Dependent parents	950	758 ¹	750

(1) These figures indicate calendar year benefit amounts for the Indexed Level in effect for calendar year 2021. Benefit amounts will increase by 2 percent each January 1.

Comparison of Social Security and CalPERS 1959 Survivor Benefits

The following tables compare current Social Security survivor benefits with current benefit levels paid under the 1959 Survivor Program.

Social Security

Survivor Group	Low	Average	High
Three Survivors	\$1,632	\$2,793	\$4,225
Two Survivors	1,632	2,396	3,620
One Survivor	816	1,198	1,810

Unlike the 1959 Survivor Benefit (with the exception of the Indexed level), federal Social Security benefits normally receive an automatic cost-of-living adjustment every year. Also, unlike the 1959 Survivor Benefit, Social Security benefits are based on a worker's actual earnings up to the maximum covered. The values shown assume death at age 45 (benefits slightly higher at lower ages, lower at higher ages), and steady earnings. "Low" is 2020 salary of \$25,000, "Average" is \$50,000, and "High" is \$90,000.

CalPERS 1959 Survivor Benefit

Survivor Group	1 st Level	2 nd Level	3 rd Level	4 th Level	Indexed Level ¹	State and Schools 5 th Level
Three Survivors	\$430	\$538	\$840	\$2,280	\$2,273	\$1,800
Two Survivors	360	450	700	1,900	1,516	1,500
One Survivor	180	225	350	950	758	750

(1) Amounts effective January 1, 2021

Summary of Plan Changes

Existing public agency employers joining the Public Agency 4th or Indexed Level Pool during the 2021-22 fiscal year are required to pay only the Unfunded Liability based on their own membership (amortized over a period of five years) which exists at the time they join plus the agency's normal cost for all members at the new benefit level for the first five years. If they have excess assets, the excess assets will be amortized over five years and used to offset the agency's normal cost for each year.

Appendix C – Demographic and Experience Information

Current and Deferred Survivors – All Levels of the 1959 Survivor Program for Public Agencies, State and Schools

Currently, there are 4,226 cases where liability exists. These cases include surviving spouses or domestic partners in deferred status even though presently there are no benefits being paid. There are 9 possible survivor combinations that can be associated with each case. The combinations presented below are given as of the date of the valuation, for all levels of the 1959 Survivor program.

Status as of 6/30/2020	Number	Percent
Surviving Spouse or Domestic Partner Deferred	766	18.1%
Surviving Spouse or Domestic Partner Only Receiving	2,560	60.6%
Surviving Spouse or Domestic Partner with One Child	328	7.8%
Surviving Spouse or Domestic Partner with Two or More Children	295	7.0%
One Child	164	3.9%
Two Children	61	1.4%
Three or More Children	27	0.6%
One Parent	17	0.4%
Two Parents	8	0.2%
Totals	4,226	100.0%¹

(1) Percentages may not sum to 100% due to rounding.

Survivor Combinations as of the Member's Date of Death – All Levels of the 1959 Survivor Program for Public Agencies, State and Schools

There exist 8,232 cases of death associated with the 1959 Survivor program since its inception where 1959 Survivor benefits became payable. With this data, a historical account of each combination can be made. Further, probabilities can be approximated with respect to these combinations when a member dies. Below is a list of all combinations on record, numbers and associated percentages as of the time of death, for all levels of the 1959 Survivor program.

Status as of the Member's Date of Death	Number	Percent
Surviving Spouse or Domestic Partner Deferred	2,355	28.6%
Surviving Spouse or Domestic Partner Only Receiving	1,020	12.4%
Surviving Spouse or Domestic Partner with One Child	1,348	16.4%
Surviving Spouse or Domestic Partner with Two or More Children	2,265	27.5%
One Child	540	6.6%
Two Children	412	5.0%
Three or More Children	248	3.0%
One Parent	33	0.4%
Two Parents	11	0.1%
Totals	8,232	100.0%¹

(1) Percentages may not sum to 100% due to rounding.

Appendix D – 1959 Survivor Deaths Per Year

1959 Survivor Deaths Per Year

Displayed below is a year-by-year account of the number of deaths under the program and the death rate each year for the last 35 years for public agencies, State, and Schools. Deaths given in the exhibit are on a calendar year basis and may change from previous valuations due mainly to reclassification of the benefit that ultimately gets paid to the survivor. Counts represent mid-year active exposure. The historic covered active counts may not match those reported in the prior year's valuation. This is due to the fact that in some cases there is a time gap between the time of the member's death and the determination of which type of death benefit that the survivor will receive.

Calendar Year	Public Agency			State			Schools		
	Deaths	Mid-Year Active Counts	Death Rate	Deaths	Mid-Year Active Counts	Death Rate	Deaths	Mid-Year Active Counts	Death Rate
2019	84	141,374	0.06%	60	78,011	0.08%	7	11,190	0.06%
2018	80	140,339	0.06%	57	77,362	0.06%	7	10,894	0.06%
2017	84	141,063	0.07%	58	76,638	0.07%	4	10,557	0.07%
2016	83	139,581	0.06%	61	75,782	0.09%	7	10,259	0.04%
2015	79	134,879	0.06%	63	74,372	0.07%	5	10,490	0.05%
2014	68	132,024	0.05%	51	72,848	0.08%	3	10,287	0.04%
2013	78	129,796	0.07%	58	71,180	0.09%	4	9,944	0.04%
2012	94	132,754	0.08%	53	71,759	0.08%	7	10,123	0.07%
2011	107	134,255	0.07%	58	77,714	0.07%	7	9,811	0.07%
2010	87	138,470	0.06%	57	79,587	0.09%	7	10,203	0.06%
2009	100	143,207	0.07%	61	82,434	0.06%	4	10,562	0.09%
2008	107	144,828	0.08%	50	81,369	0.07%	8	10,550	0.04%
2007	103	140,012	0.07%	72	76,902	0.09%	5	10,131	0.06%
2006	87	137,095	0.07%	70	71,742	0.10%	13	9,469	0.16%
2005	106	133,510	0.08%	68	70,193	0.09%	7	9,402	0.05%
2004	93	131,633	0.07%	60	64,252	0.11%	4	9,325	0.04%
2003	91	129,620	0.06%	69	68,791	0.08%	6	9,390	0.07%
2002	86	129,355	0.06%	50	65,558	0.08%	5	9,195	0.08%
2001	83	116,161	0.08%	58	64,309	0.10%	5	7,884	0.06%
2000	78	121,538	0.07%	56	60,349	0.10%	7	8,338	0.02%
1999	91	118,850	0.08%	62	59,406	0.09%	3	7,444	0.11%
1998	87	112,389	0.07%	58	55,435	0.11%	6	6,956	0.04%
1997	68	102,475	0.08%	63	55,084	0.12%	4	6,794	0.07%
1996	82	100,494	0.07%	54	51,746	0.10%	6	6,726	0.10%
1995	75	99,235	0.07%	52	47,689	0.13%	9	6,751	0.13%
1994	70	98,088	0.07%	58	47,323	0.12%	10	6,653	0.11%
1993	74	97,752	0.09%	53	46,872	0.09%	3	6,776	0.13%
1992	86	95,840	0.09%	45	48,872	0.10%	8	6,823	0.07%
1991	96	91,574	0.11%	41	47,708	0.10%	7	7,752	0.08%
1990	87	86,196	0.08%	61	45,502	0.14%	7	7,942	0.10%
1989	66	82,046	0.08%	60	44,069	0.13%	6	6,899	0.12%
1988	75	84,808	0.08%	52	41,980	0.12%	9	7,100	0.14%
1987	62	69,340	0.10%	53	40,315	0.13%	11	6,200	0.16%
1986	65	68,500	0.08%	44	39,391	0.15%	8	6,500	0.08%
1985	72	66,927	0.12%	81	39,175	0.18%	5	6,842	0.09%

Appendix E – List of Contracting Agencies

Level 1

1. Belmont Fire Protection District, Miscellaneous
2. Central Basin Municipal Water District, Miscellaneous
3. City and County of San Francisco, Safety - County Peace Officer
4. City and County of San Francisco, Safety - Sheriff
5. City of Baldwin Park, Miscellaneous
6. City of Baldwin Park, Safety - Police
7. City of Bishop, Miscellaneous
8. City of Bishop, Safety - Police
9. City of Calexico, Safety - Fire
10. City of Calexico, Safety - Police
11. City of Camarillo, Safety - Fire
12. City of Camarillo, Safety - Police
13. City of Coachella City, Miscellaneous
14. City of Coachella City, Safety - Fire
15. City of Coachella City, Safety - Police
16. City of Compton, Safety - Fire
17. City of Culver City, Miscellaneous
18. City of Dixon, Miscellaneous
19. City of El Segundo, Miscellaneous
20. City of Glendora, Safety - Fire
21. City of Hawthorne, Miscellaneous
22. City of Hawthorne, Safety - Fire
23. City of Hawthorne, Safety - Police
24. City of Hemet, Safety - Police
25. City of Indio, Safety - Fire
26. City of Indio, Safety - Police
27. City of Lynwood, Safety - Police
28. City of Madera, Safety - Fire
29. City of Manhattan Beach, Safety - Police
30. City of Maywood, Safety - Police
31. City of Menlo Park, Miscellaneous
32. City of Palo Alto, Miscellaneous
33. City of Palo Alto, Safety - Fire
34. City of Palo Alto, Safety - Police
35. City of Placentia, Safety - Fire
36. City of Pleasanton, Safety - Police
37. City of Pomona, Miscellaneous
38. City of Pomona, Safety - Fire
39. City of Pomona, Safety - Police
40. City of Redondo Beach, Miscellaneous
41. City of Richmond, Miscellaneous
42. City of Richmond, Safety - Fire
43. City of Richmond, Safety - Police
44. City of Rolling Hills Estates, Miscellaneous
45. City of Salinas, Safety - Fire
46. City of San Fernando, Safety - Fire
47. City of San Mateo, Miscellaneous
48. City of San Pablo, Safety - Fire
49. City of Santa Clara, Miscellaneous
50. City of Santa Fe Springs, Safety - Police
51. City of Santa Monica, Safety - Other Safety
52. City of Santa Paula, Safety - Fire
53. City of Sausalito, Miscellaneous
54. City of Seal Beach, Safety - Fire
55. City of South Lake Tahoe, Safety - Police
56. City of South Pasadena, Miscellaneous
57. City of South Pasadena, Safety - Fire
58. City of South Pasadena, Safety - Police
59. City of South San Francisco, Miscellaneous
60. City of Sunnyvale, Safety - Fire
61. City of Tustin, Safety - Fire
62. City of Union City, Safety - Fire
63. City of Union City, Safety - Police
64. City of Vallejo, Miscellaneous
65. City of Vernon, Safety - Police
66. City of Vista, Safety - Police
67. City of Watsonville, Miscellaneous
68. City of Westminster, Safety - Fire
69. City of Whittier, Safety - Fire
70. County of Glenn, Miscellaneous
71. County of Inyo, Miscellaneous
72. County of Madera, Miscellaneous
73. County of Monterey, Miscellaneous
74. County of Plumas, Safety - Fire
75. County of Santa Clara, Miscellaneous
76. County of Santa Clara, Safety - County Peace Officer
77. County of Santa Clara, Safety - Fire
78. County of Santa Cruz, Safety - Fire
79. County of Siskiyou, Safety - Fire
80. County of Solano, Safety - Fire
81. East Contra Costa Irrigation District, Miscellaneous
82. Fruitridge Fire Protection District, Miscellaneous
83. Fruitridge Fire Protection District, Safety - Fire
84. Lakeside Fire Protection District, Miscellaneous
85. Los Angeles Community College District, Safety - Police
86. Monterey County Water Resources Agency, Miscellaneous
87. Monterey-Salinas Transit District, Miscellaneous
88. Moulton-Niguel Water District, Miscellaneous
89. Northern California Special Districts Insurance Authority, Miscellaneous
90. Pomona, Calif State Polytechnic University, Associated Students, Inc., Miscellaneous
91. Riverside County Air Pollution Control District, Miscellaneous

Appendix E – List of Contracting Agencies (continued)

Level 1 (continued)

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| <ul style="list-style-type: none"> 92. Riverside County Flood Control and Water Conservation District, Miscellaneous 93. Riverside County Regional Park and Open Space District, Miscellaneous 94. San Luis Obispo Cal Poly Associated Students, Inc., | <ul style="list-style-type: none"> Miscellaneous 95. Town of Hillsborough, Miscellaneous 96. Town of Tiburon, Safety - Police 97. Town of Yountville, Miscellaneous |
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Level 2

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| <ul style="list-style-type: none"> 1. Belmont-San Carlos Fire Department, Miscellaneous 2. Brooktrails Township Community Services District, Miscellaneous 3. CSAC Excess Insurance Authority, Miscellaneous 4. California Interscholastic Federation, Southern Section, Miscellaneous 5. California Interscholastic Federation, State Office, Miscellaneous 6. Capitol Area Development Authority, Miscellaneous 7. City and County of San Francisco, Safety - Police 8. City of Antioch, Miscellaneous 9. City of Capitola, Miscellaneous 10. City of Capitola, Safety - Fire 11. City of Capitola, Safety - Police 12. City of Corcoran, Miscellaneous 13. City of Corcoran, Safety - Fire 14. City of Corcoran, Safety - Police 15. City of Coronado, Safety - Fire 16. City of Coronado, Safety - Police 17. City of Cotati, Safety - Police 18. City of Crescent City, Miscellaneous 19. City of Crescent City, Safety - Police 20. City of Del Mar, Safety - Other Safety 21. City of Emeryville, Safety - Police 22. City of Eureka, Safety - Fire 23. City of Eureka, Safety - Police 24. City of Glendora, Miscellaneous 25. City of Inglewood, Safety - Police 26. City of La Puente, Miscellaneous 27. City of Lakeport, Miscellaneous 28. City of Lakeport, Safety - Police 29. City of Martinez, Safety - Fire 30. City of Montclair, Miscellaneous 31. City of Montclair, Safety - Fire 32. City of Palm Desert, Miscellaneous 33. City of Palos Verdes Estates, Safety - Fire | <ul style="list-style-type: none"> 34. City of Palos Verdes Estates, Safety - Police 35. City of Patterson, Safety - Fire 36. City of Patterson, Safety - Police 37. City of Santa Barbara, Safety - Fire 38. City of Santa Barbara, Safety - Police 39. City of Sierra Madre, Safety - Police 40. City of Solana Beach, Miscellaneous 41. City of Solana Beach, Safety - Other Safety 42. City of Stanton, Miscellaneous 43. City of Stanton, Safety - Fire 44. City of Stanton, Safety - Police 45. City of Susanville, Safety - Police 46. City of Visalia, Miscellaneous 47. City of Vista, Miscellaneous 48. City of Watsonville, Safety - Fire 49. City of Watsonville, Safety - Police 50. County of Alpine, Miscellaneous 51. County of Alpine, Safety - County Peace Officer 52. County of Alpine, Safety - Fire 53. County of Calaveras, Miscellaneous 54. County of Calaveras, Safety - County Peace Officer 55. County of Calaveras, Safety - Fire 56. Los Angeles County Office of Education, Miscellaneous 57. Main San Gabriel Basin Watermaster, Miscellaneous 58. North Coast Unified Air Quality Management District, Miscellaneous 59. Pacific Fire Protection District, Miscellaneous 60. Pupil Transportation Cooperative, Miscellaneous 61. Rancho California Water District, Miscellaneous 62. Running Springs Water District, Miscellaneous 63. Running Springs Water District, Safety - Fire 64. San Diego Trolley, Inc., Miscellaneous 65. San Francisco County Transportation Authority, Miscellaneous 66. Sonoma County Library, Miscellaneous 67. Tahoe Transportation District, Miscellaneous |
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Level 3

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| <ul style="list-style-type: none"> 1. Access Services Incorporated, Miscellaneous 2. Agoura Hills and Calabasas Community Center, Miscellaneous 3. Alameda Alliance for Health, Miscellaneous 4. Alameda Corridor Transportation Authority, Miscellaneous 5. Alameda County Fire Department, Miscellaneous | <ul style="list-style-type: none"> 6. Alameda County Fire Department, Safety - Fire 7. Alameda County Mosquito Abatement District, Miscellaneous 8. Alameda County Transportation Authority, Miscellaneous 9. American Canyon Fire Protection District, Safety - Fire 10. Apple Valley Fire Protection District, Miscellaneous 11. Apple Valley Fire Protection District, Safety - Fire |
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Level 3 (continued)

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| 12. Arcata Fire Protection District, Miscellaneous | 59. City of Belvedere, Safety - Police |
| 13. Arcata Fire Protection District, Safety - Fire | 60. City of Benicia, Miscellaneous |
| 14. Association of California Water Agencies, Miscellaneous | 61. City of Berkeley, Miscellaneous |
| 15. Avila Beach Community Services District, Miscellaneous | 62. City of Brentwood, Miscellaneous |
| 16. Baldwin Park Unified School District, Safety - Police | 63. City of Brentwood, Safety - Fire |
| 17. Beaumont-Cherry Valley Recreation and Park District, Miscellaneous | 64. City of Brentwood, Safety - Police |
| 18. Belmont-San Carlos Fire Department, Safety - Fire | 65. City of Brisbane, Miscellaneous |
| 19. Belvedere-Tiburon Library Agency, Miscellaneous | 66. City of Brisbane, Safety - Fire |
| 20. Big Bear City Community Services District, Miscellaneous | 67. City of Brisbane, Safety - Police |
| 21. Bighorn-Desert View Water Agency, Miscellaneous | 68. City of Burlingame, Miscellaneous |
| 22. Bodega Bay Fire Protection District, Miscellaneous | 69. City of Calabasas, Miscellaneous |
| 23. Bodega Bay Fire Protection District, Safety - Fire | 70. City of Campbell, Miscellaneous |
| 24. Borrego Springs Fire Protection District, Miscellaneous | 71. City of Carlsbad, Miscellaneous |
| 25. Borrego Water District, Miscellaneous | 72. City of Carlsbad, Safety - Police |
| 26. Broadmoor Police Protection District, Miscellaneous | 73. City of Claremont, Miscellaneous |
| 27. Broadmoor Police Protection District, Safety - Police | 74. City of Claremont, Safety - Police |
| 28. Brooktrails Township Community Services District, Safety - Fire | 75. City of Clayton, Miscellaneous |
| 29. Buena Park Library District, Miscellaneous | 76. City of Compton, Miscellaneous |
| 30. Butte County Air Quality Management District, Miscellaneous | 77. City of Compton, Safety - Police |
| 31. Butte Schools Self-Funded Programs, Miscellaneous | 78. City of Corona, Safety - Police |
| 32. California Firefighter's Joint Apprenticeship Committee, Safety - Fire | 79. City of Costa Mesa, Miscellaneous |
| 33. California Pines Community Services District, Miscellaneous | 80. City of Costa Mesa, Safety - Fire |
| 34. Cambria Community Healthcare District, Miscellaneous | 81. City of Costa Mesa, Safety - Police |
| 35. Cambria Community Healthcare District, Safety - Fire | 82. City of Cypress, Miscellaneous |
| 36. Cameron Park Community Services District, Miscellaneous | 83. City of Daly City, Miscellaneous |
| 37. Cameron Park Community Services District, Safety - Fire | 84. City of Daly City, Safety - Police |
| 38. Camrosa Water District, Miscellaneous | 85. City of Dana Point, Miscellaneous |
| 39. Casitas Municipal Water District, Miscellaneous | 86. City of Del Mar, Miscellaneous |
| 40. Castaic Lake Water Agency, Miscellaneous | 87. City of Dinuba, Miscellaneous |
| 41. Castro Valley Sanitary District, Miscellaneous | 88. City of Dinuba, Safety - Fire |
| 42. Central Calaveras Fire and Rescue Protection District, Safety - Fire | 89. City of Dinuba, Safety - Police |
| 43. Central Coast Water Authority, Miscellaneous | 90. City of Downey, Safety - Fire |
| 44. Central Valley Regional Center, Inc., Miscellaneous | 91. City of Downey, Safety - Police |
| 45. City and County of San Francisco, Miscellaneous | 92. City of Duarte, Miscellaneous |
| 46. City of Adelanto, Safety - Police | 93. City of Dublin, Miscellaneous |
| 47. City of Agoura Hills, Miscellaneous | 94. City of East Palo Alto, Miscellaneous |
| 48. City of Alameda, Miscellaneous | 95. City of East Palo Alto, Safety - Police |
| 49. City of Alameda, Safety - Fire | 96. City of El Cajon, Safety - Fire |
| 50. City of Alameda, Safety - Police | 97. City of El Cajon, Safety - Police |
| 51. City of Alhambra, Miscellaneous | 98. City of El Centro, Miscellaneous |
| 52. City of Alhambra, Safety - Fire | 99. City of Encinitas, Miscellaneous |
| 53. City of Alhambra, Safety - Police | 100. City of Encinitas, Safety - Fire |
| 54. City of Arcadia, Miscellaneous | 101. City of Encinitas, Safety - Other Safety |
| 55. City of Arcadia, Safety - Police | 102. City of Eureka, Miscellaneous |
| 56. City of Bell, Safety - Fire | 103. City of Exeter, Safety - Police |
| 57. City of Bell, Safety - Police | 104. City of Fortuna, Safety - Police |
| 58. City of Belvedere, Miscellaneous | 105. City of Gardena, Miscellaneous |
| | 106. City of Gardena, Safety - Fire |
| | 107. City of Gardena, Safety - Police |
| | 108. City of Gilroy, Miscellaneous |

Level 3 (continued)

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| 109. City of Gridley, Miscellaneous | 160. City of Oakland, Safety - Fire |
| 110. City of Gridley, Safety - Fire | 161. City of Oceanside, Miscellaneous |
| 111. City of Gridley, Safety - Police | 162. City of Oceanside, Safety - Fire |
| 112. City of Half Moon Bay, Miscellaneous | 163. City of Oceanside, Safety - Police |
| 113. City of Hanford, Miscellaneous | 164. City of Oxnard, Safety - Police |
| 114. City of Hayward, Safety - Fire | 165. City of Palmdale, Miscellaneous |
| 115. City of Hayward, Safety - Police | 166. City of Palos Verdes Estates, Miscellaneous |
| 116. City of Hemet, Safety - Fire | 167. City of Patterson, Miscellaneous |
| 117. City of Hercules, Miscellaneous | 168. City of Petaluma, Miscellaneous |
| 118. City of Hercules, Safety - Police | 169. City of Pinole, Miscellaneous |
| 119. City of Hermosa Beach, Miscellaneous | 170. City of Pinole, Safety - Fire |
| 120. City of Hermosa Beach, Safety - Fire | 171. City of Pinole, Safety - Police |
| 121. City of Hermosa Beach, Safety - Police | 172. City of Pleasant Hill, Miscellaneous |
| 122. City of Highland, Miscellaneous | 173. City of Pleasant Hill, Safety - Police |
| 123. City of Inglewood, Miscellaneous | 174. City of Pleasanton, Miscellaneous |
| 124. City of Inglewood, Safety - Fire | 175. City of Redwood City, Miscellaneous |
| 125. City of La Mesa, Safety - Fire | 176. City of Riverside, Miscellaneous |
| 126. City of La Mesa, Safety - Police | 177. City of Riverside, Safety - Fire |
| 127. City of La Quinta, Miscellaneous | 178. City of Riverside, Safety - Police |
| 128. City of Laguna Hills, Miscellaneous | 179. City of Rohnert Park, Miscellaneous |
| 129. City of Laguna Niguel, Miscellaneous | 180. City of Rohnert Park, Safety - Fire |
| 130. City of Laguna Woods, Miscellaneous | 181. City of Rohnert Park, Safety - Police |
| 131. City of Lake Forest, Miscellaneous | 182. City of Roseville, Miscellaneous |
| 132. City of Lancaster, Miscellaneous | 183. City of Roseville, Safety - Fire |
| 133. City of Larkspur, Miscellaneous | 184. City of San Carlos, Safety - Police |
| 134. City of Lathrop, Miscellaneous | 185. City of San Dimas, Miscellaneous |
| 135. City of Lodi, Miscellaneous | 186. City of San Joaquin, Miscellaneous |
| 136. City of Lodi, Safety - Fire | 187. City of San Jose, Miscellaneous |
| 137. City of Lodi, Safety - Police | 188. City of San Luis Obispo, Safety - Fire |
| 138. City of Lompoc, Miscellaneous | 189. City of San Marino, Safety - Police |
| 139. City of Los Altos, Miscellaneous | 190. City of San Pablo, Miscellaneous |
| 140. City of Los Altos, Safety - Police | 191. City of San Pablo, Safety - Police |
| 141. City of Lynwood, Safety - Fire | 192. City of Santa Cruz, Miscellaneous |
| 142. City of Manhattan Beach, Miscellaneous | 193. City of Santa Cruz, Safety - Fire |
| 143. City of Marysville, Miscellaneous | 194. City of Santa Cruz, Safety - Police |
| 144. City of Menlo Park, Safety - Police | 195. City of Santa Paula, Miscellaneous |
| 145. City of Mill Valley, Miscellaneous | 196. City of Santa Paula, Safety - Police |
| 146. City of Milpitas, Miscellaneous | 197. City of Santee, Miscellaneous |
| 147. City of Milpitas, Safety - Fire | 198. City of Saratoga, Miscellaneous |
| 148. City of Mission Viejo, Miscellaneous | 199. City of Seal Beach, Miscellaneous |
| 149. City of Modesto, Miscellaneous | 200. City of Seal Beach, Safety - Other Safety |
| 150. City of Montclair, Safety - Police | 201. City of Seal Beach, Safety - Police |
| 151. City of Montebello, Safety - Fire | 202. City of Sebastopol, Miscellaneous |
| 152. City of Montebello, Safety - Police | 203. City of Sebastopol, Safety - Fire |
| 153. City of Mountain View, Miscellaneous | 204. City of Sebastopol, Safety - Police |
| 154. City of National City, Miscellaneous | 205. City of Sonoma, Miscellaneous |
| 155. City of National City, Safety - Fire | 206. City of Sonoma, Safety - Fire |
| 156. City of National City, Safety - Police | 207. City of South San Francisco, Safety - Fire |
| 157. City of Norwalk, Miscellaneous | 208. City of South San Francisco, Safety - Police |
| 158. City of Oakdale, Miscellaneous | 209. City of Suisun City, Miscellaneous |
| 159. City of Oakdale, Safety - Police | |

Level 3 (continued)

210. City of Suisun City, Safety - Fire
211. City of Sunnyvale, Miscellaneous
212. City of Sunnyvale, Safety - Police
213. City of Turlock, Miscellaneous
214. City of Tustin, Miscellaneous
215. City of Twentynine Palms, Miscellaneous
216. City of Ukiah, Miscellaneous
217. City of Ukiah, Safety - Fire
218. City of Union City, Miscellaneous
219. City of Upland, Miscellaneous
220. City of Upland, Safety - Fire
221. City of Upland, Safety - Police
222. City of Ventura, Safety - Fire
223. City of Vernon, Miscellaneous
224. City of Vernon, Safety - Prosecutor
225. City of Victorville, Safety - Police
226. City of Vista, Safety - Fire
227. City of West Sacramento, Miscellaneous
228. City of West Sacramento, Safety - Police
229. City of Whittier, Miscellaneous
230. City of Whittier, Safety - Police
231. City of Woodlake, Miscellaneous
232. City of Woodlake, Safety - Police
233. City of Yucaipa, Miscellaneous
234. Coachella Valley Association of Governments, Miscellaneous
235. Coast Life Support District, Miscellaneous
236. Coast Life Support District, Safety - Fire
237. Coastal Developmental Services Fdn DBA Westside Regional Center, Miscellaneous
238. Compton Unified School District, Safety - Police
239. Contra Costa County Schools Insurance Group, Miscellaneous
240. Cooperative Personnel Services, Miscellaneous
241. Cottonwood Fire Protection District, Safety - Fire
242. County of Amador, Safety - County Peace Officer
243. County of Amador, Safety - Fire
244. County of Amador, Safety - Prosecutor
245. County of El Dorado, Miscellaneous
246. County of Inyo, Safety - County Peace Officer
247. County of Lassen, Safety - County Peace Officer
248. County of Plumas, Miscellaneous
249. County of Santa Cruz, Safety - County Peace Officer
250. County of Santa Cruz, Safety - Sheriff
251. County of Yuba, Miscellaneous
252. County of Yuba, Safety - County Peace Officer
253. Crestline Lake Arrowhead Water Agency, Miscellaneous
254. Dairy Council of California, Miscellaneous
255. Del Norte County Library District, Miscellaneous
256. Dougherty Regional Fire Authority, Miscellaneous
257. Dougherty Regional Fire Authority, Safety - Fire
258. El Dorado County Fire Protection District, Miscellaneous
259. El Dorado County Fire Protection District, Safety - Fire
260. El Dorado County Transit Authority, Miscellaneous
261. El Dorado Hills County Water District, Miscellaneous
262. Encina Wastewater Authority, Miscellaneous
263. Encinitas Fire Protection District, Miscellaneous
264. Encinitas Fire Protection District, Safety - Fire
265. Feather River Air Quality Management District, Miscellaneous
266. Fontana Unified School District, Safety - Police
267. Fort Ord Reuse Authority, Miscellaneous
268. Georgetown Fire Protection District, Miscellaneous
269. Georgetown Fire Protection District, Safety - Fire
270. Greater Anaheim Special Education Local Plan Area, Miscellaneous
271. Greater Vallejo Recreation District, Miscellaneous
272. Green Valley County Water District, Miscellaneous
273. Grossmont Healthcare District, Miscellaneous
274. Gualala Community Services District, Miscellaneous
275. Henry Miller Reclamation District No. 2131, Miscellaneous
276. Higgins Area Fire Protection District, Miscellaneous
277. Higgins Area Fire Protection District, Safety - Fire
278. Hilton Creek Community Services District, Miscellaneous
279. Housing Authority of the City of Madera, Miscellaneous
280. Human Rights/Fair Housing Commission of the City and County of Sacramento, Miscellaneous
281. Humboldt Bay Harbor Recreation and Conservation District, Miscellaneous
282. Humboldt No. 1 Fire Protection District of Humboldt County, Safety - Fire
283. Independent Cities Association, Inc., Miscellaneous
284. Indian Wells Valley Water District, Miscellaneous
285. Inland Counties Regional Center, Inc., Miscellaneous
286. Inland Empire Health Plan, Miscellaneous
287. Isla Vista Recreation and Park District, Miscellaneous
288. June Lake Public Utility District, Miscellaneous
289. Kern Health Systems, Miscellaneous
290. Kings Mosquito Abatement District, Miscellaneous
291. Laguna Beach County Water District, Miscellaneous
292. Lake Don Pedro Community Services District, Miscellaneous
293. Leucadia Wastewater District, Miscellaneous
294. Los Angeles County Area 'E' Civil Defense and Disaster Board, Miscellaneous
295. Los Angeles County Sanitation District No. 2, Miscellaneous
296. Los Angeles County West Vector Control District, Miscellaneous
297. Los Angeles Regionalized Insurance Services Authority, Miscellaneous
298. Los Gatos-Saratoga Department of Community Education and Recreation, Miscellaneous
299. Los Osos Community Services District, Miscellaneous
300. Los Osos Community Services District, Safety - Fire
301. Majestic Pines Community Services District, Miscellaneous

Level 3 (continued)

- 302. Management of Emeryville Services Authority, Miscellaneous
- 303. Meeks Bay Fire Protection District, Miscellaneous
- 304. Mendocino Transit Authority, Miscellaneous
- 305. Metropolitan Transportation Commission, Miscellaneous
- 306. Mid City Development Corporation, Miscellaneous
- 307. Minter Field Airport District, Miscellaneous
- 308. Mojave Air and Space Port, Safety - Fire
- 309. Mojave Water Agency, Miscellaneous
- 310. Montecito Fire Protection District, Miscellaneous
- 311. Montecito Fire Protection District, Safety - Fire
- 312. Monterey County Regional Fire Protection District, Miscellaneous
- 313. Monterey County Regional Fire Protection District, Safety - Fire
- 314. Monterey One Water, Miscellaneous
- 315. Monterey Regional Waste Management District, Miscellaneous
- 316. Mountains Recreation and Conservation Authority, Miscellaneous
- 317. Murrieta Fire Protection District, Miscellaneous
- 318. Nevada Irrigation District, Miscellaneous
- 319. North Bay Schools Insurance Authority, Miscellaneous
- 320. North County Fire Protection District of Monterey County, Safety - Fire
- 321. North Tahoe Fire Protection District, Miscellaneous
- 322. North Tahoe Fire Protection District, Safety - Fire
- 323. Northern Sierra Air Quality Management District, Miscellaneous
- 324. Novato Sanitary District, Miscellaneous
- 325. Oakdale Rural Fire Protection District, Miscellaneous
- 326. Oakdale Rural Fire Protection District, Safety - Fire
- 327. Oakland Unified School District, Safety - Police
- 328. Ojai Valley Sanitary District, Miscellaneous
- 329. Ophir Hill Fire Protection District, Miscellaneous
- 330. Ophir Hill Fire Protection District, Safety - Fire
- 331. Orange County Health Authority, Miscellaneous
- 332. Orange County Transportation Authority, Miscellaneous
- 333. Pajaro Valley Fire Protection Agency, Safety - Fire
- 334. Peardale Chicago Park Fire Protection District, Safety - Fire
- 335. Peninsula Fire Protection District, Miscellaneous
- 336. Penn Valley Fire Protection District, Miscellaneous
- 337. Personal Assistance Services Council, Miscellaneous
- 338. Placer Hills Fire Protection District, Miscellaneous
- 339. Pleasant Hill - Martinez Joint Facilities Agency, Miscellaneous
- 340. Pomona Valley Transportation Authority, Miscellaneous
- 341. Public Agency Risk Sharing Authority of California, Miscellaneous
- 342. Public Entity Risk Management Authority, Miscellaneous
- 343. Public Transportation Services Corporation, Miscellaneous
- 344. Quincy Community Services District, Miscellaneous
- 345. Rancho Murieta Community Services District, Miscellaneous
- 346. Redwood Empire School Insurance Group, Miscellaneous
- 347. Rescue Fire Protection District, Miscellaneous
- 348. Rincon Del Diablo Municipal Water District, Safety - Fire
- 349. Riverbank City Housing Authority, Miscellaneous
- 350. Riverside County Department of Waste Resources, Miscellaneous
- 351. Riverside County Transportation Commission, Miscellaneous
- 352. Roseville Public Cemetery District, Miscellaneous
- 353. Ross Valley Fire Department, Safety - Fire
- 354. Rural County Representatives of California, Miscellaneous
- 355. Russian River Fire Protection District, Miscellaneous
- 356. Russian River Fire Protection District, Safety - Fire
- 357. Sacramento Area Council of Governments, Miscellaneous
- 358. Sacramento Metropolitan Air Quality Management District, Miscellaneous
- 359. Sacramento Public Library Authority, Miscellaneous
- 360. Sacramento Regional Fire/EMS Communications Center, Miscellaneous
- 361. Sacramento Transportation Authority, Miscellaneous
- 362. Sacramento-Yolo Mosquito and Vector Control District, Miscellaneous
- 363. Salida Fire Protection District, Miscellaneous
- 364. Salida Fire Protection District, Safety - Fire
- 365. Samoa Peninsula Fire Protection District, Safety - Fire
- 366. San Andreas Regional Center, Inc., Miscellaneous
- 367. San Diego County Law Library, Miscellaneous
- 368. San Diego Rural Fire Protection District, Miscellaneous
- 369. San Diego Rural Fire Protection District, Safety - Fire
- 370. San Dieguito Water District, Miscellaneous
- 371. San Francisco Health Authority, Miscellaneous
- 372. San Joaquin Delta Community College District, Safety - Police
- 373. San Luis Obispo Regional Transit Authority, Miscellaneous
- 374. San Mateo County Harbor District, Miscellaneous
- 375. San Mateo County In-Home Supportive Services Public Authority, Miscellaneous
- 376. Santa Barbara Regional Health Authority, Miscellaneous
- 377. Santa Clara County Central Fire Protection District, Miscellaneous
- 378. Santa Clara County Central Fire Protection District, Safety - Fire
- 379. Santa Clara County Health Authority, Miscellaneous
- 380. Santa Clarita Valley School Food Services Agency, Miscellaneous
- 381. Santa Cruz Metropolitan Transit District, Miscellaneous
- 382. Santa Cruz Regional 9-1-1, Miscellaneous
- 383. Santa Fe Irrigation District, Miscellaneous
- 384. Santa Maria Public Airport District, Miscellaneous
- 385. School Risk And Insurance Management Group, Miscellaneous
- 386. Schools Excess Liability Fund, Miscellaneous
- 387. Scotts Valley Water District, Miscellaneous

Level 3 (continued)

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| 388. Sewer Authority Mid-Coastside, Miscellaneous | Miscellaneous |
| 389. Shasta Lake Fire Protection District, Safety - Fire | 409. Tuolumne Utilities District, Miscellaneous |
| 390. Solano Cemetery District, Miscellaneous | 410. Valley Mountain Regional Center, Inc., Miscellaneous |
| 391. Solano County Water Agency, Miscellaneous | 411. Valley-Wide Recreation and Park District, Miscellaneous |
| 392. Solano Transportation Authority, Miscellaneous | 412. Ventura County Schools Business Services Authority, Miscellaneous |
| 393. Southern California Regional Rail Authority, Miscellaneous | 413. Victor Valley Wastewater Reclamation Authority, Miscellaneous |
| 394. Stockton Unified School District, Safety - Police | 414. Water Facilities Authority, Miscellaneous |
| 395. Sunnyslope County Water District, Miscellaneous | 415. Weaverville Community Services District, Miscellaneous |
| 396. Sweetwater Springs Water District, Miscellaneous | 416. West Almanor Community Services District, Safety - Fire |
| 397. Tahoe-Truckee Sanitation Agency, Miscellaneous | 417. West Cities Communication Center, Miscellaneous |
| 398. Tehama County Mosquito Abatement District, Miscellaneous | 418. West End Communications Authority, Miscellaneous |
| 399. Town of Atherton, Miscellaneous | 419. West Valley-Mission Community College District, Safety - Police |
| 400. Town of Atherton, Safety - Police | 420. Westlands Water District, Miscellaneous |
| 401. Town of Fairfax, Miscellaneous | 421. Yolo County Public Agency Risk Management Insurance Authority, Miscellaneous |
| 402. Town of Fairfax, Safety - Police | 422. Yolo County Transportation District, Miscellaneous |
| 403. Town of Loomis, Miscellaneous | 423. Yuba County Water Agency, Miscellaneous |
| 404. Town of Truckee, Miscellaneous | 424. Yuba Sutter Transit Authority, Miscellaneous |
| 405. Town of Yucca Valley, Miscellaneous | |
| 406. Transportation Agency for Monterey County, Miscellaneous | |
| 407. Tri-City Mental Health Center, Miscellaneous | |
| 408. Tri-Counties Association for the Developmentally Disabled, | |

Level 4

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| 1. Academic Senate for California Community Colleges, Miscellaneous | 22. Bolinas Community Public Utility District, Miscellaneous |
| 2. Alameda County Congestion Management Agency, Miscellaneous | 23. Bonita-Sunnyside Fire Protection District, Safety - Fire |
| 3. Alameda County Schools Insurance Group, Miscellaneous | 24. Borrego Springs Fire Protection District, Safety - Fire |
| 4. Alameda County Transportation Commission, Miscellaneous | 25. Boulder Creek Fire Protection District, Safety - Fire |
| 5. Alameda County Transportation Improvement Authority, Miscellaneous | 26. Butte County Association of Governments, Miscellaneous |
| 6. Alameda County Waste Management Authority, Miscellaneous | 27. Butte County Fair Association, Miscellaneous |
| 7. Alameda County Water District, Miscellaneous | 28. Butte County In-Home Supportive Services Public Authority, Miscellaneous |
| 8. Albany Municipal Services Joint Powers Authority, Miscellaneous | 29. Butte Local Agency Formation Commission, Miscellaneous |
| 9. Alliance of Schools for Cooperative Insurance Programs, Miscellaneous | 30. Butte-Glenn Community College District, Safety - Police |
| 10. Alpine Fire Protection District, Miscellaneous | 31. Calaveras Council of Governments, Miscellaneous |
| 11. Alpine Fire Protection District, Safety - Fire | 32. California Firefighter's Joint Apprenticeship Committee, Miscellaneous |
| 12. Amador County Transportation Commission, Miscellaneous | 33. California Interscholastic Federation, Northern Section, Miscellaneous |
| 13. Aptos/La Selva Fire Protection Agency, Safety - Fire | 34. California Joint Powers Risk Management Authority, Miscellaneous |
| 14. Association of California Water Agencies - Joint Powers Insurance Authority, Miscellaneous | 35. California Pines Community Services District, Safety - Fire |
| 15. Bay Area Water Supply and Conservation Agency, Miscellaneous | 36. California Redevelopment Association Foundation, Miscellaneous |
| 16. Belmont Fire Protection District, Safety - Fire | 37. Carmel Regional Fire Ambulance Authority, Safety - Fire |
| 17. Berkeley Housing Authority, Miscellaneous | 38. Central Calaveras Fire and Rescue Protection District, Miscellaneous |
| 18. Big Bear Area Regional Wastewater Agency, Miscellaneous | 39. Central Contra Costa Solid Waste Authority, Miscellaneous |
| 19. Big Bear City Airport District, Miscellaneous | 40. Central County Fire Department, Miscellaneous |
| 20. Black Gold Cooperative Library System, Miscellaneous | 41. Central County Fire Department, Safety - Fire |
| 21. Blue Lake Fire Protection District, Safety - Fire | 42. Central Marin Fire Authority, Miscellaneous |
| | 43. Central Marin Fire Authority, Safety - Fire |

Level 4 (continued)

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| 44. Central Marin Police Authority, Miscellaneous | 94. City of Camarillo, Miscellaneous |
| 45. Central Marin Police Authority, Safety - Police | 95. City of Campbell, Safety - Police |
| 46. Central Marin Sanitation Agency, Miscellaneous | 96. City of Carlsbad, Safety - Fire |
| 47. Children and Families Commission of San Luis Obispo County, Miscellaneous | 97. City of Carmel-By-The-Sea, Miscellaneous |
| 48. Chino Basin Watermaster, Miscellaneous | 98. City of Carmel-By-The-Sea, Safety - Fire |
| 49. Chino Valley Independent Fire District, Miscellaneous | 99. City of Carmel-By-The-Sea, Safety - Police |
| 50. Chino Valley Independent Fire District, Safety - Fire | 100. City of Carson, Miscellaneous |
| 51. City of Adelanto, Miscellaneous | 101. City of Cathedral City, Miscellaneous |
| 52. City of Albany, Safety - Fire | 102. City of Cathedral City, Safety - Fire |
| 53. City of Albany, Safety - Police | 103. City of Cathedral City, Safety - Police |
| 54. City of Anaheim, Miscellaneous | 104. City of Cerritos, Miscellaneous |
| 55. City of Anaheim, Safety - Fire | 105. City of Chico, Miscellaneous |
| 56. City of Anaheim, Safety - Police | 106. City of Chico, Safety - Fire |
| 57. City of Arcadia, Safety - Fire | 107. City of Chico, Safety - Police |
| 58. City of Atascadero, Safety - Fire | 108. City of Chino, Miscellaneous |
| 59. City of Atascadero, Safety - Police | 109. City of Chino, Safety - Police |
| 60. City of Auburn, Safety - Fire | 110. City of Chowchilla, Miscellaneous |
| 61. City of Auburn, Safety - Police | 111. City of Chowchilla, Safety - Fire |
| 62. City of Azusa, Miscellaneous | 112. City of Chowchilla, Safety - Police |
| 63. City of Azusa, Safety - Police | 113. City of Chula Vista, Miscellaneous |
| 64. City of Bakersfield, Miscellaneous | 114. City of Chula Vista, Safety - Fire |
| 65. City of Bakersfield, Safety - Fire | 115. City of Chula Vista, Safety - Police |
| 66. City of Bakersfield, Safety - Police | 116. City of Citrus Heights, Miscellaneous |
| 67. City of Barstow, Miscellaneous | 117. City of Citrus Heights, Safety - Police |
| 68. City of Barstow, Safety - Police | 118. City of Clayton, Safety - Police |
| 69. City of Beaumont, Safety - Police | 119. City of Cloverdale, Miscellaneous |
| 70. City of Bell Gardens, Miscellaneous | 120. City of Cloverdale, Safety - Fire |
| 71. City of Bell Gardens, Safety - Police | 121. City of Cloverdale, Safety - Police |
| 72. City of Belmont, Miscellaneous | 122. City of Clovis, Miscellaneous |
| 73. City of Belmont, Safety - Police | 123. City of Clovis, Safety - Fire |
| 74. City of Benicia, Safety - Fire | 124. City of Clovis, Safety - Police |
| 75. City of Benicia, Safety - Police | 125. City of Colton, Miscellaneous |
| 76. City of Berkeley, Safety - Police | 126. City of Colton, Safety - Fire |
| 77. City of Beverly Hills, Miscellaneous | 127. City of Colton, Safety - Police |
| 78. City of Beverly Hills, Safety - Fire | 128. City of Corona, Miscellaneous |
| 79. City of Beverly Hills, Safety - Police | 129. City of Corona, Safety - Fire |
| 80. City of Bishop, Safety - Fire | 130. City of Cotati, Miscellaneous |
| 81. City of Brea, Miscellaneous | 131. City of Covina, Miscellaneous |
| 82. City of Brea, Safety - Fire | 132. City of Covina, Safety - Fire |
| 83. City of Brea, Safety - Police | 133. City of Covina, Safety - Police |
| 84. City of Buena Park, Miscellaneous | 134. City of Culver City, Safety - Fire |
| 85. City of Buena Park, Safety - Fire | 135. City of Culver City, Safety - Police |
| 86. City of Buena Park, Safety - Police | 136. City of Cupertino, Miscellaneous |
| 87. City of Burbank, Miscellaneous | 137. City of Cypress, Safety - Police |
| 88. City of Burbank, Safety - Fire | 138. City of Daly City, Safety - Fire |
| 89. City of Burbank, Safety - Police | 139. City of Davis, Miscellaneous |
| 90. City of Burlingame, Safety - Police | 140. City of Davis, Safety - Fire |
| 91. City of California City, Miscellaneous | 141. City of Davis, Safety - Police |
| 92. City of California City, Safety - Fire | 142. City of Diamond Bar, Miscellaneous |
| 93. City of California City, Safety - Police | 143. City of Dixon, Safety - Fire |
| | 144. City of Dixon, Safety - Police |

Level 4 (continued)

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| 145. City of Downey, Miscellaneous | 196. City of Hughson, Miscellaneous |
| 146. City of El Cajon, Miscellaneous | 197. City of Huntington Beach, Miscellaneous |
| 147. City of El Centro, Safety - Fire | 198. City of Huntington Beach, Safety - Fire |
| 148. City of El Centro, Safety - Police | 199. City of Huntington Beach, Safety - Other Safety |
| 149. City of El Cerrito, Safety - Fire | 200. City of Huntington Beach, Safety - Police |
| 150. City of El Cerrito, Safety - Police | 201. City of Huntington Park, Miscellaneous |
| 151. City of El Monte, Miscellaneous | 202. City of Huntington Park, Safety - Fire |
| 152. City of El Monte, Safety - Fire | 203. City of Huntington Park, Safety - Police |
| 153. City of El Monte, Safety - Police | 204. City of Industry, Miscellaneous |
| 154. City of El Segundo, Safety - Fire | 205. City of Irvine, Miscellaneous |
| 155. City of El Segundo, Safety - Police | 206. City of Irvine, Safety - Police |
| 156. City of Elk Grove, Miscellaneous | 207. City of Irwindale, Miscellaneous |
| 157. City of Elk Grove, Safety - Police | 208. City of Irwindale, Safety - Fire |
| 158. City of Escondido, Miscellaneous | 209. City of Irwindale, Safety - Police |
| 159. City of Escondido, Safety - Fire | 210. City of La Canada Flintridge, Miscellaneous |
| 160. City of Escondido, Safety - Police | 211. City of La Habra, Miscellaneous |
| 161. City of Exeter, Miscellaneous | 212. City of La Habra, Safety - Fire |
| 162. City of Fairfield, Miscellaneous | 213. City of La Habra, Safety - Police |
| 163. City of Fairfield, Safety - Fire | 214. City of La Mirada, Miscellaneous |
| 164. City of Fairfield, Safety - Police | 215. City of La Palma, Miscellaneous |
| 165. City of Fontana, Miscellaneous | 216. City of La Palma, Safety - Police |
| 166. City of Fontana, Safety - Police | 217. City of La Verne, Miscellaneous |
| 167. City of Foster City, Miscellaneous | 218. City of La Verne, Safety - Fire |
| 168. City of Foster City, Safety - Fire | 219. City of La Verne, Safety - Police |
| 169. City of Foster City, Safety - Police | 220. City of Laguna Beach, Miscellaneous |
| 170. City of Fountain Valley, Miscellaneous | 221. City of Laguna Beach, Safety - Fire |
| 171. City of Fremont, Miscellaneous | 222. City of Laguna Beach, Safety - Other Safety |
| 172. City of Fremont, Safety - Fire | 223. City of Laguna Beach, Safety - Police |
| 173. City of Fremont, Safety - Police | 224. City of Larkspur, Safety - Fire |
| 174. City of Fullerton, Miscellaneous | 225. City of Lawndale, Miscellaneous |
| 175. City of Fullerton, Safety - Fire | 226. City of Lemon Grove, Miscellaneous |
| 176. City of Fullerton, Safety - Police | 227. City of Lemon Grove, Safety - Fire |
| 177. City of Gilroy, Safety - Fire | 228. City of Livermore, Miscellaneous |
| 178. City of Gilroy, Safety - Police | 229. City of Livermore, Safety - Police |
| 179. City of Glendale, Miscellaneous | 230. City of Loma Linda, Safety - Fire |
| 180. City of Glendale, Safety - Fire | 231. City of Lomita, Miscellaneous |
| 181. City of Glendale, Safety - Police | 232. City of Lompoc, Safety - Fire |
| 182. City of Glendora, Safety - Police | 233. City of Lompoc, Safety - Police |
| 183. City of Goleta, Miscellaneous | 234. City of Long Beach, Safety - Fire |
| 184. City of Grand Terrace, Miscellaneous | 235. City of Long Beach, Safety - Police |
| 185. City of Half Moon Bay, Safety - Police | 236. City of Los Alamitos, Miscellaneous |
| 186. City of Hanford, Safety - Police | 237. City of Los Alamitos, Safety - Police |
| 187. City of Hayward, Miscellaneous | 238. City of Lynwood, Miscellaneous |
| 188. City of Healdsburg, Miscellaneous | 239. City of Manhattan Beach, Safety - Fire |
| 189. City of Healdsburg, Safety - Fire | 240. City of Manteca, Miscellaneous |
| 190. City of Healdsburg, Safety - Police | 241. City of Manteca, Safety - Fire |
| 191. City of Hemet, Miscellaneous | 242. City of Manteca, Safety - Police |
| 192. City of Hesperia, Miscellaneous | 243. City of Marina, Miscellaneous |
| 193. City of Hollister, Miscellaneous | 244. City of Marina, Safety - Fire |
| 194. City of Hollister, Safety - Fire | 245. City of Marina, Safety - Police |
| 195. City of Hollister, Safety - Police | 246. City of Martinez, Safety - Police |

Level 4 (continued)

- 247. City of Marysville, Safety - Fire
- 248. City of Marysville, Safety - Police
- 249. City of Menifee, Miscellaneous
- 250. City of Menifee, Safety - Police
- 251. City of Millbrae, Miscellaneous
- 252. City of Milpitas, Safety - Police
- 253. City of Monrovia, Miscellaneous
- 254. City of Monrovia, Safety - Fire
- 255. City of Monrovia, Safety - Police
- 256. City of Monterey, Miscellaneous
- 257. City of Monterey Park, Miscellaneous
- 258. City of Monterey Park, Safety - Fire
- 259. City of Monterey Park, Safety - Police
- 260. City of Moorpark, Miscellaneous
- 261. City of Moreno Valley, Miscellaneous
- 262. City of Morgan Hill, Miscellaneous
- 263. City of Morgan Hill, Safety - Police
- 264. City of Morro Bay, Miscellaneous
- 265. City of Morro Bay, Safety - Fire
- 266. City of Morro Bay, Safety - Police
- 267. City of Mountain View, Safety - Fire
- 268. City of Mountain View, Safety - Police
- 269. City of Murrieta, Miscellaneous
- 270. City of Murrieta, Safety - Police
- 271. City of Napa, Safety - Police
- 272. City of Newport Beach, Miscellaneous
- 273. City of Newport Beach, Safety - Fire
- 274. City of Newport Beach, Safety - Other Safety
- 275. City of Newport Beach, Safety - Police
- 276. City of Norco, Miscellaneous
- 277. City of Norco, Safety - Fire
- 278. City of Novato, Miscellaneous
- 279. City of Novato, Safety - Police
- 280. City of Oakdale, Safety - Fire
- 281. City of Oakley, Miscellaneous
- 282. City of Oakley, Safety - Police
- 283. City of Ontario, Safety - Fire
- 284. City of Ontario, Safety - Police
- 285. City of Orange, Miscellaneous
- 286. City of Orange, Safety - Fire
- 287. City of Orange, Safety - Police
- 288. City of Oroville, Miscellaneous
- 289. City of Oroville, Safety - Fire
- 290. City of Oroville, Safety - Police
- 291. City of Oxnard, Miscellaneous
- 292. City of Oxnard, Safety - Fire
- 293. City of Pacific Grove, Miscellaneous
- 294. City of Pacific Grove, Safety - Fire
- 295. City of Pacific Grove, Safety - Police
- 296. City of Pacifica, Miscellaneous
- 297. City of Pacifica, Safety - Fire
- 298. City of Pacifica, Safety - Police
- 299. City of Palm Springs, Miscellaneous
- 300. City of Palm Springs, Safety - Fire
- 301. City of Palm Springs, Safety - Police
- 302. City of Paramount, Miscellaneous
- 303. City of Pasadena, Miscellaneous
- 304. City of Pasadena, Safety - Fire
- 305. City of Pasadena, Safety - Police
- 306. City of Petaluma, Safety - Fire
- 307. City of Petaluma, Safety - Police
- 308. City of Pico Rivera, Miscellaneous
- 309. City of Piedmont, Safety - Fire
- 310. City of Pittsburg, Safety - Police
- 311. City of Placentia, Miscellaneous
- 312. City of Placentia, Safety - Police
- 313. City of Pleasanton, Safety - Fire
- 314. City of Porterville, Miscellaneous
- 315. City of Porterville, Safety - Fire
- 316. City of Porterville, Safety - Police
- 317. City of Rancho Cucamonga, Miscellaneous
- 318. City of Rancho Mirage, Miscellaneous
- 319. City of Rancho Palos Verdes, Miscellaneous
- 320. City of Redding, Safety - Fire
- 321. City of Redding, Safety - Police
- 322. City of Redondo Beach, Safety - Fire
- 323. City of Redondo Beach, Safety - Police
- 324. City of Redwood City, Safety - Fire
- 325. City of Redwood City, Safety - Police
- 326. City of Rialto, Miscellaneous
- 327. City of Rialto, Safety - Fire
- 328. City of Rocklin, Miscellaneous
- 329. City of Rocklin, Safety - Fire
- 330. City of Rocklin, Safety - Police
- 331. City of Roseville, Safety - Police
- 332. City of San Bernardino, Miscellaneous
- 333. City of San Bernardino, Safety - Fire
- 334. City of San Bruno, Miscellaneous
- 335. City of San Bruno, Safety - Fire
- 336. City of San Bruno, Safety - Police
- 337. City of San Clemente, Miscellaneous
- 338. City of San Fernando, Miscellaneous
- 339. City of San Fernando, Safety - Police
- 340. City of San Gabriel, Miscellaneous
- 341. City of San Gabriel, Safety - Fire
- 342. City of San Gabriel, Safety - Police
- 343. City of San Jacinto, Miscellaneous
- 344. City of San Jacinto, Safety - Fire
- 345. City of San Jacinto, Safety - Police
- 346. City of San Leandro, Safety - Police
- 347. City of San Luis Obispo, Miscellaneous
- 348. City of San Luis Obispo, Safety - Police

Level 4 (continued)

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| 349. City of San Marino, Miscellaneous | 400. City of Tulare, Safety - Police |
| 350. City of San Marino, Safety - Fire | 401. City of Turlock, Safety - Fire |
| 351. City of San Mateo, Safety - Fire | 402. City of Turlock, Safety - Police |
| 352. City of San Mateo, Safety - Police | 403. City of Tustin, Safety - Police |
| 353. City of San Ramon, Miscellaneous | 404. City of Ukiah, Safety - Police |
| 354. City of San Ramon, Safety - Police | 405. City of Vacaville, Miscellaneous |
| 355. City of Sand City, Miscellaneous | 406. City of Vacaville, Safety - Fire |
| 356. City of Sand City, Safety - Police | 407. City of Vacaville, Safety - Police |
| 357. City of Santa Ana, Miscellaneous | 408. City of Vallejo, Safety - Fire |
| 358. City of Santa Ana, Safety - Fire | 409. City of Vallejo, Safety - Police |
| 359. City of Santa Ana, Safety - Police | 410. City of Ventura, Miscellaneous |
| 360. City of Santa Barbara, Miscellaneous | 411. City of Ventura, Safety - Police |
| 361. City of Santa Clara, Safety - Fire | 412. City of Vernon, Safety - Fire |
| 362. City of Santa Clara, Safety - Police | 413. City of Victorville, Miscellaneous |
| 363. City of Santa Fe Springs, Miscellaneous | 414. City of Victorville, Safety - Fire |
| 364. City of Santa Fe Springs, Safety - Fire | 415. City of Villa Park, Miscellaneous |
| 365. City of Santa Maria, Miscellaneous | 416. City of Visalia, Safety - Fire |
| 366. City of Santa Maria, Safety - Fire | 417. City of Visalia, Safety - Police |
| 367. City of Santa Maria, Safety - Police | 418. City of Walnut, Miscellaneous |
| 368. City of Santa Monica, Miscellaneous | 419. City of Walnut Creek, Miscellaneous |
| 369. City of Santa Monica, Safety - Fire | 420. City of Walnut Creek, Safety - Police |
| 370. City of Santa Monica, Safety - Police | 421. City of West Covina, Miscellaneous |
| 371. City of Santa Rosa, Miscellaneous | 422. City of West Covina, Safety - Fire |
| 372. City of Santa Rosa, Safety - Fire | 423. City of West Covina, Safety - Police |
| 373. City of Santa Rosa, Safety - Police | 424. City of West Hollywood, Miscellaneous |
| 374. City of Sausalito, Safety - Fire | 425. City of West Sacramento, Safety - Fire |
| 375. City of Sausalito, Safety - Police | 426. City of Westminster, Miscellaneous |
| 376. City of Seaside, Miscellaneous | 427. City of Westminster, Safety - Police |
| 377. City of Seaside, Safety - Fire | 428. City of Wildomar, Miscellaneous |
| 378. City of Seaside, Safety - Police | 429. City of Woodland, Miscellaneous |
| 379. City of Sierra Madre, Miscellaneous | 430. City of Woodland, Safety - Fire |
| 380. City of Sierra Madre, Safety - Fire | 431. City of Woodland, Safety - Police |
| 381. City of Signal Hill, Safety - Fire | 432. City of Yorba Linda, Miscellaneous |
| 382. City of Signal Hill, Safety - Police | 433. City/County Association of Governments of San Mateo
County, Miscellaneous |
| 383. City of Simi Valley, Miscellaneous | 434. Cloverdale Fire Protection District, Safety - Fire |
| 384. City of Simi Valley, Safety - Police | 435. Coastside Fire Protection District, Miscellaneous |
| 385. City of Sonoma, Safety - Police | 436. Coastside Fire Protection District, Safety - Fire |
| 386. City of South Gate, Miscellaneous | 437. Colusa County One-Stop Partnership, Miscellaneous |
| 387. City of Stockton, Miscellaneous | 438. Conejo Recreation and Park District, Miscellaneous |
| 388. City of Stockton, Safety - Fire | 439. Contra Costa Transportation Authority, Miscellaneous |
| 389. City of Stockton, Safety - Police | 440. Costa Mesa Sanitary District, Miscellaneous |
| 390. City of Suisun City, Safety - Police | 441. Cosumnes Community Services District, Miscellaneous |
| 391. City of Temecula, Miscellaneous | 442. Cosumnes Community Services District, Safety - Fire |
| 392. City of Temple City, Miscellaneous | 443. County of El Dorado, Safety - County Peace Officer |
| 393. City of Thousand Oaks, Miscellaneous | 444. County of Humboldt, Miscellaneous |
| 394. City of Torrance, Safety - Fire | 445. County of Humboldt, Safety - County Peace Officer |
| 395. City of Torrance, Safety - Police | 446. County of Humboldt, Safety - Fire |
| 396. City of Tracy, Safety - Fire | 447. County of Kings, Safety - County Peace Officer |
| 397. City of Tracy, Safety - Police | 448. County of Kings, Safety - Fire |
| 398. City of Tulare, Miscellaneous | 449. County of Mono, Miscellaneous |
| 399. City of Tulare, Safety - Fire | |

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450. County of Mono, Safety - County Peace Officer
451. County of Mono, Safety - Fire
452. County of Mono, Safety - Sheriff
453. County of Monterey, Safety - County Peace Officer
454. County of Monterey, Safety - Fire
455. County of Napa, Miscellaneous
456. County of Napa, Safety - County Peace Officer
457. County of Plumas, Safety - County Peace Officer
458. County of Plumas, Safety - Sheriff
459. County of Shasta, Safety - Sheriff
460. County of Siskiyou, Safety - County Peace Officer
461. County of Solano, Safety - County Peace Officer
462. County of Solano, Safety - Sheriff
463. Crestline Village Water District, Miscellaneous
464. Crockett - Valona Sanitary District, Miscellaneous
465. Crockett Community Services District, Miscellaneous
466. Cucamonga Valley Water District, Miscellaneous
467. Del Puerto Water District, Miscellaneous
468. East County Fire Protection District, Miscellaneous
469. East County Fire Protection District, Safety - Fire
470. East Valley Water District, Miscellaneous
471. Eastern Municipal Water District, Miscellaneous
472. Eastern Sierra Transit Authority, Miscellaneous
473. El Dorado County Transportation Commission, Miscellaneous
474. El Dorado County Water Agency, Miscellaneous
475. El Dorado Hills County Water District, Safety - Fire
476. El Dorado Local Agency Formation Commission, Miscellaneous
477. Esparto Fire Protection District, Miscellaneous
478. Estero Municipal Improvement District, Miscellaneous
479. Estero Municipal Improvement District, Safety - Fire
480. Estero Municipal Improvement District, Safety - Police
481. Exeter District Ambulance, Miscellaneous
482. Fairfield-Suisun Sewer District, Miscellaneous
483. Far Northern Coordinating Council on Developmental Disabilities, Miscellaneous
484. Florin Resource Conservation District Elk Grove Water District, Miscellaneous
485. Georgetown Divide Resource Conservation District, Miscellaneous
486. Glen Ellen Fire Protection District, Safety - Fire
487. Glendale Community College District, Safety - Police
488. Gold Coast Transit, Miscellaneous
489. Gold Ridge Fire Protection District, Miscellaneous
490. Graton Community Services District, Miscellaneous
491. Hacienda La Puente Unified School District, Safety - Police
492. Hamilton Branch Fire Protection District, Safety - Fire
493. Health Plan of San Joaquin, Miscellaneous
494. Heartland Communications Facility Authority, Miscellaneous
495. Helendale Community Services District, Miscellaneous
496. Heritage Ranch Community Services District, Miscellaneous
497. Herlong Public Utility District, Miscellaneous
498. Hesperia Fire Protection District, Miscellaneous
499. Hesperia Fire Protection District, Safety - Fire
500. Hesperia Water District, Miscellaneous
501. Hidden Valley Lake Community Services District, Miscellaneous
502. Hopland Public Utility District, Miscellaneous
503. Housing Authority of the City of Alameda, Miscellaneous
504. Housing Authority of the City of San Buenaventura, Miscellaneous
505. Hub Cities Consortium, Miscellaneous
506. Humboldt Bay Fire Joint Powers Authority, Miscellaneous
507. Humboldt Bay Fire Joint Powers Authority, Safety - Fire
508. Humboldt Transit Authority, Miscellaneous
509. Humboldt Waste Management Authority, Miscellaneous
510. Idyllwild Fire Protection District, Safety - Fire
511. Intelcom Intelligent Telecommunications, Miscellaneous
512. Intergovernmental Training and Development Center, Miscellaneous
513. Ironhouse Sanitary District, Miscellaneous
514. Irvine Ranch Water District, Miscellaneous
515. Kaweah Delta Water Conservation District, Miscellaneous
516. Kensington Community Services District, Safety - Police
517. Kentfield Fire Protection District, Miscellaneous
518. Kentfield Fire Protection District, Safety - Fire
519. Kern-Tulare Water District, Miscellaneous
520. Kings County Area Public Transit Agency, Miscellaneous
521. Kings County Association of Governments, Miscellaneous
522. Kings County In-Home Supportive Services Public Authority, Miscellaneous
523. Lake County Fire Protection District, Miscellaneous
524. Lake County Fire Protection District, Safety - Fire
525. Lake Shastina Community Services District, Miscellaneous
526. Lake Shastina Community Services District, Safety - Police
527. Lake Valley Fire Protection District, Miscellaneous
528. Lake Valley Fire Protection District, Safety - Fire
529. Lakeport County Fire Protection District, Miscellaneous
530. Lakeport County Fire Protection District, Safety - Fire
531. Lakeside Fire Protection District, Safety - Fire
532. Lassen County Waterworks District No. 1, Miscellaneous
533. Linda Fire Protection District, Miscellaneous
534. Linda Fire Protection District, Safety - Fire
535. Livermore/Amador Valley Transit Authority, Miscellaneous
536. Local Agency Formation Commission of Monterey County, Miscellaneous
537. Local Agency Formation Commission of Solano County, Miscellaneous
538. Local Government Services Authority, a Joint Powers Authority, Miscellaneous
539. Los Angeles County Development Authority, Miscellaneous
540. Los Angeles Unified School District, Safety - Police

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- 541. Mammoth Lakes Fire District, Safety - Fire
- 542. Mammoth Lakes Mosquito Abatement District, Miscellaneous
- 543. March Joint Powers Authority, Miscellaneous
- 544. Marin Community College District, Safety - Police
- 545. Mendocino County Russian River Flood Control & Water Conservation Improvement Dt, Miscellaneous
- 546. Metropolitan Water District of Southern California, Miscellaneous
- 547. Midway Heights County Water District, Miscellaneous
- 548. Monterey Bay Unified Air Pollution Control District, Miscellaneous
- 549. Monterey Peninsula Regional Park District, Miscellaneous
- 550. Monterey Peninsula Water Management District, Miscellaneous
- 551. Municipal Pooling Authority, Miscellaneous
- 552. Municipal Water District of Orange County, Miscellaneous
- 553. Murrieta Fire Protection District, Safety - Fire
- 554. Murrieta Valley Cemetery District, Miscellaneous
- 555. Napa County Mosquito Abatement District, Miscellaneous
- 556. Napa County Resource Conservation District, Miscellaneous
- 557. Napa Sanitation District, Miscellaneous
- 558. Napa Valley Transportation Authority, Miscellaneous
- 559. Nevada County Consolidated Fire District, Miscellaneous
- 560. Nevada County Consolidated Fire District, Safety - Fire
- 561. Nevada-Sierra Connecting Point Public Authority, Miscellaneous
- 562. Nipomo Community Services District, Miscellaneous
- 563. North Bay Regional Center, Miscellaneous
- 564. North Coast Railroad Authority, Miscellaneous
- 565. North County Dispatch Joint Powers Authority, Miscellaneous
- 566. North County Fire Protection District of San Diego County, Miscellaneous
- 567. North County Fire Protection District of San Diego County, Safety - Fire
- 568. Northshore Fire Protection District, Miscellaneous
- 569. Northshore Fire Protection District, Safety - Fire
- 570. Orange County Vector Control District, Miscellaneous
- 571. Pasadena Unified School District, Safety - Police
- 572. Pebble Beach Community Services District, Miscellaneous
- 573. Peninsula Traffic Congestion Relief Alliance, Miscellaneous
- 574. Penn Valley Fire Protection District, Safety - Fire
- 575. Phelan Pinon Hills Community Services District, Miscellaneous
- 576. Pixley Irrigation District, Miscellaneous
- 577. Placer Mosquito and Vector Control District, Miscellaneous
- 578. Plumas Eureka Community Services District, Miscellaneous
- 579. Point Montara Fire Protection District, Safety - Fire
- 580. Rancho Cucamonga Fire Protection District, Miscellaneous
- 581. Rancho Cucamonga Fire Protection District, Safety - Fire
- 582. Rancho Santa Fe Fire Protection District, Miscellaneous
- 583. Rancho Santa Fe Fire Protection District, Safety - Fire
- 584. Redwood Empire Municipal Insurance Fund, Miscellaneous
- 585. Regional Center of Orange County, Miscellaneous
- 586. Rescue Fire Protection District, Safety - Fire
- 587. Rincon Del Diablo Municipal Water District, Miscellaneous
- 588. Rincon Valley Fire Protection District, Miscellaneous
- 589. Rincon Valley Fire Protection District, Safety - Fire
- 590. Rose Bowl Operating Company, Miscellaneous
- 591. Rosedale-Rio Bravo Water Storage District, Miscellaneous
- 592. Sacramento Groundwater Authority, Miscellaneous
- 593. Sacramento Metropolitan Fire District, Miscellaneous
- 594. Sacramento Metropolitan Fire District, Safety - Fire
- 595. Sacramento Suburban Water District, Miscellaneous
- 596. Salinas Valley Solid Waste Authority, Miscellaneous
- 597. San Bernardino City Unified School District, Safety - Police
- 598. San Diego Association of Governments, Miscellaneous
- 599. San Diego Community College District, Safety - Police
- 600. San Diego Pooled Insurance Program Authority, Miscellaneous
- 601. San Diego Unified School District, Safety - Police
- 602. San Francisco Bay Area Rapid Transit District, Safety - Police
- 603. San Francisco Bay Area Water Emergency Transportation Authority, Miscellaneous
- 604. San Gabriel Valley Council of Governments, Miscellaneous
- 605. San Joaquin County IHSS Public Authority, Miscellaneous
- 606. San Luis Obispo Council of Governments, Miscellaneous
- 607. San Mateo Consolidated Fire Department, Miscellaneous
- 608. San Mateo Consolidated Fire Department, Safety - Fire
- 609. San Miguel Community Services District, Miscellaneous
- 610. San Miguel Consolidated Fire Protection District, Miscellaneous
- 611. San Miguel Consolidated Fire Protection District, Safety - Fire
- 612. San Simeon Community Services District, Miscellaneous
- 613. Santa Ana Unified School District, Safety - Police
- 614. Santa Clara Valley Water District, Miscellaneous
- 615. Santa Clarita Valley Water Agency, Miscellaneous
- 616. Santa Cruz County Regional Transportation Commission, Miscellaneous
- 617. Santa Margarita Water District, Miscellaneous
- 618. Schell Vista Fire Protection District, Safety - Fire
- 619. Selma-Kingsburg-Fowler County Sanitation District, Miscellaneous
- 620. Shasta Lake Fire Protection District, Miscellaneous
- 621. Shasta Regional Transportation Agency, Miscellaneous
- 622. Sierra-Sacramento Valley Emergency Medical Services Agency, Miscellaneous
- 623. Silicon Valley Animal Control Authority, Miscellaneous
- 624. Silicon Valley Clean Water, Miscellaneous
- 625. Sonoma County Fire District, Miscellaneous
- 626. Sonoma County Fire District, Safety - Fire
- 627. Sonoma Marin Area Rail Transit District, Safety - Other Safety
- 628. Soquel Creek Water District, Miscellaneous

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15. City of Eastvale, Miscellaneous
16. City of Emeryville, Safety - Fire
17. City of Garden Grove, Miscellaneous
18. City of Garden Grove, Safety - Fire
19. City of Garden Grove, Safety - Police
20. City of Greenfield, Safety - Fire
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28. City of Modesto, Safety - Police
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30. City of Monterey, Safety - Police
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38. City of Poway, Safety - Fire
39. City of Rancho Cordova, Miscellaneous
40. City of Rancho Santa Margarita, Miscellaneous
41. City of Redding, Miscellaneous
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43. City of Salinas, Safety - Police
44. City of San Carlos, Safety - Fire
45. City of San Marcos, Safety - Fire
46. City of Santa Clarita, Miscellaneous
47. City of Santee, Safety - Fire
48. City of Shasta Lake, Miscellaneous
49. City of Solana Beach, Safety - Fire
50. City of South Lake Tahoe, Miscellaneous
51. City of South Lake Tahoe, Safety - Fire
52. City of Yuba City, Miscellaneous
53. City of Yuba City, Safety - Fire
54. City of Yuba City, Safety - Police
55. Coalinga/Huron Unified School District Library District, Miscellaneous
56. Contra Costa Community College District, Safety - Police
57. Cooperative Organization for the Development of Employee Selection Procedures, Miscellaneous
58. County of Riverside, Miscellaneous
59. County of Riverside, Safety - County Peace Officer
60. County of Riverside, Safety - Fire
61. Foothill Municipal Water District, Miscellaneous
62. Foundation for California Community Colleges, Miscellaneous
63. Greater Los Angeles County Vector Control District, Miscellaneous
64. Greenfield Fire Protection District, Safety - Fire
65. Grossmont-Cuyamaca Community College District Auxiliary Organization, Miscellaneous
66. Hesperia Unified School District, Safety - Police
67. Housing Authority of the County of Santa Cruz, Miscellaneous
68. Inland Empire Resource Conservation District, Miscellaneous
69. Jurupa Area Recreation and Park District, Miscellaneous
70. Loomis Fire Protection District, Miscellaneous
71. Loomis Fire Protection District, Safety - Fire
72. Marin Children and Families Commission, Miscellaneous
73. Marin County In-Home Supportive Services Public Authority, Miscellaneous
74. Menlo Park Fire Protection District, Miscellaneous
75. Menlo Park Fire Protection District, Safety - Fire
76. Midpeninsula Regional Open Space District, Miscellaneous
77. Mojave Air and Space Port, Miscellaneous
78. North Bay Cooperative Library System, Miscellaneous
79. North Delta Water Agency, Miscellaneous
80. Oceano Community Services District, Safety - Fire
81. Plumas Local Agency Formation Commission, Miscellaneous
82. Redwood Coast Regional Center, Miscellaneous
83. Regional Center of the East Bay, Miscellaneous
84. Sacramento Area Flood Control Agency, Miscellaneous
85. San Diego County Office Of Education, Miscellaneous
86. San Elijo Joint Powers Authority, Miscellaneous
87. San Francisquito Creek Joint Powers Authority, Miscellaneous
88. Santa Clara Valley Open Space Authority, Miscellaneous
89. Santa Monica Community College District, Safety - Police
90. Schools Insurance Authority, Miscellaneous
91. Scotts Valley Fire Protection District, Miscellaneous
92. Scotts Valley Fire Protection District, Safety - Fire
93. Shasta Local Agency Formation Commission, Miscellaneous
94. Sonoma County Junior College District, Safety - Police
95. Sonoma Marin Area Rail Transit District, Miscellaneous
96. State and Federal Contractors Water Agency, Miscellaneous
97. Stege Sanitary District, Miscellaneous
98. Town of Truckee, Safety - Police
99. Vallejo Flood and Wastewater District, Miscellaneous
100. Williams Fire Protection Authority, Safety - Fire
101. Yolo County In-Home Supportive Services Public Authority, Miscellaneous
102. Yuba Community College District, Safety - Police

Appendix F – Glossary of Actuarial Terms

Accrued Liability: (also called Actuarial Accrued Liability or Entry Age Normal Accrued Liability) The total dollars needed as of the valuation date to fund all benefits earned in the past for *current* members.

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

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

Actuarial Valuation: The determination, as of a valuation date of the Normal Cost, Accrued Liability, 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.

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

Generally, in an actuarial valuation, the separate bases consist of changes in unfunded liability due to actuarial assumption changes, actuarial methodology changes, and/or experience gains and losses. Amortization methodology is determined by Board policy.

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

Entry Age Normal Cost Method: An actuarial cost method designed to fund a member's total plan benefit over the course of his or her career. This method is designed to yield a rate expressed as a level percentage of payroll.

(The assumed retirement age less the entry age is the amount of time required to fund a member's total benefit. Generally, the older a member on the date of hire, the greater the entry age normal cost. This is mainly because there is less time to earn investment income to fund the future benefits.)

Normal Cost: The portion of the actuarial present value of projected benefits that is allocated to a period, typically twelve months, under the actuarial cost method. The normal cost may include a provision for expenses.

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

Appendix F – Glossary of Actuarial Terms (continued)

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.

Term Insurance Method: An actuarial cost method designed such that contributions are made to the plan to meet benefit payments expected to fall due within the year for which the contribution is made.

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

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