

State Actuarial Valuation

As of June 30, 2022



Required Contributions for Fiscal Year
July 1, 2023 through June 30, 2024



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Actuarial Certification



October 2023

To the best of our knowledge, this report is complete and accurate and contains sufficient information to disclose, fully and fairly, the funded condition of the State plans and satisfies the actuarial valuation requirements of Government Code section 7504. This valuation is based on the member and financial data as of June 30, 2022 provided by the various CalPERS databases and the benefits under these plans with CalPERS as of the date this report was produced. It is our opinion that the valuation has been performed in accordance with generally accepted actuarial principles, in accordance with standards of practice prescribed by the Actuarial Standards Board, and that the assumptions and methods are internally consistent and reasonable for these plans, as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.

The undersigned are actuaries who satisfy the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States regarding pensions.

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Highlights and Executive Summary

Introduction

This report presents the results of the June 30, 2022, actuarial valuation of the State plans of the California Public Employees' Retirement System (CalPERS). This actuarial valuation sets the minimum required employer contributions for fiscal year (FY) 2023-24.

The five plans included in this valuation provide retirement benefits to members employed by the State of California. This includes employees of the California State University system but generally does not include employees of the University of California system. It also does not cover school employees or employees of local governments that have elected to contract with CalPERS.

Purpose of Report

This actuarial valuation was performed by the CalPERS Actuarial Office using data as of June 30, 2022. The purpose of the report is to:

- Set forth the assets and accrued liabilities of the State plans as of June 30, 2022.
- Determine the required employer contribution rates of these plans for the FY July 1, 2023 through June 30, 2024.
- Provide actuarial information as of June 30, 2022 to the CalPERS Board of Administration (board) and other interested parties.

The pension funding information presented in this report should not be used in financial reports subject to Governmental Accounting Standards Board (GASB) Statement Number 68 for an Agent Employer Defined Benefit Pension Plan.

The measurements shown in this actuarial valuation may not be appropriate for other purposes. The State should contact the state actuaries before disseminating any portion of this report for any reason that is not explicitly described above.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; changes in actuarial policies; changes in plan provisions or applicable law; and differences between the required contributions determined by the valuation and the actual contributions made by the State.

Assessment and Disclosure of Risk

This report includes the following risk disclosures consistent with the recommendations of Actuarial Standards of Practice No. 51 and recommended by the California Actuarial Advisory Panel (CAAP) in the Model Disclosure Elements document:

- A "Scenario Test," projecting future results under different investment income returns.
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 5.8% and 7.8%.
- A "Sensitivity Analysis," showing the impact on current valuation results assuming rates of mortality are 10% lower or 10% higher than our current post-retirement mortality assumptions adopted in 2021.
- Plan maturity measures indicating how sensitive a plan may be to the risks noted above.

Highlights and Executive Summary

Required Employer Contribution Rates

The actuarially required employer contribution rates for fiscal year July 1, 2023 through June 30, 2024 are shown in the table below. For comparison purposes, the corresponding contribution rates for fiscal year July 1, 2022 through June 30, 2023 are also provided. The contribution amounts that these rates are expected to generate are also shown.

Plan	Fiscal Year 2022-23		Fiscal Year 2023-24	
	Expected Employer Contribution	Required Employer Rate ¹	Expected Employer Contribution	Required Employer Rate ¹
State Miscellaneous	\$4,452,668,365	30.71%	\$4,749,786,466	30.87%
State Industrial	157,441,305	19.51%	164,652,179	19.54%
State Safety	537,135,074	21.13%	537,239,490	21.54%
State Peace Officers & Firefighters	1,850,939,503	47.21%	1,952,093,631	46.26%
California Highway Patrol	599,038,797	63.89%	653,800,914	67.69%
Total State	\$7,597,223,044		\$8,057,572,680	

¹ Excludes additional contributions pursuant to Government Code section 20683.2, Contribution Stabilization adjustment and Bargaining Unit 5 adjustment. See "Additional Contributions" section on page 7 for more information.

The expected employer contribution dollar amounts shown above are calculated prior to the contribution year and should not be used for financial disclosure purposes. These amounts should not be confused with the Actuarially Determined Contributions, which are calculated after the contribution year and disclosed in the CalPERS GASB 68 accounting reports.

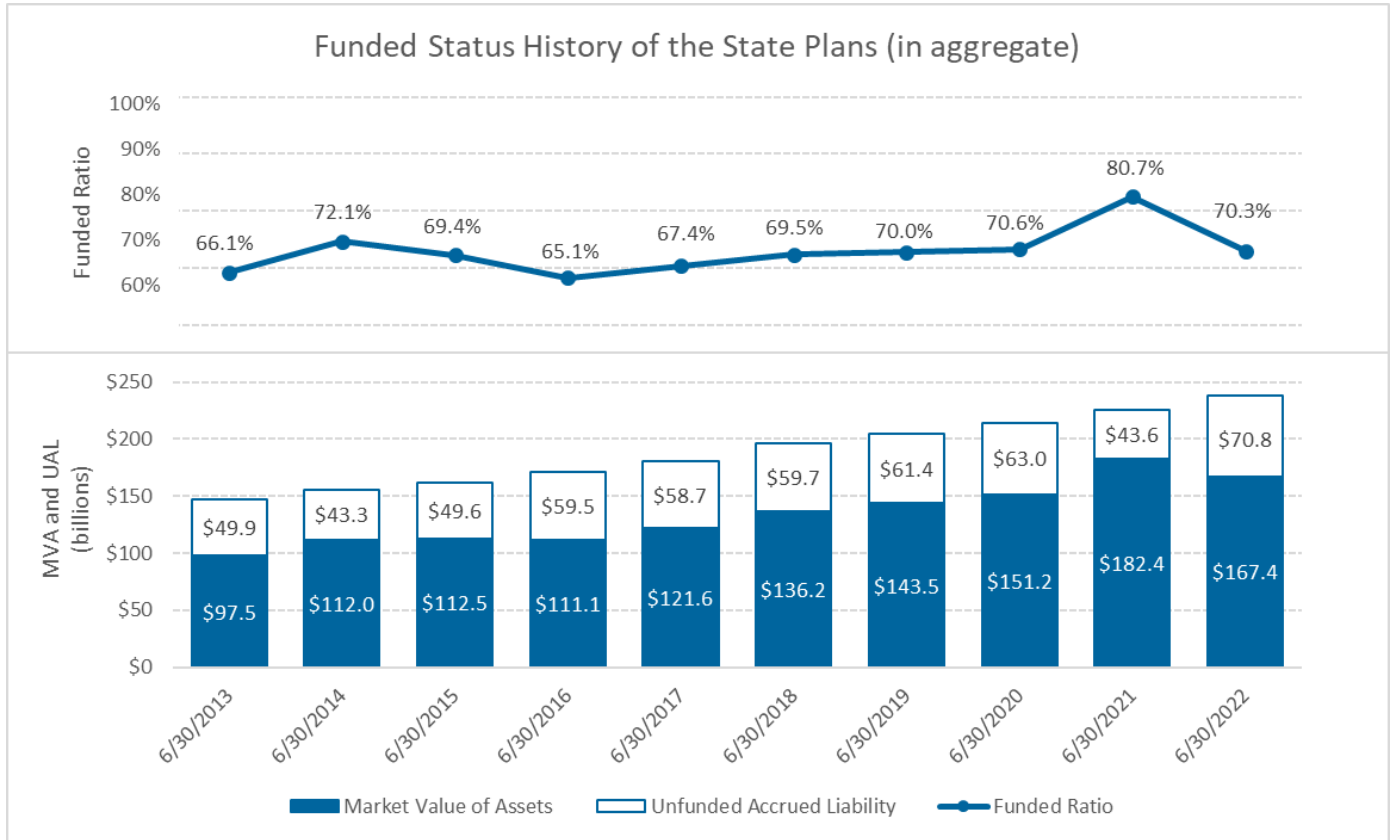
The payroll used to calculate the expected dollar contribution is payroll reported for the fiscal year ending on the valuation date projected forward two years using the annual payroll growth assumption in effect on the valuation date. For example, expected fiscal year 2023-24 contributions are based on fiscal year 2021-22 reported payroll increased by 2.8% per year for two years. Actual contribution amounts will be based on actual payroll during the associated fiscal year and will differ from the expected contributions shown in the table above. State Miscellaneous and State Industrial include both Tier 1 and Tier 2 benefit levels.

The supporting exhibits titled "Reconciliation of Employer Contribution Rates" and "Reconciliation of Employer Contributions" in the Liabilities and Employer Contributions section of this report explain the changes in required contribution rates and expected contribution amounts from fiscal year 2022-23 to fiscal year 2023-24.

Highlights and Executive Summary

Funded Status

The Unfunded Accrued Liability (UAL) and funded ratio are assessments of the need for future employer contributions based on the actuarial cost method used to fund the plan. The UAL is the accrued liability minus the assets, while the funded ratio is the assets divided by the accrued liability. The UAL is the present value of future employer contributions for service that has already been earned and is in addition to future normal cost contributions for active members. The funded ratio, on the other hand, is a relative measure of funded status that allows for comparison between plans of different sizes. From June 30, 2021, to June 30, 2022 the aggregated funded ratio for the State plans decreased by approximately 10.4%.



Unfunded Liability and Funded Status on June 30, 2022

Plan	Present Value of Benefits	Entry Age Normal Accrued Liability	Market Value of Assets	Unfunded Liability	Funded Status
State Miscellaneous	\$160,019,539,583	\$136,885,121,928	\$95,468,628,933	\$41,416,492,995	69.7%
State Industrial	7,297,827,645	5,916,656,618	4,573,697,146	1,342,959,472	77.3%
State Safety	22,080,656,948	17,527,672,227	13,828,233,253	3,699,438,974	78.9%
State Peace Officers & Firefighters	72,418,825,378	61,229,068,218	42,535,707,168	18,693,361,050	69.5%
California Highway Patrol	19,312,990,782	16,644,422,636	11,013,319,634	5,631,103,002	66.2%
Total for the State	\$281,129,840,336	\$238,202,941,627	\$167,419,586,134	\$70,783,355,493	70.3%

Funded Status History

Plan	June 30, 2018	June 30, 2019	June 30, 2020	June 30, 2021	June 30, 2022
State Miscellaneous	69.5%	69.8%	69.8%	79.8%	69.7%
State Industrial	76.9%	77.3%	78.1%	89.2%	77.3%
State Safety	77.6%	78.6%	79.8%	91.2%	78.9%
State Peace Officers & Firefighters	68.3%	69.0%	70.8%	80.3%	69.5%
California Highway Patrol	63.8%	64.5%	64.3%	75.4%	66.2%
Total for the State	69.5%	70.0%	70.6%	80.7%	70.3%

Highlights and Executive Summary

Changes Since the Prior Year's Valuation

Overall, the required contributions for the State plans increased by \$460 million between fiscal years 2022-23 and 2023-24, a 6.1% relative increase. The table below highlights major contributors to the change in required contributions.

Reason for Change	Change in Required Contribution (in millions)
Change due to normal progression of existing amortization bases	(\$47.6)
Effect due to change in overall payroll	156.0
Decrease in normal cost due to new hires in lower benefit levels	(60.7)
Impact of change in member contribution rates	(49.0)
Decrease due to Supplemental Pension Payment	(481.3)
First installment of the 20-year amortization of the following sources of experience gains and losses:	
• Investment experience (reflects five-year ramp)	602.0
• Demographic gains and losses	341.0
Total Change in Required Contributions	\$460.4

Key changes are discussed in detail below.

Assumptions and Methods

There have been no assumption or method changes since the prior valuation. A complete description of the actuarial methods and assumptions used in this valuation can be found in Appendix A of this report.

Plan Provisions

No changes were made since the prior valuation. See Appendix B for a summary of the plan provisions used in this valuation.

Plan Experience

On July 20, 2022, CalPERS reported a preliminary net return of -6.1%, before reduction for administrative expenses, for the year ending June 30, 2022. This return was approximately 13% lower than the assumed rate of return of 6.8% resulting in a significant investment loss. This loss will be amortized over 20 years with a 5-year ramp up in the amortization schedule, meaning that the investment loss will result in contribution rate increases in this valuation as well as the next four valuations.

Payroll across the State plans increased by 5.3%, compared to the payroll growth assumption of 2.8%, resulting in an increase of \$156.0 million in the required contribution. The change in payroll for the year ranges from a 1.8% decrease for State Safety to a 7.6% increase for State Peace Officers and Firefighters.

The California Public Employees' Pension Reform Act of 2013 (PEPRA) requires lower benefits for new members as defined by PEPRA who are hired on or after January 1, 2013. The normal cost for all the plans is lower due to the enrollment of new hires into lower benefit levels. PEPRA membership ranges from a high of 48% of payroll for State Safety to a low of 25% of payroll for California Highway Patrol.

The plans in aggregate experienced a non-investment loss due to demographic sources and a gain due to actual contributions being greater than expected. The net effect was a non-investment experience loss that will be amortized over 20 years beginning in 2023-24.

Highlights and Executive Summary

Additional Contributions

Every year since FY 2013-14, the State employer contribution rates in the annual Budget Act have exceeded the actuarially required contribution rates adopted by the board. Although the additional amounts arose at different times and through different processes, there is a common goal, which is to reduce the State's unfunded liability and create long-term savings.

One of the provisions of pension reform added Government Code section 20683.2, which changed the contribution rates of many State members effective July 1, 2013, July 1, 2014, and July 1, 2015. Government Code section 20683.2 also stipulates that "savings realized by the state employer as a result of the employee contribution rate increases required by this section shall be allocated to any unfunded liability, subject to appropriation in the annual Budget Act." Under the California Constitution, the board has plenary authority over the actuarial function at CalPERS consistent with the fiduciary duties of a trustee. This includes authority to set employer contribution rates. By statute, the State may pay additional contributions in addition to the actuarially required contribution rates set by the board and CalPERS will generally accept these payments.

In all cases, the savings are less than the actual increase in member contributions. This is because the additional member contributions increase the value of the benefit in some circumstances. One example is when a member terminates and takes a refund of his/her accumulated contributions with interest. Another example is Tier 2 members, who are assumed to elect to convert to a Tier 1 benefit with an actuarial equivalent reduction to offset missed Tier 1 contributions; because the members will make additional contributions, a smaller reduction will apply in the future.

In 2014, California voters passed Proposition 2, which amended the State Constitution to require certain funds be appropriated to repay specific State debts, including unfunded liabilities for state-level pension plans. These payments totaling \$2.9 billion were made on July 27, 2022 and are reflected in the amortization schedules in this report. The Constitution does not allow these payments to supplant funding that would have otherwise been used to pay for the unfunded liability in the fiscal year the payment was appropriated or the subsequent fiscal year. The supplemental payments, however, do reduce the actuarially required contribution rates in FY 2023-24 and later. The objective of the supplemental payments is to generate long-term savings rather than short-term savings, and to pay off the unfunded liability sooner than if the payments had not been made, which can be accomplished by budgeting and appropriating a contribution rate that is higher than the actuarially required rate. This adjustment, referred to as the Contribution Stabilization adjustment, affords the State some budget flexibility and allows the contribution rates in the Budget Act to closely align with the State's own budget projections.

An additional \$318 million in supplemental pension payments were made in 2020, 2021 and 2022 towards to the California Highway Patrol Plan. Under the terms of the agreement between the State and the California Association of Highway Patrolmen (Bargaining Unit 5), the supplemental payments may not decrease employer contributions during the term of the agreement, which expires on July 1, 2024. Since the payments reduced the unfunded liability, they also reduced the actuarially required contribution rate. To comply with the agreement, the State must contribute in excess of the actuarially required contribution rate by the same amount the supplemental payments decreased the actuarially required contribution rate, 2.77% of payroll.

The table below shows the actuarially required contribution rate (set by the board based on staff recommendation), the additional contributions under Government Code section 20683.2, the contribution stabilization and Bargaining Unit 5 adjustments and the resulting total contribution rate for fiscal year 2023-24 to be paid by the State for each plan.

Plan	Actuarially Required Employer Contribution FY 2023-24	Additional Statutory Contribution per GC §20683.2	Contribution Stabilization & Bargaining Unit 5 Adjustments	Total Contribution FY 2023-24
State Miscellaneous	30.87%	0.10%	1.03%	32.00%
State Industrial	19.54%	0.88%	0.58%	21.00%
State Safety	21.54%	1.18%	0.03%	22.75%
State Peace Officers & Firefighters	46.26%	1.65%	2.09%	50.00%
California Highway Patrol	67.69%	1.32%	2.77%	71.78%

The rates and information shown in the remainder of this report reflect the rates set by the board at its April 2023 meeting (shown above as the actuarially required employer contribution). The additional contributions pursuant to Government Code section 20683.2, the State's Contribution Stabilization and the Bargaining Unit 5 agreement will be allocated to the UAL.

Highlights and Executive Summary

Subsequent Events

This actuarial valuation report reflects statutory and regulatory changes and fund investment return through July 2023 and board actions through August 2023.

On April 21, 2023, the State contributed a supplemental pension payment of \$25 million from the Motor Vehicle Account to the California Highway Patrol plan under Government Code section 20825.15. This payment is not reflected in this valuation report.

On July 27, 2023, the State contributed a supplemental pension payment of \$1.657 billion. The funds were applied to the State rate plans as show below. These payments are not reflected in this valuation report.

Plan	Supplemental Pension Payments Made on July 27, 2023
State Miscellaneous	\$769,620,000
State Industrial	44,500,000
State Safety	99,924,000
State Peace Officers & Firefighters	742,956,000
California Highway Patrol	0
Total	\$1,657,000,000

During the time period between the valuation date and the publication of this report, inflation has been significantly higher than the expected inflation rate of 2.3% per annum. Since inflation influences cost-of-living increases for retirees and beneficiaries and active member pay increases, higher inflation is likely to put at least some upward pressure on contribution requirements and downward pressure on the funded status in the June 30, 2023 valuation. The actual impact of higher inflation on future valuation results will depend on, among other factors, how long higher inflation persists. At this time, we continue to believe the long-term inflation assumption of 2.3% is appropriate.

To the best of our knowledge, there have been no other subsequent events that could materially affect current or future certifications rendered in this report.

Projected Future Contribution Rates

The following table illustrates projected actuarially required employer contribution rates for the next five fiscal years. Projected results reflect investment return information as of June 30, 2023 provided by the Investment Office who reported a preliminary net return of 5.8% and PERF assets of \$462.8 billion. The actual investment loss will be based on final audited assets as of June 30, 2023, which are not yet available. Projected rates assume all other actuarial assumptions will be realized, including the investment return of 6.80% per year beyond June 30, 2023, and no changes to assumptions, methods, or benefits will occur during the projection period. Projected rates further reflect member rate changes known to date and the estimated decrease in normal cost due to new hires entering lower cost benefit formulas. The actual long-term cost of the plan will depend on the actual benefits and expenses paid from the fund and the actual investment experience of the fund.

Rates do not include the additional contributions pursuant to G.C. section 20683.2 or the State's Proposition 2 contribution stabilization strategy shown in Appendix D. The Bargaining Unit 5 agreement to delay savings expires June 30, 2024 and is reflected in the projected employer rates for California Highway Patrol plan beginning in FY 2024-25.

Plan	Actual	Projected Future Employer Contribution Rates				
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
State Miscellaneous	30.87%	31.8%	32.7%	33.2%	35.1%	34.9%
State Industrial	19.54%	20.3%	21.0%	21.5%	23.1%	22.9%
State Safety	21.54%	22.3%	23.0%	23.4%	25.0%	24.8%
State Peace Officers & Firefighters	46.26%	47.6%	48.9%	49.6%	52.5%	52.0%
California Highway Patrol	67.69%	68.2%	69.8%	68.2%	71.3%	70.6%

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Assets

Reconciliation of Market Value of Assets

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
1) Market Value of Assets as of June 30, 2021 Including Receivables for Tier 1 Conversion and Service Buybacks	\$104,354,925,163	\$4,951,791,018	\$14,950,460,803	\$46,172,239,586	\$11,924,100,686
2) Receivables for Tier 1 Conversion and Service Buybacks as of June 30, 2021	175,325,525	11,570,492	10,990,836	51,867,173	7,816,221
3) Market Value of Assets as of June 30, 2021 [(1) - (2)]	\$104,179,599,638	\$4,940,220,526	\$14,939,469,967	\$46,120,372,413	\$11,916,284,465
4) Employer Contributions Received in 2021- 22	5,110,276,173	187,745,000	561,228,760	2,171,674,755	628,307,874
5) Employee Contributions Received in 2021- 22	1,044,283,409	64,946,345	242,071,851	467,141,837	106,645,071
6) Benefit Payments in 2021- 22	(7,131,720,462)	(252,087,554)	(768,544,579)	(2,719,188,140)	(735,684,048)
7) Refunds in 2021- 22	(43,096,318)	(3,616,107)	(20,274,725)	(16,211,625)	(3,759,335)
8) Transfers In/(Out)	(2,558,877)	281,306	949,806	1,075,886	251,879
9) SCP Payment and Interest	49,732,398	3,174,813	4,365,228	16,946,549	3,422,221
10) Miscellaneous Adjustments	0	0	0	0	0
11) Investment Return	(7,815,186,087)	(373,919,249)	(1,128,799,239)	(3,515,031,641)	(899,617,132)
12) Administrative Expense	(81,767,726)	(3,881,409)	(11,725,707)	(36,198,642)	(9,359,963)
13) Market Value of Assets as of June 30, 2022 [(3) + (4) + (5) + (6) + (7) + (8) + (9) + (10) + (11) + (12)]	\$95,309,562,148	\$4,562,863,671	\$13,818,741,361	\$42,490,581,392	\$11,006,491,032
14) Receivables for Tier 1 Conversion and Service Buybacks as of June 30, 2022	159,066,785	10,833,475	9,491,893	45,125,775	6,828,602
15) Market Value of Assets as of June 30, 2022 Including Receivables for Tier 1 Conversion and Service Buybacks	\$95,468,628,933	\$4,573,697,146	\$13,828,233,253	\$42,535,707,168	\$11,013,319,634

Figures in the table above may not add due to rounding.

Assets

Asset Allocation

CalPERS adheres to an Asset Allocation Strategy which establishes asset class allocation policy targets and ranges and manages those asset class allocations within their policy ranges. CalPERS Investment Belief No. 6 recognizes that strategic asset allocation is the dominant determinant of portfolio risk and return.

The asset allocation shown below reflects the allocation of the Public Employees' Retirement Fund (PERF) in its entirety. The assets of the State plans are a subset of the PERF and are invested accordingly.

On November 17, 2021, the board adopted changes to the strategic asset allocation. The new allocation was effective July 1, 2022, and is shown below, expressed as a percentage of total assets.

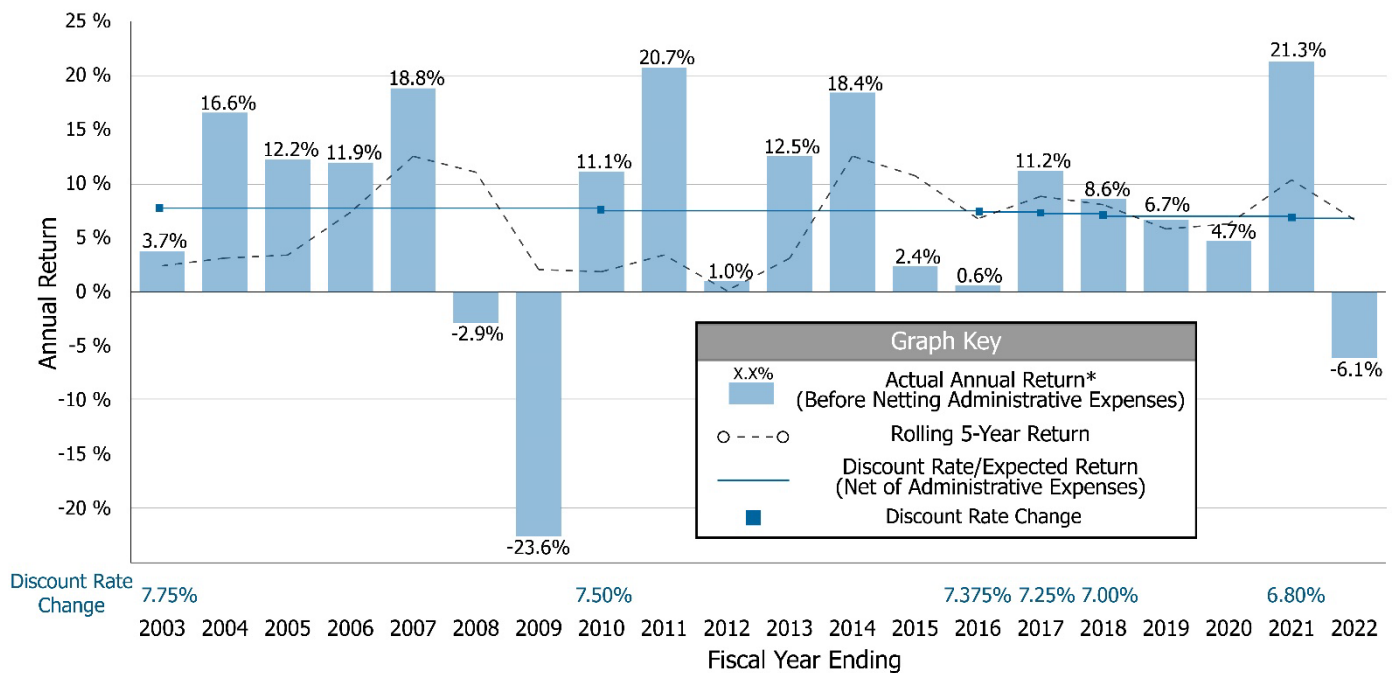
Asset Class	Actual Allocation 7/1/2022	Policy Target Allocation effective 7/1/2022
Global Public Equity Capitalization Weighted	33.7%	30.0%
Global Public Equity Factor Weighted	12.6%	12.0%
Private Equity	11.6%	13.0%
Treasuries	3.9%	5.0%
Mortgage-backed Securities	5.6%	5.0%
Investment Grade Corporates	5.8%	10.0%
High Yield Bonds	4.6%	5.0%
Emerging Market Sovereign Bonds	2.1%	5.0%
Total Fund Income	1.5%	-
Real Assets	17.1%	15.0%
Private Debt	1.8%	5.0%
Other Trust Level	3.8%	-
Strategic Leverage	(0.3%)	(5.0%)
Active Leverage	(3.8%)	-
Total Fund	100.0%	100.0%

Assets

CalPERS History of Investment Returns

The following is a chart with the 20-year historical annual returns of the PERF for each fiscal year ending on June 30 as reported by the Investment Office. Investment returns reported are net of investment expenses but without reduction for administrative expenses. The assumed rate of return, however, is net of both investment and administrative expenses. Also, the Investment Office uses a three-month lag on private assets for investment performance reporting purposes. This can lead to a timing difference in the returns below and those used for financial reporting purposes. The investment gain or loss calculation in this report relies on assets that have been audited and are appropriate for financial reporting. Because of these differences, the effective investment return for funding purposes can be higher or lower than the return reported by the Investment Office shown here.

History of Investment Returns (2003 - 2022)



The table below shows annualized investment returns of the PERF for various time periods ending on June 30, 2022 (figures reported are net of investment expenses but without reduction for administrative expenses). These returns are the annual rates of return that if compounded over the indicated number of years would equate to the actual time-weighted investment performance of the PERF. It should be recognized that in any given year the rate of return is volatile. The portfolio has an expected volatility of 12.1% per year based on the most recent Asset Liability Management study. The realized volatility is a measure of the risk of the portfolio expressed in the standard deviation of the fund’s total monthly return distribution, expressed as an annual percentage. Due to their volatile nature, when looking at investment returns, it is more instructive to look at returns over longer time horizons.

History of CalPERS Geometric Rates of Return and Volatilities

	1 Year	5 Year	10 Year	20 Year	30 Year
Geometric Return	-6.1%	6.7%	7.7%	6.9%	7.7%
Volatility	—	8.3%	7.1%	8.5%	8.6%

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Liabilities and Contributions

Key Results

Key results of the current and prior valuations are shown below.

State Miscellaneous

Participant Information

	June 30, 2021	June 30, 2022
Members Included in the Valuation		
Active Members	178,955	180,483
Transferred Members from State Miscellaneous	29,331	25,022
Separated Members	68,270	75,327
Receiving Payments	206,393	209,673
Total	482,949	490,505
Average Entry Age of Active Members	34.9	34.9
Average Age for Active Members	46.5	46.4
Average Age of Retired Members	72.6	72.8
Average Pay	\$76,659	\$80,668
Covered Payroll in Fiscal Year Ending on Valuation Date	\$13,718,513,822	\$14,559,287,539
Projected Payroll for Contribution Rate	\$14,497,505,911	\$15,386,022,123

Funded Status

	June 30, 2021	June 30, 2022
Present Value of Benefits	\$152,647,723,471	\$160,019,539,583
Accrued Liability	130,697,372,927	136,885,121,928
Market Value of Assets	104,354,925,163	95,468,628,933
Unfunded Liability/(Surplus)	26,342,447,764	41,416,492,995
Funded Ratio	79.8%	69.7%

Employer Contribution

	June 30, 2021	June 30, 2022
Contribution Required in Dollars		
Total Normal Cost	\$2,567,508,297	\$2,703,324,087
Employee Contribution	1,039,471,174	1,149,335,853
Employer Normal Costs	1,528,037,123	1,553,988,234
Amortization of Unfunded Liability	2,924,631,242	3,195,798,232
Total	\$4,452,668,365	\$4,749,786,466
Contribution Required (Percent of Payroll)		
Total Normal Cost	17.71%	17.57%
Employee Contribution	7.17%	7.47%
Employer Normal Costs	10.54%	10.10%
Amortization of Unfunded Liability	20.17%	20.77%
Total	30.71%	30.87%

Liabilities and Contributions

Key Results (continued)

State Industrial

Participant Information

	June 30, 2021	June 30, 2022
Members Included in the Valuation		
Active Members	11,525	11,329
Transferred Members from State Industrial	7,710	7,858
Separated Members	4,043	4,386
Receiving Payments	16,788	17,356
Total	40,066	40,929
Average Entry Age of Active Members	35.4	35.3
Average Age for Active Members	44.9	44.9
Average Age of Retired Members	69.1	69.4
Average Pay	\$66,254	\$70,390
Covered Payroll in Fiscal Year Ending on Valuation Date	\$763,577,368	\$797,449,866
Projected Payroll for Contribution Rate	\$806,936,345	\$842,732,259

Funded Status

	June 30, 2021	June 30, 2022
Present Value of Benefits	\$6,886,845,838	\$7,297,827,645
Accrued Liability	5,550,468,220	5,916,656,618
Market Value of Assets	4,951,791,018	4,573,697,146
Unfunded Liability/(Surplus)	598,677,202	1,342,959,472
Funded Ratio	89.2%	77.3%

Employer Contribution

	June 30, 2021	June 30, 2022
Contribution Required in Dollars		
Total Normal Cost	\$153,317,906	\$158,855,031
Employee Contribution	66,088,087	73,149,160
Employer Normal Costs	87,229,819	85,705,871
Amortization of Unfunded Liability	70,211,486	78,946,308
Total	\$157,441,305	\$164,652,179
Contribution Required (Percent of Payroll)		
Total Normal Cost	19.00%	18.85%
Employee Contribution	8.19%	8.68%
Employer Normal Costs	10.81%	10.17%
Amortization of Unfunded Liability	8.70%	9.37%
Total	19.51%	19.54%

Liabilities and Contributions

Key Results (continued)

State Safety

Participant Information

	June 30, 2021	June 30, 2022
Members Included in the Valuation		
Active Members	28,451	27,211
Transferred Members from State Safety	5,545	5,765
Separated Members	8,971	10,300
Receiving Payments	29,168	30,202
Total	72,135	73,478
Average Entry Age of Active Members	38.0	37.8
Average Age for Active Members	46.5	46.7
Average Age of Retired Members	69.5	69.7
Average Pay	\$84,552	\$86,749
Covered Payroll in Fiscal Year Ending on Valuation Date	\$2,405,580,360	\$2,360,540,355
Projected Payroll for Contribution Rate	\$2,542,178,835	\$2,494,581,279

Funded Status

	June 30, 2021	June 30, 2022
Present Value of Benefits	\$21,037,827,749	\$22,080,656,948
Accrued Liability	16,397,024,160	17,527,672,227
Market Value of Assets	14,950,460,803	13,828,233,253
Unfunded Liability/(Surplus)	1,446,563,357	3,699,438,974
Funded Ratio	91.2%	78.9%

Employer Contribution

	June 30, 2021	June 30, 2022
Contribution Required in Dollars		
Total Normal Cost	\$602,242,166	\$586,974,975
Employee Contribution	270,742,046	272,408,276
Employer Normal Costs	331,500,120	314,566,699
Amortization of Unfunded Liability	205,634,954	222,672,791
Total	\$537,135,074	\$537,239,490
Contribution Required (Percent of Payroll)		
Total Normal Cost	23.69%	23.53%
Employee Contribution	10.65%	10.92%
Employer Normal Costs	13.04%	12.61%
Amortization of Unfunded Liability	8.09%	8.93%
Total	21.13%	21.54%

Liabilities and Contributions

Key Results (continued)

State Peace Officers and Firefighters

Participant Information

	June 30, 2021	June 30, 2022
Members Included in the Valuation		
Active Members	41,242	41,366
Transferred Members from State POFF	5,285	5,516
Separated Members	8,085	8,785
Receiving Payments	45,937	47,598
Total	100,549	103,265
Average Entry Age of Active Members	29.3	29.2
Average Age for Active Members	40.9	40.7
Average Age of Retired Members	65.0	65.3
Average Pay	\$89,949	\$96,535
Covered Payroll in Fiscal Year Ending on Valuation Date	\$3,709,697,013	\$3,993,247,438
Projected Payroll for Contribution Rate	\$3,920,348,448	\$4,220,000,000

Funded Status

	June 30, 2021	June 30, 2022
Present Value of Benefits	\$67,950,091,223	\$72,418,825,378
Accrued Liability	57,507,446,617	61,229,068,218
Market Value of Assets	46,172,239,586	42,535,707,168
Unfunded Liability/(Surplus)	11,335,207,031	18,693,361,050
Funded Ratio	80.3%	69.5%

Employer Contribution

	June 30, 2021	June 30, 2022
Contribution Required in Dollars		
Total Normal Cost	\$1,229,421,273	\$1,308,200,000
Employee Contribution	458,288,734	500,492,000
Employer Normal Costs	771,132,539	807,708,000
Amortization of Unfunded Liability	1,079,806,964	1,144,385,631
Total	\$1,850,939,503	\$1,952,093,631
Contribution Required (Percent of Payroll)		
Total Normal Cost	31.36%	31.00%
Employee Contribution	11.69%	11.86%
Employer Normal Costs	19.67%	19.14%
Amortization of Unfunded Liability	27.54%	27.12%
Total	47.21%	46.26%

Liabilities and Contributions

Key Results (continued)

California Highway Patrol

Participant Information

	June 30, 2021	June 30, 2022
Members Included in the Valuation		
Active Members	6,662	6,643
Transferred Members from CHP	250	250
Separated Members	562	604
Receiving Payments	9,786	9,951
Total	17,260	17,448
Average Entry Age of Active Members	27.4	27.4
Average Age for Active Members	41.5	41.4
Average Age of Retired Members	68.9	68.9
Average Pay	\$133,171	\$137,580
Covered Payroll in Fiscal Year Ending on Valuation Date	\$887,184,683	\$913,946,760
Projected Payroll for Contribution Rate	\$937,562,578	\$965,844,313

Funded Status

	June 30, 2021	June 30, 2022
Present Value of Benefits	\$18,454,375,105	\$19,312,990,782
Accrued Liability	15,822,003,794	16,644,422,636
Market Value of Assets	11,924,100,686	11,013,319,634
Unfunded Liability/(Surplus)	3,897,903,108	5,631,103,002
Funded Ratio	75.4%	66.2%

Employer Contribution

	June 30, 2021	June 30, 2022
Contribution Required in Dollars		
Total Normal Cost	\$308,270,576	\$314,285,739
Employee Contribution	117,195,322	121,020,292
Employer Normal Costs	191,075,254	193,265,447
Amortization of Unfunded Liability	407,963,543	460,535,467
Total	\$599,038,797	\$653,800,914
Contribution Required (Percent of Payroll)		
Total Normal Cost	32.88%	32.54%
Employee Contribution	12.50%	12.53%
Employer Normal Costs	20.38%	20.01%
Amortization of Unfunded Liability	43.51%	47.68%
Total	63.89%	67.69%

Liabilities and Contributions

Accrued and Unfunded Liabilities

The following table shows the development of the accrued liabilities and unfunded liability.

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
1) Present Value of Benefits					
a) Actives and Inactives	\$76,997,371,216	\$4,128,014,463	\$12,051,553,714	\$32,672,257,537	\$8,779,701,771
b) Retired	83,022,168,367	3,169,813,182	10,029,103,234	39,746,567,841	10,533,289,011
c) Total	\$160,019,539,583	\$7,297,827,645	\$22,080,656,948	\$72,418,825,378	\$19,312,990,782
2) Present Value of Future Employee Contributions	\$10,285,861,337	\$660,195,477	\$2,206,659,939	\$4,628,567,490	\$1,109,586,652
3) Present Value of Future Employer Normal Costs	12,848,556,318	720,975,550	2,346,324,782	6,561,189,670	1,558,981,494
4) Accrued Liability [(1c) – (2) – (3)]	136,885,121,928	5,916,656,618	17,527,672,227	61,229,068,218	16,644,422,636
5) Market Value of Assets	\$95,468,628,933	\$4,573,697,146	\$13,828,233,253	\$42,535,707,168	\$11,013,319,634
6) Unfunded Accrued Liability/(Surplus) [(4) – (5)]	\$41,416,492,995	\$1,342,959,472	\$3,699,438,974	\$18,693,361,050	\$5,631,103,002
7) Funded Ratio [(5) ÷ (4)]	69.7%	77.3%	78.9%	69.5%	66.2%

Employer Contribution Rates

The following table shows the development of the employer contribution rates.

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
Employer Contribution Amount					
Normal Cost	\$1,553,988,234	\$85,705,871	\$314,566,699	\$807,708,000	\$193,265,447
Payment on the Unfunded Accrued Liability	3,195,798,232	78,946,308	222,672,791	1,144,385,631	460,535,467
Total Employer Contribution Amount	\$4,749,786,466	\$164,652,179	\$537,239,490	\$1,952,093,631	\$653,800,914
Projected Payroll	\$15,386,022,123	\$842,732,259	\$2,494,581,279	\$4,220,000,000	\$965,844,313
Employer Contribution (as a percent of payroll)					
Normal Cost	10.10%	10.17%	12.61%	19.14%	20.01%
Payment on the Unfunded Accrued Liability	20.77%	9.37%	8.93%	27.12%	47.68%
Total Employer Contribution Rate	30.87%	19.54%	21.54%	46.26%	67.69%

Liabilities and Contributions

Schedule of Amortization Bases

Note that there is a one-year lag between the valuation date and the start of the contribution fiscal year.

- The assets, liabilities, and funded status of the plan are measured as of the valuation date (June 30, 2022).
- The required employer contributions determined by the valuation are for the fiscal year beginning one year after the valuation date (fiscal year 2023-24).

This one-year lag is necessary due to the amount of time required to extract and test the membership and financial data as well as the need to provide employers with their required employer contribution in advance of the start of the fiscal year.

The Unfunded Accrued Liability (UAL) is used to determine the employer contribution and therefore must be rolled forward one year from the valuation date to the first day of the fiscal year for which the contribution is being determined. The UAL is rolled forward each year by subtracting the expected payment on the UAL for the fiscal year and adjusting for interest. The expected payment on the UAL for a fiscal year is equal to the Expected Employer Contribution for the fiscal year minus the Expected Normal Cost for the year. The Employer Contribution for the first fiscal year is determined by the actuarial valuation one year ago. The Normal Cost Rate for the fiscal year is assumed to be the same as the rate determined by the current valuation. Additional discretionary payments are reflected in the Expected Payments column in the fiscal year they were made by the State.

Liabilities and Contributions

Schedule of Amortization Bases (continued)

State Miscellaneous

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2022	Expected Payment in 2022-23	Balance on 6/30/2023	Scheduled Payment for Fiscal Year 2023-24	Payment as Percentage of Payroll
(Gain)/Loss	6/30/00	21	317,730,401	21,643,657	316,968,629	22,249,679	0.14%
(Gain)/Loss Prior to 2009	6/30/00	10	8,910,476,830	1,005,831,193	8,476,922,207	1,033,994,467	6.72%
Payment (Gain)/Loss	6/30/00	21	371,469,783	25,304,360	370,579,169	26,012,882	0.17%
Assumption Change	6/30/03	1	14,934,161	7,864,053	7,822,650	8,084,246	0.05%
Benefit Change (SB 1801)	6/30/03	1	(653,855)	(344,308)	(342,495)	(353,948)	0.00%
Actuarial Equivalent Reduction Benefits	6/30/04	1	97,420,411	51,299,787	51,029,703	52,736,180	0.34%
New Rate Stabilization Policies	6/30/04	1	(70,234,655)	(36,984,270)	(36,789,556)	(38,019,830)	(0.25%)
Reclass of BU 7 Members	6/30/05	1	(41,466,063)	(21,835,262)	(21,720,303)	(22,446,648)	(0.15%)
(Gain)/Loss	6/30/09	17	1,123,860,793	87,529,881	1,109,826,372	89,980,717	0.58%
Assumption Change	6/30/09	0	816,749,086	844,061,873	0	0	0.00%
(Gain)/Loss	6/30/10	18	(44,025,287)	(3,303,592)	(43,604,940)	(3,396,092)	(0.02%)
(Gain)/Loss	6/30/11	19	23,404,225	1,696,571	23,242,407	1,744,076	0.01%
Assumption Change	6/30/11	9	1,409,659,454	1,012,905,305	458,738,573	61,067,985	0.40%
Assumption Change	6/30/13	11	4,622,071,989	522,234,253	4,396,674,672	536,856,812	3.49%
(Gain)/Loss	6/30/14	22	4,831,600,596	339,557,916	4,809,236,414	349,065,538	2.27%
(Gain)/Loss	6/30/15	23	4,107,842,683	280,134,787	4,097,673,252	287,978,562	1.87%
(Gain)/Loss	6/30/16	24	4,198,427,415	278,368,906	4,196,242,679	286,163,235	1.86%
(Gain)/Loss	6/30/17	25	(3,097,691,666)	(200,044,589)	(3,101,600,448)	(205,645,838)	(1.34%)
(Gain)/Loss	6/30/18	26	203,641,232	10,390,418	206,750,953	13,351,687	0.09%
Assumption Change	6/30/18	16	3,487,521,449	252,533,782	3,463,694,180	324,505,909	2.11%
Method Change	6/30/18	16	1,106,520,910	80,123,926	1,098,960,993	102,959,245	0.67%
Investment (Gain)/Loss	6/30/19	17	550,024,211	33,071,049	553,248,884	44,094,731	0.29%
Non-Investment (Gain)/Loss	6/30/19	17	532,142,227	50,453,324	516,187,372	50,453,324	0.33%
Investment (Gain)/Loss	6/30/20	18	2,344,090,150	96,359,057	2,403,906,894	144,538,586	0.94%
Non-Investment (Gain)/Loss	6/30/20	18	325,550,632	30,023,168	316,660,907	30,023,168	0.20%
Assumption Change	6/30/21	19	359,665,438	32,342,395	350,698,735	32,342,395	0.21%
Net Investment (Gain)	6/30/21	19	(11,193,147,073)	(240,593,273)	(11,705,642,156)	(481,186,547)	(3.13%)
Non-Investment (Gain)/Loss	6/30/21	19	(790,691,728)	(71,101,811)	(770,979,249)	(71,101,811)	(0.46%)
Risk Mitigation	6/30/21	0	3,180,345,393	3,286,698,861	0	0	0.00%
Risk Mitigation Offset	6/30/21	0	(3,180,345,393)	(3,286,698,861)	0	0	0.00%
Investment (Gain)/Loss	6/30/22	20	14,948,625,838	0	15,965,132,395	343,165,639	2.23%
Non-Investment (Gain)/Loss	6/30/22	20	1,950,973,408	116,090,792	1,963,666,632	176,579,883	1.15%
Total			41,416,492,995	4,605,613,348	39,473,185,525	3,195,798,232	20.77%

Liabilities and Contributions

Schedule of Amortization Bases (continued)

State Industrial

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2022	Expected Payment in 2022-23	Balance on 6/30/2023	Scheduled Payment for Fiscal Year 2023-24	Payment as Percentage of Payroll
(Gain)/Loss	6/30/00	21	98,083,446	6,681,402	97,848,287	6,868,481	0.82%
Payment (Gain)/Loss	6/30/00	21	(1,481,168)	(100,897)	(1,477,616)	(103,722)	(0.01%)
Actuarial Equivalent Reduction Benefits	6/30/04	2	2,411,128	862,486	1,683,756	886,635	0.11%
New Rate Stabilization Policies	6/30/04	2	(2,411,128)	(862,486)	(1,683,756)	(886,635)	(0.11%)
(Gain)/Loss	6/30/09	17	38,865,217	3,026,948	38,379,880	3,111,702	0.37%
Assumption Change	6/30/09	0	22,862,227	23,626,760	0	0	0.00%
(Gain)/Loss	6/30/10	18	5,379,103	403,640	5,327,744	414,942	0.05%
(Gain)/Loss	6/30/11	19	(7,325,473)	(531,023)	(7,274,824)	(545,892)	(0.06%)
Assumption Change	6/30/11	0	51,760,791	53,491,716	0	0	0.00%
Assumption Change	6/30/13	11	142,881,719	44,845,040	106,252,979	12,974,041	1.54%
(Gain)/Loss	6/30/14	22	151,133,596	10,621,451	150,434,039	10,918,852	1.30%
(Gain)/Loss	6/30/15	23	172,701,232	11,777,380	172,273,690	12,107,146	1.44%
(Gain)/Loss	6/30/16	24	263,471,007	17,468,954	263,333,905	17,958,085	2.13%
(Gain)/Loss	6/30/17	25	(177,472,099)	(11,460,900)	(177,696,039)	(11,781,805)	(1.40%)
Assumption Change	6/30/17	15	11,597,722	1,086,565	11,263,466	1,116,989	0.13%
(Gain)/Loss	6/30/18	26	6,724,409	343,101	6,827,094	440,884	0.05%
Assumption Change	6/30/18	16	155,541,998	11,262,901	154,479,312	14,472,828	1.72%
Method Change	6/30/18	16	54,219,645	3,926,081	53,849,208	5,045,014	0.60%
Investment (Gain)/Loss	6/30/19	17	24,866,817	1,495,155	25,012,606	1,993,541	0.24%
Non-Investment (Gain)/Loss	6/30/19	17	12,886,611	1,221,802	12,500,240	1,221,802	0.14%
Investment (Gain)/Loss	6/30/20	18	107,252,655	4,408,860	109,989,539	6,613,290	0.78%
Non-Investment (Gain)/Loss	6/30/20	18	(2,081,853)	(191,994)	(2,025,005)	(191,994)	(0.02%)
Assumption Change	6/30/21	19	(8,255,267)	(742,343)	(8,049,458)	(742,343)	(0.09%)
Net Investment (Gain)	6/30/21	19	(528,467,255)	(11,359,242)	(552,663,924)	(22,718,484)	(2.70%)
Non-Investment (Gain)/Loss	6/30/21	19	(55,006,876)	(4,946,414)	(53,635,517)	(4,946,414)	(0.59%)
Risk Mitigation	6/30/21	0	152,011,690	157,095,091	0	0	0.00%
Risk Mitigation Offset	6/30/21	0	(152,011,690)	(157,095,091)	0	0	0.00%
Investment (Gain)/Loss	6/30/22	20	713,750,495	0	762,285,529	16,385,094	1.94%
Non-Investment (Gain)/Loss	6/30/22	20	89,070,773	2,366,706	92,681,735	8,334,271	0.99%
Total			1,342,959,472	168,721,649	1,259,916,870	78,946,308	9.37%

Liabilities and Contributions

Schedule of Amortization Bases (continued)

State Safety

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2022	Expected Payment in 2022-23	Balance on 6/30/2023	Scheduled Payment for Fiscal Year 2023-24	Payment as Percentage of Payroll
(Gain)/Loss	6/30/00	21	847,197,970	57,710,757	845,166,778	59,326,658	2.38%
Payment (Gain)/Loss	6/30/00	21	(43,910,043)	(2,991,133)	(43,804,767)	(3,074,885)	(0.12%)
Benefit Change (Arnett)	6/30/02	0	14,729,366	15,221,929	0	0	0.00%
Assumption Change	6/30/03	1	(870,088)	(458,172)	(455,760)	(471,001)	(0.02%)
New Rate Stabilization Policies	6/30/04	2	(2,720,283)	(973,074)	(1,899,648)	(1,000,320)	(0.04%)
(Gain)/Loss	6/30/09	17	146,267,782	11,391,804	144,441,236	11,710,774	0.47%
Assumption Change	6/30/09	0	76,096,139	78,640,859	0	0	0.00%
(Gain)/Loss	6/30/10	18	(110,700,696)	(8,306,815)	(109,643,741)	(8,539,406)	(0.34%)
(Gain)/Loss	6/30/11	19	(10,186,792)	(738,440)	(10,116,360)	(759,117)	(0.03%)
Assumption Change	6/30/11	0	141,977,459	146,725,306	0	0	0.00%
Assumption Change	6/30/13	11	452,729,452	69,872,298	411,306,167	50,222,619	2.01%
(Gain)/Loss	6/30/14	22	190,203,996	13,367,262	189,323,593	13,741,546	0.55%
(Gain)/Loss	6/30/15	23	475,937,698	32,456,624	474,759,460	33,365,410	1.34%
(Gain)/Loss	6/30/16	24	482,853,803	32,014,722	482,602,540	32,911,134	1.32%
(Gain)/Loss	6/30/17	25	(539,520,397)	(34,841,472)	(540,201,183)	(35,817,033)	(1.44%)
Assumption Change	6/30/17	15	200,170,031	18,753,491	194,400,969	19,278,589	0.77%
Assumption Change	6/30/18	16	453,926,042	32,869,091	450,824,751	42,236,782	1.69%
Method Change	6/30/18	16	164,165,675	11,887,347	163,044,071	15,275,241	0.61%
(Gain)/Loss	6/30/18	26	(101,203,344)	(5,163,714)	(102,748,778)	(6,635,372)	(0.27%)
Investment (Gain)/Loss	6/30/19	17	72,439,665	4,355,546	72,864,363	5,807,394	0.23%
Non-Investment (Gain)/Loss	6/30/19	17	(41,280,408)	(3,913,867)	(40,042,726)	(3,913,867)	(0.16%)
Investment (Gain)/Loss	6/30/20	18	320,149,491	13,160,459	328,319,100	19,740,689	0.79%
Non-Investment (Gain)/Loss	6/30/20	18	(101,758,966)	(9,384,490)	(98,980,260)	(9,384,490)	(0.38%)
Assumption Change	6/30/21	19	(20,740,796)	(1,865,086)	(20,223,714)	(1,865,086)	(0.07%)
Net Investment (Gain)	6/30/21	19	(1,619,025,058)	(34,800,449)	(1,693,154,556)	(69,600,897)	(2.79%)
Non-Investment (Gain)/Loss	6/30/21	19	(153,245,284)	(13,780,361)	(149,424,775)	(13,780,361)	(0.55%)
Risk Mitigation	6/30/21	0	439,112,433	453,796,728	0	0	0.00%
Risk Mitigation Offset	6/30/21	0	(439,112,433)	(453,796,728)	0	0	0.00%
Investment (Gain)/Loss	6/30/22	20	2,157,070,910	0	2,303,751,732	49,518,439	1.99%
Non-Investment (Gain)/Loss	6/30/22	20	248,685,650	(5,337,202)	271,111,957	24,379,351	0.98%
Total			3,699,438,974	415,873,220	3,521,220,449	222,672,791	8.93%

Liabilities and Contributions

Schedule of Amortization Bases (continued)

State Peace Officers and Firefighters

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2022	Expected Payment in 2022-23	Balance on 6/30/2023	Scheduled Payment for Fiscal Year 2023-24	Payment as Percentage of Payroll
(Gain)/Loss	6/30/00	21	4,706,491,426	320,604,146	4,695,207,420	329,581,062	7.81%
Payment (Gain)/Loss	6/30/00	21	(2,606,072)	(177,524)	(2,599,824)	(182,495)	0.00%
Assumption Change	6/30/03	1	13,554,709	7,137,659	7,100,081	7,337,514	0.17%
Benefit Change (SB 183)	6/30/04	1	6,566,120	3,457,597	3,439,394	3,554,410	0.08%
New Rate Stabilization Policies	6/30/04	1	(20,120,829)	(10,595,256)	(10,539,475)	(10,891,924)	(0.26%)
(Gain)/Loss	6/30/09	17	364,386,353	28,379,577	359,836,011	29,174,205	0.69%
(Gain)/Loss	6/30/10	18	43,679,135	3,277,617	43,262,093	3,369,390	0.08%
(Gain)/Loss	6/30/11	19	297,487,414	21,564,853	295,430,558	22,168,669	0.53%
Assumption Change	6/30/11	0	430,343,864	444,734,931	0	0	0.00%
Assumption Change	6/30/13	11	2,123,951,999	1,338,241,754	885,387,033	108,110,355	2.56%
(Gain)/Loss	6/30/14	22	1,653,946,919	116,237,002	1,646,291,243	119,491,638	2.83%
(Gain)/Loss	6/30/15	23	1,644,920,331	112,175,524	1,640,848,144	115,316,439	2.73%
(Gain)/Loss	6/30/16	24	1,925,282,097	127,652,242	1,924,280,238	131,226,504	3.11%
(Gain)/Loss	6/30/17	25	(1,010,703,388)	(65,269,809)	(1,011,978,731)	(67,097,364)	(1.59%)
Assumption Change	6/30/17	15	160,900,197	15,074,386	156,262,924	15,496,469	0.37%
Assumption Change	6/30/18	16	1,705,375,977	123,487,425	1,693,724,593	158,681,342	3.76%
Method Change	6/30/18	16	482,561,477	34,942,602	479,264,545	44,901,244	1.06%
(Gain)/Loss	6/30/18	26	(211,382,960)	(10,785,425)	(214,610,902)	(13,859,271)	(0.33%)
Investment (Gain)/Loss	6/30/19	17	214,999,350	12,927,165	216,259,845	17,236,221	0.41%
Non-Investment (Gain)/Loss	6/30/19	17	58,897,421	5,584,166	57,131,540	5,584,166	0.13%
Investment (Gain)/Loss	6/30/20	18	974,933,335	40,076,811	999,811,788	60,115,216	1.42%
Non-Investment (Gain)/Loss	6/30/20	18	241,378,508	22,260,585	234,787,249	22,260,585	0.53%
Assumption Change	6/30/21	19	580,657,262	52,214,765	566,181,084	52,214,765	1.24%
Net Investment (Gain)	6/30/21	19	(4,881,477,487)	(104,925,866)	(5,104,983,279)	(209,851,732)	(4.97%)
Non-Investment (Gain)/Loss	6/30/21	19	(755,804,656)	(67,964,641)	(736,961,936)	(67,964,641)	(1.61%)
Risk Mitigation	6/30/21	0	1,549,413,640	1,601,227,356	0	0	0.00%
Risk Mitigation Offset	6/30/21	0	(1,549,413,640)	(1,601,227,356)	0	0	0.00%
Investment (Gain)/Loss	6/30/22	20	6,684,788,469	0	7,139,354,085	153,458,233	3.64%
Non-Investment (Gain)/Loss	6/30/22	20	1,260,354,079	65,508,001	1,278,359,512	114,954,631	2.72%
Total			18,693,361,050	2,635,820,287	17,240,545,233	1,144,385,631	27.12%

Liabilities and Contributions

Schedule of Amortization Bases (continued)

California Highway Patrol

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2022	Expected Payment in 2022-23	Balance on 6/30/2023	Scheduled Payment for Fiscal Year 2023-24	Payment as Percentage of Payroll
(Gain)/Loss	6/30/00	21	220,499,743	15,020,346	219,971,086	15,440,916	1.60%
(Gain)/Loss Prior to 2009	6/30/00	15	1,489,637,276	126,147,675	1,460,566,450	129,679,810	13.43%
Payment (Gain)/Loss	6/30/00	21	(21,237,415)	(1,446,683)	(21,186,498)	(1,487,191)	(0.15%)
Benefit Change (AB 2621)	6/30/01	0	(394)	(407)	0	0	0.00%
Benefit Change (Arnett)	6/30/02	0	273,678	282,830	0	0	0.00%
Assumption Change	6/30/03	1	15,437,312	8,129,003	8,086,205	8,356,615	0.87%
Benefit Change (SB 1801)	6/30/03	1	2,445,711	1,287,866	1,281,086	1,323,927	0.14%
New Rate Stabilization Policies	6/30/04	2	(6,861,518)	(2,454,436)	(4,791,587)	(2,523,161)	(0.26%)
Benefit Change (SB 439)	6/30/05	3	78,205,285	21,376,348	61,432,053	21,974,886	2.28%
Benefit Change (AB 2936)	6/30/08	6	(137,744,268)	(22,736,868)	(123,613,670)	(23,373,500)	(2.42%)
(Gain)/Loss	6/30/09	17	295,006,320	22,976,038	291,322,373	23,619,367	2.45%
Assumption Change	6/30/09	7	123,942,068	18,229,636	113,530,878	18,740,065	1.94%
(Gain)/Loss	6/30/10	18	99,330,880	7,453,641	98,382,483	7,662,343	0.79%
(Gain)/Loss	6/30/11	19	(44,351,967)	(3,215,073)	(44,045,313)	(3,305,095)	(0.34%)
Assumption Change	6/30/11	9	154,982,000	18,904,329	145,984,270	19,433,651	2.01%
Assumption Change	6/30/13	11	755,147,347	85,321,867	718,322,263	87,710,879	9.08%
(Gain)/Loss	6/30/14	22	477,853,862	33,582,880	475,642,004	34,523,200	3.57%
(Gain)/Loss	6/30/15	23	556,139,986	60,880,467	531,041,143	37,320,805	3.86%
(Gain)/Loss	6/30/16	0	13,447,031	13,896,711	0	0	0.00%
(Gain)/Loss	6/30/17	25	(243,889,526)	(15,750,044)	(244,197,275)	(16,191,045)	(1.68%)
(Gain)/Loss	6/30/18	26	(78,958,595)	(4,028,717)	(80,164,339)	(5,176,901)	(0.54%)
Assumption Change	6/30/18	16	468,454,507	33,921,107	465,253,956	43,588,622	4.51%
Method Change	6/30/18	16	115,207,155	8,342,228	114,420,042	10,719,763	1.11%
Investment (Gain)/Loss	6/30/19	17	57,713,689	3,470,124	58,052,052	4,626,832	0.48%
Non-Investment (Gain)/Loss	6/30/19	17	84,950,382	8,054,293	82,403,373	8,054,293	0.83%
Investment (Gain)/Loss	6/30/20	18	255,031,377	10,483,634	261,539,295	15,725,451	1.63%
Non-Investment (Gain)/Loss	6/30/20	18	80,638,622	7,436,714	78,436,644	7,436,714	0.77%
Assumption Change	6/30/21	19	262,485,722	23,603,649	255,941,776	23,603,649	2.44%
Net Investment (Gain)	6/30/21	19	(1,221,942,655)	(26,265,284)	(1,277,891,138)	(52,530,567)	(5.44%)
Non-Investment (Gain)/Loss	6/30/21	19	(118,514,621)	(10,657,256)	(115,559,971)	(10,657,256)	(1.10%)
Risk Mitigation	6/30/21	0	429,996,399	444,375,846	0	0	0.00%
Risk Mitigation Offset	6/30/21	0	(429,996,399)	(444,375,846)	0	0	0.00%
Investment (Gain)/Loss	6/30/22	20	1,719,257,140	0	1,836,166,626	39,467,840	4.09%
Non-Investment (Gain)/Loss	6/30/22	20	178,516,868	4,023,549	186,497,915	16,770,555	1.74%
Total			5,631,103,002	446,270,167	5,552,824,182	460,535,467	47.68%

Liabilities and Contributions

(Gain)/Loss Analysis

To calculate the required cost of the plan, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year, actual experience is compared to the expected experience based on the actuarial assumptions. This results in actuarial gains or losses, as shown below.

	State Miscellaneous	State Industrial	State Safety
1) Total (Gain)/Loss for the Year			
a) Unfunded Accrued Liability/(Surplus) as of June 30, 2021	\$26,342,447,764	\$598,677,202	\$1,446,563,357
b) Expected Payment on Unfunded Accrued Liability During 2021-22	3,499,804,023	96,037,471	243,117,208
c) Interest through June 30, 2022 $[0.068 \times (1a) - ((1.068)^{1/2} - 1) \times (1b)]$	1,674,250,008	37,498,473	90,236,265
d) Expected Unfunded Liability as of June 30, 2022 After All Changes $[(1a) - (1b) + (1c)]$	\$24,516,893,749	\$540,138,204	\$1,293,682,414
e) Change Due to Method Change	0	0	0
f) Change Due to Risk Mitigation	0	0	0
g) Change Due to Assumption Change	0	0	0
h) Expected Unfunded Accrued Liability After All Other Changes $[(1d) + (1e) + (1f) + (1g)]$	\$24,516,893,749	\$540,138,204	\$1,293,682,414
i) Actual Unfunded Accrued Liability as of June 30, 2022	41,416,492,995	1,342,959,472	3,699,438,974
j) Total (Gain)/Loss for 2021-22 [(1i) - (1h)]	\$16,899,599,246	\$802,821,268	\$2,405,756,560
2) Contribution (Gain)/Loss for the Year			
a) Expected Contributions for 2021-22	\$5,107,973,386	\$193,256,545	\$713,442,212
b) Interest on Expected Contributions for 2021-22	170,814,995	6,462,664	23,858,117
c) Actual Contributions for 2021-22	6,154,559,582	252,691,345	803,300,611
d) Interest on Actual Contributions for 2021-22	205,813,732	8,450,215	26,863,059
e) Expected Contributions with Interest for 2021-22 $[(2a) + (2b)]$	5,278,788,381	199,719,209	737,300,329
f) Actual Contributions with Interest for 2021-22 $[(2c) + (2d)]$	6,360,373,314	261,141,560	830,163,670
g) Contribution (Gain)/Loss for 2021-22 [(2e) - (2f)]	(\$1,081,584,933)	(\$61,422,351)	(\$92,863,341)
3) Investment (Gain)/Loss for the Year			
a) Market Value of Assets as of June 30, 2021	\$104,354,925,163	\$4,951,791,018	\$14,950,460,803
b) Receivables as of June 30, 2021	(175,325,525)	(11,570,492)	(10,990,836)
c) Receivables as of June 30, 2022	159,066,785	10,833,475	9,491,893
d) Contributions Received During 2021-22	6,154,559,582	252,691,345	803,300,611
e) Benefits and Refunds Paid During 2021-22	(7,174,816,779)	(255,703,661)	(788,819,304)
f) Transfers, SCP Payments and Interest, and Miscellaneous Adjustments During 2021-22	47,173,521	3,456,120	5,315,034
g) Expected Interest for 2021-22 $[0.068 \times (3a + 3b) + ((1.068)^{1/2} - 1) \times ((3d) + (3e) + (3f))]$	7,051,672,024	335,949,836	1,016,545,962
h) Expected Assets as of June 30, 2022 $[(3a) + (3b) + (3c) + (3d) + (3e) + (3f) + (3g)]$	110,417,254,771	5,287,447,641	15,985,304,163
i) Actual Market Value of Assets as of June 30, 2022	95,468,628,933	4,573,697,146	13,828,233,253
j) Investment (Gain)/Loss for 2021-22 [(3h) - (3i)]	\$14,948,625,838	\$713,750,495	\$2,157,070,910
4) Liability (Gain)/Loss for the Year			
a) Total (Gain)/Loss for 2021-22 (1i)	\$16,899,599,246	\$802,821,268	\$2,405,756,560
b) Contribution (Gain)/Loss for 2021-22 (2c)	(1,081,584,933)	(61,422,351)	(92,863,341)
c) Asset (Gain)/Loss for 2021-22 (3j)	14,948,625,838	713,750,495	2,157,070,910
d) Liability (Gain)/Loss for 2021-22 [(4a) - (4b) - (4c)]	\$3,032,558,341	\$150,493,124	\$341,548,991

Liabilities and Contributions

(Gain)/Loss Analysis (continued)

	State Peace Officers and Firefighters	California Highway Patrol
1) Total (Gain)/Loss for the Year		
a) Unfunded Accrued Liability/(Surplus) as of June 30, 2021	\$11,335,207,031	\$3,897,903,108
b) Expected Payment on Unfunded Accrued Liability During 2021-22	1,313,846,461	415,729,186
c) Interest through June 30, 2022 $[0.068 \times (1a) - ((1.068)^{1/2} - 1) \times (1b)]$	726,857,932	251,155,072
d) Expected Unfunded Liability as of June 30, 2022 After All Changes $[(1a) - (1b) + (1c)]$	\$10,748,218,502	\$3,733,328,994
e) Change Due to Method Change	0	0
f) Change Due to Risk Mitigation	0	0
g) Change Due to Assumption Change	0	0
h) Expected Unfunded Accrued Liability After All Other Changes $[(1d) + (1e) + (1f) + (1g)]$	\$10,748,218,502	\$3,733,328,994
i) Actual Unfunded Accrued Liability as of June 30, 2022	18,693,361,050	5,631,103,002
j) Total (Gain)/Loss for 2021-22 [(1i) - (1h)]	\$7,945,142,548	\$1,897,774,008
2) Contribution (Gain)/Loss for the Year		
a) Expected Contributions for 2021-22	\$1,632,588,687	\$665,505,266
b) Interest on Expected Contributions for 2021-22	54,595,161	22,255,065
c) Actual Contributions for 2021-22	2,638,816,592	734,952,945
d) Interest on Actual Contributions for 2021-22	88,244,282	24,577,455
e) Expected Contributions with Interest for 2021-22 $[(2a) + (2b)]$	1,687,183,848	687,760,331
f) Actual Contributions with Interest for 2021-22 $[(2c) + (2d)]$	2,727,060,874	759,530,400
g) Contribution (Gain)/Loss for 2021-22 [(2e) - (2f)]	(\$1,039,877,026)	(\$71,770,069)
3) Investment (Gain)/Loss for the Year		
a) Market Value of Assets as of June 30, 2021	\$46,172,239,586	\$11,924,100,686
b) Receivables as of June 30, 2021	(51,867,173)	(7,816,221)
c) Receivables as of June 30, 2022	45,125,775	6,828,602
d) Contributions Received During 2021-22	2,638,816,592	734,952,945
e) Benefits and Refunds Paid During 2021-22	(2,735,399,765)	(739,443,383)
f) Transfers, SCP Payments and Interest, and Miscellaneous Adjustments During 2021-22	18,022,435	3,674,100
g) Expected Interest for 2021-22 $[0.068 \times (3a + 3b) + ((1.068)^{1/2} - 1) \times ((3d) + (3e) + (3f))]$	3,133,558,187	810,280,045
h) Expected Assets as of June 30, 2022 $[(3a) + (3b) + (3c) + (3d) + (3e) + (3f) + (3g)]$	49,220,495,636	12,732,576,774
i) Actual Market Value of Assets as of June 30, 2022	42,535,707,168	11,013,319,634
j) Investment (Gain)/Loss for 2021-22 [(3h) - (3i)]	\$6,684,788,469	\$1,719,257,140
4) Liability (Gain)/Loss for the Year		
a) Total (Gain)/Loss for 2021-22 (1i)	\$7,945,142,548	\$1,897,774,008
b) Contribution (Gain)/Loss for 2021-22 (2c)	(1,039,877,026)	(71,770,069)
c) Asset (Gain)/Loss for 2021-22 (3j)	6,684,788,469	1,719,257,140
d) Liability (Gain)/Loss for 2021-22 [(4a) - (4b) - (4c)]	\$2,300,231,105	\$250,286,937

Liabilities and Contributions

Reconciliation of Employer Contribution Rates

Change in Normal Cost Rate from 2022-23 to 2023-24

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2022-2023 Normal Cost Rate	10.54%	10.81%	13.04%	19.67%	20.38%
Effect of Changes in Demographic Results	(0.21%)	(0.22%)	(0.16%)	(0.45%)	(0.37%)
Effect of Risk Mitigation	0.00%	0.00%	0.00%	0.00%	0.00%
Effect of Change in Assumptions	0.00%	0.00%	0.00%	0.00%	0.00%
Effect of Change in Member Contribution Rates	(0.23%)	(0.42%)	(0.27%)	(0.08%)	0.00%
2023-2024 Normal Cost Rate	10.10%	10.17%	12.61%	19.14%	20.01%

Change in Unfunded Accrued Liability Amortization Rate from 2022-23 to 2023-24

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2022-2023 Rate to Amortize the UAL	20.17%	8.70%	8.09%	27.54%	43.51%
Effect of Elimination of Amortization Bases	0.00%	0.00%	(0.60%)	0.00%	(0.03%)
Effect of Progression of Amortization Bases	(0.61%)	(0.53%)	(0.59%)	(1.03%)	(1.09%)
Effect of Amortizing Prior Year's Bases over a (Larger)/Smaller than Expected Payroll	(0.62%)	(0.13%)	0.33%	(1.19%)	(0.09%)
Effect of Investment (Gain)/Loss	2.23%	1.95%	1.99%	3.64%	4.09%
Effect of Non-Investment (Gain)/Loss	1.15%	0.99%	0.98%	2.72%	1.74%
Effect of Risk Mitigation	0.00%	0.00%	0.00%	0.00%	0.00%
Effect of Assumption Change	0.00%	0.00%	0.00%	0.00%	0.00%
Effect of Supplemental Pension Payments	(1.55%)	(1.61%)	(1.27%)	(4.56%)	(0.45%)
2023-2024 Rate to Amortize the UAL	20.77%	9.37%	8.93%	27.12%	47.68%

Change in Total Rate from 2022-23 to 2023-24

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2022-2023 Employer Rate	30.71%	19.51%	21.13%	47.21%	63.89%
Effect of Elimination of Amortization Bases	0.00%	0.00%	(0.60%)	0.00%	(0.03%)
Effect of Progression of Amortization Bases and Change in Payroll	(1.23%)	(0.66%)	(0.26%)	(2.22%)	(1.18%)
Effect of (Gain)/Loss and Changes in Demographic Results	3.17%	2.72%	2.81%	5.91%	5.46%
Effect of Risk Mitigation	0.00%	0.00%	0.00%	0.00%	0.00%
Effect of Change in Assumptions	0.00%	0.00%	0.00%	0.00%	0.00%
Effect of Change in Member Contribution Rates	(0.23%)	(0.42%)	(0.27%)	(0.08%)	0.00%
Effect of Supplemental Pension Payments	(1.55%)	(1.61%)	(1.27%)	(4.56%)	(0.45%)
2023-2024 Employer Rate	30.87%	19.54%	21.54%	46.26%	67.69%

Liabilities and Contributions

Reconciliation of Employer Contributions

Change in Normal Cost Contribution from 2022-23 to 2023-24

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2022-2023 Normal Cost Contribution	\$1,528,037,123	\$87,229,819	\$331,500,120	\$771,132,539	\$191,075,254
Effect of Change in Payroll	93,649,609	3,869,538	(6,206,721)	58,941,460	5,763,818
Effect of Changes in Demographic Results	(32,310,647)	(1,854,011)	(3,991,331)	(18,989,999)	(3,573,625)
Effect of Risk Mitigation	0	0	0	0	0
Effect of Change in Assumptions	0	0	0	0	0
Effect of Change in Member Contribution Rates	(35,387,851)	(3,539,475)	(6,735,369)	(3,376,000)	0
2023-2024 Normal Cost Contribution	\$1,553,988,234	\$85,705,871	\$314,566,699	\$807,708,000	\$193,265,447

Change in Unfunded Accrued Liability Amortization Contribution from 2022-23 to 2023-24

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2022-2023 Amortization of the UAL	\$2,924,631,242	\$70,211,486	\$205,634,954	\$1,079,806,964	\$407,963,543
Effect of Elimination of Amortization Bases	0	0	(15,221,929)	0	(282,423)
Effect of Progression of Amortization Bases	(9,392,529)	(2,415,563)	(9,967,085)	(11,283,992)	923,085
Effect of Amortizing Prior Year's Bases over a (Larger)/Smaller than Expected Payroll	0	0	0	0	0
Effect of Investment (Gain)/Loss	343,165,639	16,385,094	49,518,439	153,458,233	39,467,840
Effect of Non-Investment (Gain)/Loss	176,579,883	8,334,271	24,379,351	114,954,631	16,770,555
Effect of Risk Mitigation	0	0	0	0	0
Effect of Assumption Change	0	0	0	0	0
Effect of Supplemental Pension Payments	(239,186,003)	(13,568,980)	(31,670,939)	(192,550,205)	(4,307,133)
2023-2024 Amortization of the UAL	\$3,195,798,232	\$78,946,308	\$222,672,791	\$1,144,385,631	\$460,535,467

Change in Total Contribution from 2022-23 to 2023-24

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2022-2023 Employer Contribution ¹	\$4,452,668,365	\$157,441,305	\$537,135,074	\$1,850,939,503	\$599,038,797
Effect of Elimination of Amortization Bases	0	0	(15,221,929)	0	(282,423)
Effect of Change in Payroll and Progression of Amortization Bases	84,257,080	1,453,975	(16,173,806)	47,657,468	6,686,903
Effect of (Gain)/Loss and Changes in Demographic Results	487,434,875	22,865,354	69,906,459	249,422,865	52,664,770
Effect of Risk Mitigation	0	0	0	0	0
Effect of Change in Assumptions	0	0	0	0	0
Effect of Change in Member Contribution Rates	(35,387,851)	(3,539,475)	(6,735,369)	(3,376,000)	0
Effect of Supplemental Pension Payments	(239,186,003)	(13,568,980)	(31,670,939)	(192,550,205)	(4,307,133)
2023-2024 Employer Contribution	\$4,749,786,466	\$164,652,179	\$537,239,490	\$1,952,093,631	\$653,800,914

Liabilities and Contributions

History of Employer Contribution Rates

The table below provides a 30-year history of contribution rates. In cases where the contribution rate changed during the course of a fiscal year, the entry shown is the weighted average of the rates effective during the fiscal year.

Fiscal Year	State Miscellaneous				State Industrial	
	Tier 1		Tier 2			
	Actuarially Required Rate	Budgeted Rate	Actuarially Required Rate	Budgeted Rate	Actuarially Required Rate	Budgeted Rate
2023-24	30.87%	32.00%	30.87%	32.00%	19.54%	21.00%
2022-23	30.71%	32.00%	30.71%	32.00%	19.51%	21.00%
2021-22 ¹	29.12%	29.22%	29.12%	29.22%	16.46%	17.34%
2020-21 ²	31.76%	31.86%	31.76%	31.86%	21.62%	22.50%
2019-20	30.977%	31.075%	30.977%	31.075%	20.823%	21.704%
2018-19	29.298%	29.396%	29.298%	29.396%	19.550%	20.431%
2017-18	28.325%	28.423%	28.325%	28.423%	19.527%	20.408%
2016-17	26.646%	26.728%	26.095%	26.984%	18.365%	19.246%
2015-16	25.068%	25.150%	24.389%	25.278%	17.775%	18.656%
2014-15	24.198%	24.280%	23.510%	24.237%	17.286%	18.134%
2013-14	21.121%	21.203%	20.992%	21.355%	15.682%	16.446%
2012-13	20.503%	20.503%	20.457%	20.457%	16.302%	16.302%
2011-12	18.175%	18.175%	17.025%	17.025%	14.934%	14.934%
2010-11	18.725%	18.725%	18.032%	18.032%	16.433%	16.433%
2009-10	16.917%	16.917%	16.737%	16.737%	17.251%	17.251%
2008-09	16.574%	16.574%	16.470%	16.470%	17.236%	17.236%
2007-08	16.633%	16.633%	16.565%	16.565%	17.345%	17.345%
2006-07	16.997%	16.997%	16.778%	16.778%	17.861%	17.861%
2005-06	15.942%	15.942%	15.890%	15.890%	17.147%	17.147%
2004-05	17.022%	17.022%	13.216%	13.216%	16.386%	16.386%
2003-04	14.843%	14.843%	10.265%	10.265%	11.099%	11.099%
2002-03	7.413%	7.413%	2.813%	2.813%	2.858%	2.858%
2001-02	4.166%	4.166%	0.036%	0.036%	0.350%	0.350%
2000-01	0.000%	0.000%	0.000%	0.000%	0.026%	0.026%
1999-00	1.491%	1.491%	0.000%	0.000%	0.026%	0.026%
1998-99	8.541%	8.541%	6.437%	6.437%	4.583%	4.583%
1997-98	12.721%	12.721%	9.822%	9.822%	9.048%	9.048%
1996-97	13.106%	13.106%	9.345%	9.345%	9.260%	9.260%
1995-96	12.350%	12.350%	8.326%	8.326%	8.981%	8.981%
1994-95	9.934%	9.934%	5.947%	5.947%	10.597%	10.597%

¹Rates for fiscal year 2021-22 include reduction due to State contribution under Government Code section 20825.1.

²Rates for fiscal year 2020-21 are prior to reduction due to State contribution under Government Code section 20825.1.

Liabilities and Contributions

History of Employer Contribution Rates continued

	State Safety		State Peace Officers and Firefighters		California Highway Patrol	
	Actuarially Required Rate	Budgeted Rate	Actuarially Required Rate	Budgeted Rate	Actuarially Required Rate	Budgeted Rate
2023-24	21.54%	22.75%	46.26%	50.00%	67.69%	71.78%
2022-23	21.13%	22.75%	47.21%	50.00%	63.89%	67.54%
2021-22 ¹	18.29%	19.47%	31.19%	32.84%	61.46%	62.78%
2020-21 ²	21.66%	22.84%	48.93%	50.58%	59.76%	61.08%
2019-20	21.526%	22.708%	47.198%	48.845%	57.811%	59.130%
2018-19	20.352%	21.534%	43.724%	45.371%	53.805%	55.124%
2017-18	19.402%	20.584%	42.598%	44.245%	52.785%	54.104%
2016-17	18.753%	19.935%	40.276%	41.923%	48.719%	50.038%
2015-16	18.082%	19.264%	37.338%	38.985%	45.406%	46.725%
2014-15	18.156%	19.338%	35.180%	36.827%	42.175%	43.494%
2013-14	17.205%	17.905%	30.495%	31.320%	34.616%	35.935%
2012-13	17.503%	17.503%	30.297%	30.297%	33.728%	33.728%
2011-12	16.428%	16.428%	27.415%	27.415%	31.264%	31.264%
2010-11	18.187%	18.187%	28.722%	28.722%	31.291%	31.291%
2009-10	18.099%	18.099%	25.848%	25.848%	28.438%	28.438%
2008-09	18.411%	18.411%	26.064%	26.064%	32.149%	32.149%
2007-08	18.835%	18.835%	25.552%	25.552%	32.212%	32.212%
2006-07	19.294%	19.294%	24.505%	24.505%	31.463%	31.463%
2005-06	19.026%	19.026%	23.563%	23.563%	26.396%	26.396%
2004-05	20.773%	20.773%	23.841%	23.841%	33.434%	33.434%
2003-04	21.930%	21.930%	20.325%	20.325%	32.653%	32.653%
2002-03	17.055%	17.055%	13.925%	13.925%	23.076%	23.076%
2001-02	12.923%	12.923%	9.638%	9.638%	16.897%	16.897%
2000-01	6.808%	6.808%	2.729%	2.729%	13.711%	13.711%
1999-00	7.487%	7.487%	0.000%	0.000%	13.345%	13.345%
1998-99	9.440%	9.440%	9.591%	9.591%	13.541%	13.541%
1997-98	13.754%	13.754%	15.270%	15.270%	15.515%	15.515%
1996-97	14.656%	14.656%	15.401%	15.401%	15.851%	15.851%
1995-96	14.228%	14.228%	14.350%	14.350%	14.778%	14.778%
1994-95	13.927%	13.927%	12.817%	12.817%	15.552%	15.552%

¹Rates for fiscal year 2021-22 include reduction due to State contribution under Government Code section 20825.1.

²Rates for fiscal year 2020-21 are prior to reduction due to State contribution under Government Code section 20825.1.

Liabilities and Contributions

History of Funded Status and Funding Progress

Shown below is a 30-year history of funding progress for the plans on a market value of assets basis.

State Miscellaneous (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets	Funded Status	Unfunded Liabilities/(Surplus)	Projected Payroll for Contribution	Unfunded/(Surplus) as a % of Payroll
6/30/22	\$136,885	\$95,469	69.7%	\$41,416	\$15,386	269.2%
6/30/21	130,697	104,355	79.8%	26,342	14,498	181.7%
6/30/20	124,695	87,047	69.8%	37,648	14,287	263.5%
6/30/19	120,101	83,817	69.8%	36,285	13,617	266.5%
6/30/18	115,469	80,223	69.5%	35,246	12,935	272.5%
6/30/17	106,956	72,204	67.5%	34,752	12,396	280.4%
6/30/16	102,444	66,608	65.0%	35,836	11,995	298.7%
6/30/15	97,831	68,080	69.6%	29,751	11,558	257.4%
6/30/14	94,442	68,359	72.4%	26,084	10,854	240.3%
6/30/13	90,277	60,029	66.5%	30,248	10,014	302.1%
6/30/12	83,524	55,371	66.3%	28,152	10,254	274.6%
6/30/11	81,271	57,452	70.7%	23,819	10,426	228.5%
6/30/10	76,980	48,646	63.2%	28,335	10,515	269.5%
6/30/09	74,763	44,094	59.0%	30,669	10,465	293.1%
6/30/08	69,648	59,979	86.1%	9,669	10,241	94.4%
6/30/07	65,342	64,442	98.6%	900	9,530	9.4%
6/30/06	61,299	55,051	89.8%	6,248	8,956	69.8%
6/30/05	58,267	50,231	86.2%	8,036	8,897	90.3%
6/30/04	54,701	45,460	83.1%	9,241	9,079	101.8%
6/30/03	51,559	39,324	76.3%	12,235	9,207	132.9%
6/30/02	48,118	39,530	82.2%	8,588	9,238	93.0%
6/30/01	45,261	43,933	97.1%	1,328	8,816	15.1%
6/30/00	42,386	49,208	116.1%	(6,822)	8,246	(82.7%)
6/30/99	35,771	46,176	129.1%	(10,405)	7,332	(141.9%)
6/30/98	34,169	42,011	122.9%	(7,842)	6,592	(119.0%)
6/30/97	32,557	35,959	110.4%	(3,401)	6,624	(51.4%)
6/30/96	31,742	30,452	95.9%	1,290	6,881	18.8%
6/30/95	29,960	27,088	90.4%	2,872	7,009	41.0%
6/30/94	27,821	24,278	87.3%	3,542	6,827	51.9%
6/30/93	26,162	24,715	94.5%	1,447	6,310	22.9%

Liabilities and Contributions

History of Funded Status and Funding Progress (continued)

State Industrial (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets	Funded Status	Unfunded Liabilities/(Surplus)	Projected Payroll for Contribution	Unfunded/(Surplus) as a % of Payroll
6/30/22	\$5,917	\$4,574	77.3%	\$1,343	\$843	159.4%
6/30/21	5,550	4,952	89.2%	599	807	74.2%
6/30/20	5,227	4,084	78.1%	1,143	808	141.4%
6/30/19	4,946	3,822	77.3%	1,123	770	145.8%
6/30/18	4,670	3,590	76.9%	1,080	738	146.3%
6/30/17	4,210	3,215	76.4%	995	690	144.2%
6/30/16	3,970	2,898	73.0%	1,072	672	159.6%
6/30/15	3,669	2,885	78.6%	785	636	123.3%
6/30/14	3,458	2,825	81.7%	633	581	108.9%
6/30/13	3,236	2,418	74.7%	818	532	153.7%
6/30/12	2,968	2,168	73.0%	800	578	138.4%
6/30/11	2,832	2,180	77.0%	652	616	105.7%
6/30/10	2,614	1,785	68.3%	830	616	134.7%
6/30/09	2,467	1,556	63.1%	912	574	158.9%
6/30/08	2,235	2,034	91.0%	201	522	38.5%
6/30/07	2,044	2,119	103.7%	(76)	440	(17.2%)
6/30/06	1,870	1,776	95.0%	94	381	24.6%
6/30/05	1,754	1,586	90.4%	168	380	44.2%
6/30/04	1,602	1,415	88.3%	187	378	49.5%
6/30/03	1,462	1,201	82.1%	261	381	68.5%
6/30/02	1,295	1,200	92.7%	95	390	24.4%
6/30/01	1,196	1,325	110.8%	(129)	390	(33.1%)
6/30/00	1,079	1,463	135.6%	(384)	379	(101.3%)
6/30/99	880	1,360	154.5%	(480)	344	(139.5%)
6/30/98	790	1,226	155.2%	(436)	297	(147.1%)
6/30/97	741	1,042	140.7%	(302)	285	(106.0%)
6/30/96	721	861	119.4%	(140)	294	(47.7%)
6/30/95	659	751	113.9%	(91)	271	(33.7%)
6/30/94	619	665	107.5%	(46)	235	(19.7%)
6/30/93	597	668	111.8%	(71)	278	(25.4%)

Liabilities and Contributions

History of Funded Status and Funding Progress (continued)

State Safety (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets	Funded Status	Unfunded Liabilities/(Surplus)	Projected Payroll for Contribution	Unfunded/(Surplus) as a % of Payroll
6/30/22	\$17,528	\$13,828	78.9%	\$3,699	\$2,495	148.3%
6/30/21	16,397	14,950	91.2%	1,447	2,542	56.9%
6/30/20	15,352	12,250	79.8%	3,102	2,605	119.1%
6/30/19	14,483	11,386	78.6%	3,097	2,554	121.2%
6/30/18	13,591	10,551	77.6%	3,039	2,445	124.3%
6/30/17	12,204	9,327	76.4%	2,877	2,293	125.5%
6/30/16	11,288	8,288	73.4%	3,000	2,245	133.6%
6/30/15	10,255	7,859	76.6%	2,396	2,135	112.2%
6/30/14	9,551	7,562	79.2%	1,990	2,038	97.6%
6/30/13	8,834	6,327	71.6%	2,507	1,881	133.3%
6/30/12	7,827	5,524	70.6%	2,303	1,899	121.3%
6/30/11	7,224	5,390	74.6%	1,835	1,984	92.5%
6/30/10	6,436	4,196	65.2%	2,239	2,004	111.7%
6/30/09	6,006	3,514	58.5%	2,492	2,048	121.7%
6/30/08	5,146	4,365	84.8%	781	1,914	40.8%
6/30/07	4,467	4,342	97.2%	126	1,530	8.2%
6/30/06	3,907	3,486	89.2%	421	1,226	34.3%
6/30/05	3,473	3,000	86.4%	473	1,107	42.7%
6/30/04	3,087	2,509	81.3%	579	889	65.1%
6/30/03	2,788	2,049	73.5%	739	891	82.9%
6/30/02	2,476	1,926	77.8%	551	876	62.9%
6/30/01	2,179	2,000	91.8%	180	850	21.1%
6/30/00	1,865	2,122	113.8%	(257)	759	(33.9%)
6/30/99	1,364	1,927	141.3%	(563)	682	(82.6%)
6/30/98	1,285	1,672	130.1%	(386)	511	(75.7%)
6/30/97	1,086	1,404	129.2%	(318)	414	(76.8%)
6/30/96	947	1,123	118.6%	(176)	474	(37.2%)
6/30/95	914	936	102.5%	(23)	408	(5.5%)
6/30/94	761	762	100.1%	(1)	385	(0.2%)
6/30/93	644	722	112.0%	(77)	265	(29.2%)

Liabilities and Contributions

History of Funded Status and Funding Progress (continued)

State Peace Officers and Firefighters (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets	Funded Status	Unfunded Liabilities/(Surplus)	Projected Payroll for Contribution	Unfunded/(Surplus) as a % of Payroll
6/30/22	\$61,229	\$42,536	69.5%	\$18,693	\$4,220	443.0%
6/30/21	57,507	46,172	80.3%	11,335	3,920	289.1%
6/30/20	54,102	38,327	70.8%	15,774	4,048	389.6%
6/30/19	51,219	35,359	69.0%	15,860	3,825	414.6%
6/30/18	48,792	33,327	68.3%	15,466	3,719	415.9%
6/30/17	44,619	29,424	65.9%	15,194	3,616	420.2%
6/30/16	41,485	26,622	64.2%	14,863	3,434	432.9%
6/30/15	39,394	26,973	68.5%	12,420	3,335	372.4%
6/30/14	37,466	26,591	71.0%	10,875	3,206	339.2%
6/30/13	35,271	22,919	65.0%	12,352	3,087	400.1%
6/30/12	31,336	20,526	65.5%	10,810	3,132	345.2%
6/30/11	30,127	20,801	69.0%	9,326	3,393	274.8%
6/30/10	27,712	17,199	62.1%	10,512	3,455	304.3%
6/30/09	26,291	15,083	57.4%	11,208	3,592	312.0%
6/30/08	24,004	19,734	82.2%	4,270	3,589	119.0%
6/30/07	22,250	20,539	92.3%	1,711	3,420	50.0%
6/30/06	19,737	16,973	86.0%	2,764	3,058	90.4%
6/30/05	17,753	14,985	84.4%	2,769	2,860	96.8%
6/30/04	15,668	12,999	83.0%	2,670	2,604	102.5%
6/30/03	14,220	11,038	77.6%	3,182	2,507	126.9%
6/30/02	12,827	10,731	83.7%	2,095	2,407	87.1%
6/30/01	11,949	11,574	96.9%	375	2,304	16.3%
6/30/00	10,720	12,668	118.2%	(1,947)	2,227	(87.4%)
6/30/99	8,091	11,685	144.4%	(3,594)	2,018	(178.1%)
6/30/98	7,016	10,322	147.1%	(3,306)	1,540	(214.6%)
6/30/97	6,495	8,436	129.9%	(1,941)	1,410	(137.7%)
6/30/96	6,129	6,860	111.9%	(731)	1,654	(44.2%)
6/30/95	5,552	5,892	106.1%	(340)	1,592	(21.4%)
6/30/94	4,884	5,032	103.0%	(148)	1,505	(9.8%)
6/30/93	4,476	4,867	108.7%	(392)	1,348	(29.1%)

Liabilities and Contributions

History of Funded Status and Funding Progress (continued)

California Highway Patrol (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets	Funded Status	Unfunded Liabilities/(Surplus)	Projected Payroll for Contribution	Unfunded/(Surplus) as a % of Payroll
6/30/22	\$16,644	\$11,013	66.2%	\$5,631	\$966	583.0%
6/30/21	15,822	11,924	75.4%	3,898	938	415.7%
6/30/20	14,786	9,501	64.3%	5,285	978	540.6%
6/30/19	14,087	9,082	64.5%	5,005	961	520.6%
6/30/18	13,384	8,541	63.8%	4,843	921	526.2%
6/30/17	12,322	7,417	60.2%	4,904	900	545.1%
6/30/16	11,471	6,706	58.5%	4,765	848	562.2%
6/30/15	10,942	6,735	61.6%	4,207	852	493.9%
6/30/14	10,329	6,645	64.3%	3,684	801	460.0%
6/30/13	9,775	5,760	58.9%	4,014	767	523.5%
6/30/12	8,659	5,220	60.3%	3,439	773	445.0%
6/30/11	8,193	5,336	65.1%	2,857	780	366.4%
6/30/10	7,704	4,440	57.6%	3,264	767	425.4%
6/30/09	7,300	3,932	53.9%	3,368	734	459.1%
6/30/08	6,609	5,238	79.3%	1,371	675	203.2%
6/30/07	6,249	5,546	88.8%	703	613	114.6%
6/30/06	5,744	4,682	81.5%	1,062	556	191.0%
6/30/05	5,349	4,249	79.4%	1,100	546	201.4%
6/30/04	4,742	3,734	78.7%	1,008	509	198.2%
6/30/03	4,421	3,230	73.1%	1,191	476	250.3%
6/30/02	4,138	3,159	76.3%	979	461	212.3%
6/30/01	3,981	3,466	87.1%	515	455	113.2%
6/30/00	3,635	3,443	94.7%	192	433	44.4%
6/30/99	2,983	3,249	108.9%	(266)	402	(66.1%)
6/30/98	2,756	2,901	105.3%	(145)	367	(39.5%)
6/30/97	2,621	2,912	111.1%	(291)	371	(78.6%)
6/30/96	2,328	2,496	107.2%	(168)	343	(49.0%)
6/30/95	2,134	2,207	103.4%	(73)	302	(24.2%)
6/30/94	1,971	1,968	99.9%	2	288	0.8%
6/30/93	1,773	1,941	109.5%	(168)	279	(60.2%)

Liabilities and Contributions

Normal Cost by Group

The table below displays normal cost broken out by benefit group for FY 2023-24. The Total Normal Cost is the annual cost of service accrual for the fiscal year for active employees and can be viewed as the long-term contribution rate for the benefits contracted. Generally, the normal cost for a benefit group subject to more generous benefit provisions will exceed the normal cost for a group with less generous benefits. However, based on the characteristics of the members (particularly when the number of actives is small), this may not be the case. Future measurements of Total Normal Cost for each group may differ significantly from the current values due to factors such as: changes in demographics of the group, changes in economic and demographic assumptions, and changes in plan benefits or applicable law.

The employee contribution rate and breakpoint information shown here reflects membership data as stored in our system and is for informational purposes only. Please refer to the Public Employees' Retirement Law and/or applicable Memoranda of Understanding for the latest rate information. FAC means Final Average Compensation.

	State Plans	Total Normal Cost	Employee Contribution	Range of Breakpoints ²	Average Effective Member Rate ^{3,4}	Employer Normal Cost
P	State Miscellaneous (Including CSU) - 2% @ 62	16.2%	6% - 11%	\$0 - \$513	7.6%	8.6%
E	State Miscellaneous - 2nd Tier 2% @ 62 ⁴	12.0%	3.75%	\$0	3.8%	8.2%
P	State Industrial - 2% @ 62	16.7%	6% - 11%	\$317 - \$513	8.2%	8.5%
R	State Industrial - 2nd Tier 2% @ 62 ⁴	12.1%	3.75%	\$0	3.8%	8.3%
A	State Safety - 2% @ 57	21.0%	11% - 11.5%	\$0 - \$317	10.6%	10.4%
	State POFF - 2.5% @ 57	26.7%	13% - 14%	\$0 - \$863	11.6%	15.1%
	State POFF - 2.7% @ 57	26.6%	13%	\$863	10.7%	15.9%
	CHP - 2.7% @ 57	24.4%	13.5%	\$863	12.3%	12.1%
C	State Miscellaneous - 2% @ 60 & 3 Year FAC	18.0%	5% - 10%	\$317 - \$513	6.9%	11.1%
L	State Miscellaneous - 2% @ 55 ¹	18.8%	5% - 11%	\$0 - \$513	7.0%	11.8%
A	State Miscellaneous - 2nd Tier 2% @ 55 ⁴	14.7%	3.75%	\$0	3.8%	10.9%
S	State Industrial - 2% @ 60 & 3 Year FAC	19.1%	9%-11%	\$317 - \$513	8.5%	10.6%
S	State Industrial - 2% @ 55 ¹	20.7%	5% - 11%	\$317 - \$513	8.3%	12.4%
I	State Industrial - 2nd Tier 2% @ 55 ⁴	16.1%	3.75%	\$0	3.8%	12.3%
C	State Safety - 2% @ 55 ¹	21.9%	6% - 11.5%	\$0 - \$317	10.6%	11.3%
	State Safety - 2.5% @ 60 & 3 Year FAC	24.8%	11% - 11.5%	\$317	10.9%	13.9%
	State Safety - 2.5% @ 55 ¹	26.4%	11% - 11.5%	\$0 - \$317	10.7%	15.7%
	State POFF - 2.5% @ 55 & 3 Year FAC	30.0%	8% - 14%	\$238 - \$863	12.0%	18.0%
	State POFF - 3% @ 55 ¹	34.0%	8% - 13%	\$238 - \$863	11.3%	22.7%
	State POFF - 3% @ 50 ¹	34.0%	8% - 14%	\$238 - \$863	11.9%	22.1%
	CHP - 3% @ 55 & 3 Year FAC	33.3%	13.5%	\$863	12.5%	20.8%
	CHP - 3% @ 50 ¹	35.6%	13.5%	\$863	12.5%	23.1%
B	State Miscellaneous	17.57%	3.75% - 11%	\$0 - \$513	7.47%	10.10%
L	State Industrial	18.85%	3.75% - 11%	\$0 - \$513	8.68%	10.17%
E	State Safety	23.53%	6% - 11.5%	\$0 - \$317	10.92%	12.61%
N	State POFF	31.00%	8% - 14%	\$0 - \$863	11.86%	19.14%
D	CHP	32.54%	13.5%	\$863	12.53%	20.01%
E						
D						

- (1) Most Classic employees have benefits based on a final one-year compensation period while new hires' benefits are based on a final three-year compensation period.
- (2) Employees make contributions to the pension plan based only on monthly compensation above the breakpoint.
- (3) The average effective member rate was calculated based on data as of June 30, 2019 and is reflective of the different breakpoints and contribution rates paid by members within the same plans. For example, a member earning \$6,000 a month with an 8% contribution rate and a breakpoint of \$513 will contribute \$438.96 and have an effective contribution rate of 7.316% of salary. This is calculated as $(\$6,000 - \$513) \times 8\%$ divided by \$6,000.
- (4) Reflects the Total Normal Cost assuming conversion to Tier 1 benefits for members with Tier 2 service.

Liabilities and Contributions

PEPRA Member Contribution Rates

PEPRA members are required to contribute at least 50% of the total normal cost of their pension benefit. According to Government Code section 7522.30, State employees are excluded from this requirement except for employees of the Legislature, California State University (CSU), and the judicial branch.

The total normal cost of PEPRA members' benefits is remeasured annually as part of the actuarial valuation based on the active PEPRA population in the plan. If the total normal cost changes by more than 1% from the base total normal cost basis established for the plan, the member rate is revised to equal 50% of the new total normal cost rounded to the nearest quarter percent.

The table below shows the determination of the member contribution rates effective July 1, 2023, based on 50% of the total normal cost for each respective plan as of the June 30, 2022 valuation.

	Basis for Current Rate			Rates Effective July 1, 2023			
	Total Normal Cost	Actuarial Valuation Date	Member Rate	Total Normal Cost	Change	Change Needed	Member Rate
State Miscellaneous – CSU, Legislature and Judicial	16.21%	6/30/2021	8.00%	16.20%	-0.01%	No	8.00%
State Safety – CSU, Legislature and Judicial	20.97%	6/30/2021	10.50%	20.99%	0.02%	No	10.50%
State POFF – CSU, Legislature and Judicial	26.44%	6/30/2021	13.25%	26.40%	-0.04%	No	13.25%

Liabilities and Contributions

State Bargaining Units 2, 5, 16, and 18 - Member Contribution Rates

Pursuant to Government Code section 20683, members of State Bargaining Units 2, 5, 16, and 18 are required to contribute at least 50% of the total annual normal cost of their pension benefit. The total normal cost is remeasured annually as part of the actuarial valuation. Initially, if the total normal cost of the category changes¹ by more than 1% from the total normal cost determined as of June 30, 2015, the new member rate shall be 50% of the new normal cost rounded to the nearest quarter percent. Subsequently, if the total normal cost of the category changes¹ by more than 1% from the basis at that time, the member rate will be revised to equal 50% of the new total normal cost rounded to the nearest quarter percent.

The table below shows the determination of the member contribution rates effective July 1, 2023, based on 50% of the total normal cost for each respective plan as of the June 30, 2022 valuation.

	Basis for Current Rate			Rates Effective July 1, 2023			
	Total Normal Cost	Actuarial Valuation Date	Member Rate	Total Normal Cost	Change	Change Needed	Member Rate
BU 2							
State Miscellaneous ²	17.71%	6/30/2021	8.50%	17.57%	-0.14%	No	8.50%
State Industrial ²	19.00%	6/30/2021	9.00%	18.85%	-0.15%	No	9.00%
State Safety	23.69%	6/30/2021	11.50%	23.53%	-0.16%	No	11.50%
BU 5							
State Miscellaneous ²	17.71%	6/30/2021	8.75%	17.57%	-0.14%	No	8.75%
California Highway Patrol ³	32.88%	6/30/2021	13.50%	32.54%	-0.34%	No	13.50%
BU 16							
State Miscellaneous ²	15.48%	6/30/2015	10.00%	17.57%	2.09%	No	10.00%
State Industrial ²	18.02%	6/30/2015	10.00%	18.85%	0.83%	No	10.00%
State Safety	23.19%	6/30/2018	11.50%	23.53%	0.34%	No	11.50%
BU 18							
State Miscellaneous ²	15.48%	6/30/2015	10.00%	17.57%	2.09%	No	10.00%
State Industrial ²	18.02%	6/30/2015	10.00%	18.85%	0.83%	No	10.00%
State Safety	22.91%	6/30/2020	11.50%	23.53%	0.62%	No	11.50%

(1) Provisions by Bargaining Unit:

- BU 2: the member rate will initially be adjusted if the Total Normal Cost increases or decreases by 1% or more; subsequently, the member rate will be adjusted if the Total Normal Cost increases or decreases by more than 1%.
- BU 5: the member rate will initially be adjusted if the Total Normal Cost increases by 1% or more; subsequently, the member rate will be adjusted if the Total Normal Cost increases or decreases by 1% or more. The increase or decrease in member rate is limited to 1.00% per year.
- BU 16: the member rate will initially be adjusted if the Total Normal Cost increases by 1% or more; subsequently, the member rate will be adjusted if the Total Normal Cost increases or decreases by more than 1%.
- BU 18: the member rate will initially be adjusted if the Total Normal Cost increases by 1% or more; subsequently, the member rate will be adjusted if the Total Normal Cost increases or decreases by more than 1%.

- (2) The member rate shown here is for a member who participates in Social Security. The member rate for members of these groups who do not participate in Social Security is currently 1% higher than the rate shown here.

Liabilities and Contributions

State Member Contribution Rates

The table below shows the State member contribution rates effective July 1, 2023.

	Rates Effective July 1, 2023				
	State Miscellaneous ¹	State Industrial ¹	State Safety	State POFF	California Highway Patrol
Executive Branch					
Classic and PEPRA members within the executive branch have the same contribution rate. Rank and file (R), supervisors (S), managers (M), confidential (C) and exempt (E) employees have the same contribution rate unless noted.					
Bargaining Units 1, 3, 4, 11, 14, 15, 17, 20	8.50%	9.50%	11.50%		
Bargaining Unit 2 ²	8.50%	9.00%	11.50%		
Bargaining Unit 5 ²	8.75%				13.50%
Bargaining Unit 6	8.00%	9.00%		13.00%	
Bargaining Unit 7	8.50%	8.50%	11.50%	15.00%	
Bargaining Unit 8	10.00%	10.00%		13.00%	
Bargaining Unit 9	8.00%	9.00%	11.00%		
Bargaining Unit 10	8.00%	9.00%	11.00%		
Bargaining Unit 12 – (R)	10.00%	10.00%	11.00%		
Bargaining Unit 12 – (S, M, C, E)	8.00%	9.00%	11.00%		
Bargaining Unit 13 – (R)	10.00%	10.00%	11.50%		
Bargaining Unit 13 – (S, M, C, E)	8.00%	9.00%	11.50%		
Bargaining Unit 16 ² – (R)	10.00%	10.00%	11.50%		
Bargaining Unit 16 ² – (S, M, C, E)	8.00%	9.00%	11.50%		
Bargaining Unit 18 ² – (R)	10.00%	10.00%	11.50%		
Bargaining Unit 18 ² – (S, M, C, E)	8.00%	9.00%	11.50%		
Bargaining Unit 19 – (R)	10.00%	10.00%	11.00%		
Bargaining Unit 19 – (S, M, C, E)	8.00%	9.00%	11.00%		
Bargaining Unit 21	8.50%	8.50%	11.50%		
National Guard	37.00%				
Second Tier	3.75%	3.75%			
California State University					
Classic Members	5.00%	5.00%	6.00%	8.00%	
PEPRA Members ³	8.00%		10.50%	13.25%	
Legislative Branch					
Classic Members	5.00%	5.00%	6.00%	8.00%	
PEPRA Members ³	8.00%		10.50%	13.25%	
Judicial Branch					
Classic Members	8.00%			11.00%	
PEPRA Members ³	8.00%		10.50%	13.25%	

- (1) The member rates shown here for State Miscellaneous and State Industrial are for members who participates in Social Security. For first tier members who do not participate in Social Security, the member rate is 1% higher.
- (2) Member rates depend on the Total Normal Cost rate for the rate plan. See page 39 for more detail.
- (3) Member rates depend on the Total Normal Cost rate for PEPRA benefits. See page 38 for more detail.

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Risk Analysis

Projected Rates

The table below shows the required and projected employer contribution rates for the next five fiscal years. Projected results reflect an estimated investment return of 6.1% for FY 2022-23 based on preliminary market value and investment return information provided by the Investment Office. The actual investment loss will be based on final audited assets as of June 30, 2023, which are not yet available. Projected results also assume all actuarial assumptions will be met, including investment return of 6.8% for fiscal years beginning FY 2023-24 and no changes to all assumptions, methods or benefits will occur during the projection period. Projected rates further anticipate the decrease in normal cost due to new hires entering lower benefit formulas under PEPRA. Rates do not reflect additional contributions to offset increased member contributions pursuant to Government Code section 20683.2 or the State's Proposition 2 contribution strategy shown on page 7-8 of this report. However, the Bargaining Unit 5 agreement to delay savings which expires June 30, 2024, is reflected in the rates for California Highway Patrol beginning in FY 2024-25.

Plan	Actual Contribution Rates	Projected Future Employer Contribution Rates ¹				
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
State Miscellaneous	30.87%	31.8%	32.7%	33.2%	35.1%	34.9%
State Industrial	19.54%	20.3%	21.0%	21.5%	23.1%	22.9%
State Safety	21.54%	22.3%	23.0%	23.4%	25.0%	24.8%
State Peace Officers & Firefighters	46.26%	47.6%	48.9%	49.6%	52.5%	52.0%
California Highway Patrol	67.69%	68.2%	69.8%	68.2%	71.3%	70.6%

¹Rates do not reflect additional contributions to offset increased member contributions pursuant to Government Code section 20683.2 or the State's Proposition 2 contribution stabilization strategy.

Under the amortization policy in effect for this valuation, changes in the Unfunded Accrued Liability (UAL) due to investment gains or losses (return relative to the prevailing assumption, currently 6.8% are amortized using a five-year ramp up. For more information, please see "Amortization of the Unfunded Actuarial Accrued Liability" under "Actuarial Methods" in Appendix A. This method attempts to mitigate employer cost volatility from year to year by phasing in the impact of investment experience over a five-year period. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years when there is poor investment return, the relatively small amortization payments during the ramp-up period could result in a funded ratio that is projected to decrease initially while the contribution impact of the investment loss is phased in.

Risk Analysis

Future Investment Return Scenarios

Analysis was performed to estimate the effects of various future investment returns on required employer contributions. Starting with the baseline projections and underlying inputs/assumptions described in “Projected Employer Contribution Rates” above, the projections below provide a range of results based on hypothetical investment return scenarios.

The tables below show projected contribution rates if the fund were to earn either 3.0% or 10.8% annually in each fiscal year beginning FY 2023-24. These alternate investment returns were chosen based on stochastic analysis of possible future investment returns over the 20-year period ending June 30, 2042. Using the expected returns and volatility of the asset classes in which the funds are invested, we produced five thousand stochastic outcomes for this period based on the Asset Liability Management process completed in 2021. We then selected annual returns that approximate the 5th and 95th percentiles for these outcomes. Of all the 20-year outcomes generated in the stochastic analysis, approximately 90% had an average annual return between 3.0% and 10.8%.

State Miscellaneous

Assumed Annual Return from fiscal years 2023-2024 through 2042-43	Current Rate	Projected Future Employer Contribution Rates ¹				
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
3.0% (5th percentile)	30.87%	31.8%	33.2%	34.8%	38.1%	39.9%
10.8% (95th percentile)	30.87%	31.8%	32.4%	32.2%	32.9%	31.0%

State Industrial

Assumed Annual Return from fiscal years 2023-2024 through 2042-43	Current Rate	Projected Future Employer Contribution Rates ¹				
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
3.0% (5th percentile)	19.54%	20.3%	21.5%	22.9%	25.8%	27.4%
10.8% (95th percentile)	19.54%	20.3%	20.9%	20.7%	21.3%	19.6%

State Safety

Assumed Annual Return from fiscal years 2023-2024 through 2042-43	Current Rate	Projected Future Employer Contribution Rates ¹				
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
3.0% (5th percentile)	21.54%	22.3%	23.5%	24.8%	27.8%	29.5%
10.8% (95th percentile)	21.54%	22.3%	22.8%	22.6%	23.2%	21.5%

State Peace Officers & Firefighters

Assumed Annual Return from fiscal years 2023-2024 through 2042-43	Current Rate	Projected Future Employer Contribution Rates ¹				
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
3.0% (5th percentile)	46.26%	47.6%	49.8%	52.2%	57.6%	60.5%
10.8% (95th percentile)	46.26%	47.6%	48.5%	48.0%	48.9%	45.8%

California Highway Patrol

Assumed Annual Return from fiscal years 2023-2024 through 2042-43	Current Rate	Projected Future Employer Contribution Rates ¹				
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
3.0% (5th percentile)	67.69%	68.2%	70.8%	71.2%	77.1%	80.1%
10.8% (95th percentile)	67.69%	68.2%	69.4%	66.5%	67.4%	63.7%

¹Rates do not reflect additional contributions to offset increased member contributions pursuant to Government Code section 20683.2

Required contributions outside of this range are also possible. In particular, whereas it is unlikely that investment returns will average less than 3.0% or more than 10.8% over 20 years, the possibility of a single investment return less than 3.0% or more than 10.8% in any given year is much greater. The following analysis illustrates the effect of an extreme, single year investment return.

Risk Analysis

Future Investment Return Scenarios (continued)

The portfolio has an expected volatility (or standard deviation) of 12.0% per year. Accordingly, in a given year there is a 16% probability that the annual return will be -5.2% or less and a 2.5% probability that the annual return will be -17.2% or less. These returns represent one and two standard deviations below the expected return of 6.8%.

The following tables show the effect of a one or two standard deviation investment loss in 2023-24 on the 2025-26 contribution requirements. Note that a single-year investment gain or loss impacts the contribution rates for each of the next five years, not just one, due to the five-year ramp in the amortization policy. However, the contribution rates beyond the first year are also impacted by investment returns beyond the first year. Historically, significant downturns in the market are often followed by higher than average returns. Such investment gains would offset the impact of these single year negative returns in years beyond 2025-26.

State Miscellaneous

Assumed Annual Return for fiscal year 2023-2024	Current Rate	Projected Future Employer Contribution Rates ¹	
	2023-24	2024-25	2025-26
-17.2% (2 standard deviation loss)	30.87%	31.8%	36.1%
-5.2% (1 standard deviation loss)	30.87%	31.8%	34.4%

State Industrial

Assumed Annual Return for fiscal year 2023-2024	Current Rate	Projected Future Employer Contribution Rates ¹	
	2023-24	2024-25	2025-26
-17.2% (2 standard deviation loss)	19.54%	20.3%	24.1%
-5.2% (1 standard deviation loss)	19.54%	20.3%	22.6%

State Safety

Assumed Annual Return for fiscal year 2023-2024	Current Rate	Projected Future Employer Contribution Rates ¹	
	2023-24	2024-25	2025-26
-17.2% (2 standard deviation loss)	21.54%	22.3%	26.1%
-5.2% (1 standard deviation loss)	21.54%	22.3%	24.5%

State Peace Officers & Firefighters

Assumed Annual Return for fiscal year 2023-2024	Current Rate	Projected Future Employer Contribution Rates ¹	
	2023-24	2024-25	2025-26
-17.2% (2 standard deviation loss)	46.26%	47.6%	54.6%
-5.2% (1 standard deviation loss)	46.26%	47.6%	51.7%

California Highway Patrol

Assumed Annual Return for fiscal year 2023-2024	Current Rate	Projected Future Employer Contribution Rates ¹	
	2023-24	2024-25	2025-26
-17.2% (2 standard deviation loss)	67.69%	68.2%	76.1%
-5.2% (1 standard deviation loss)	67.69%	68.2%	73.0%

¹Rates do not reflect additional contributions to offset increased member contributions pursuant to Government Code section 20683.2

- Without investment gains (returns higher than 6.8%) in year 2024-25 or later, projected contributions rates would continue to rise over the next 4 years due to the continued phase-in of the impact of the illustrated investment loss in fiscal year 2023-24.
- The Pension Outlook Tool can be used to model projected contributions for these scenarios beyond year 2025-26 as well as to model alternate investment returns for years 2024-25 and beyond.

Risk Analysis

Discount Rate Sensitivity and Government Code Section 20229

This section illustrates the sensitivity of employer contribution rates to a change in the discount rate assumption. The discount rate reflects expectations of what the markets will deliver in the future. It is calculated based on two components: expected price inflation and real rate of return. A change in either component over the long term would necessitate further evaluation of the discount rate.

For purposes of this analysis, the discount rate is changed by varying the real rate of return assumption while keeping the price inflation assumption unchanged. For information on sensitivity to changes in the underlying price inflation assumption, see the Inflation Rate Sensitivity section.

Government Code section 20229 requires the Board to annually disclose contribution rates and liabilities calculated under specified scenarios, including:

- Investment return and discount rate assumptions that are 2% above and 2% below the current investment return and discount rate assumptions set by the Board
- An amortization period equal to the estimated average remaining service periods (EARSP) of the employees covered by the contributions

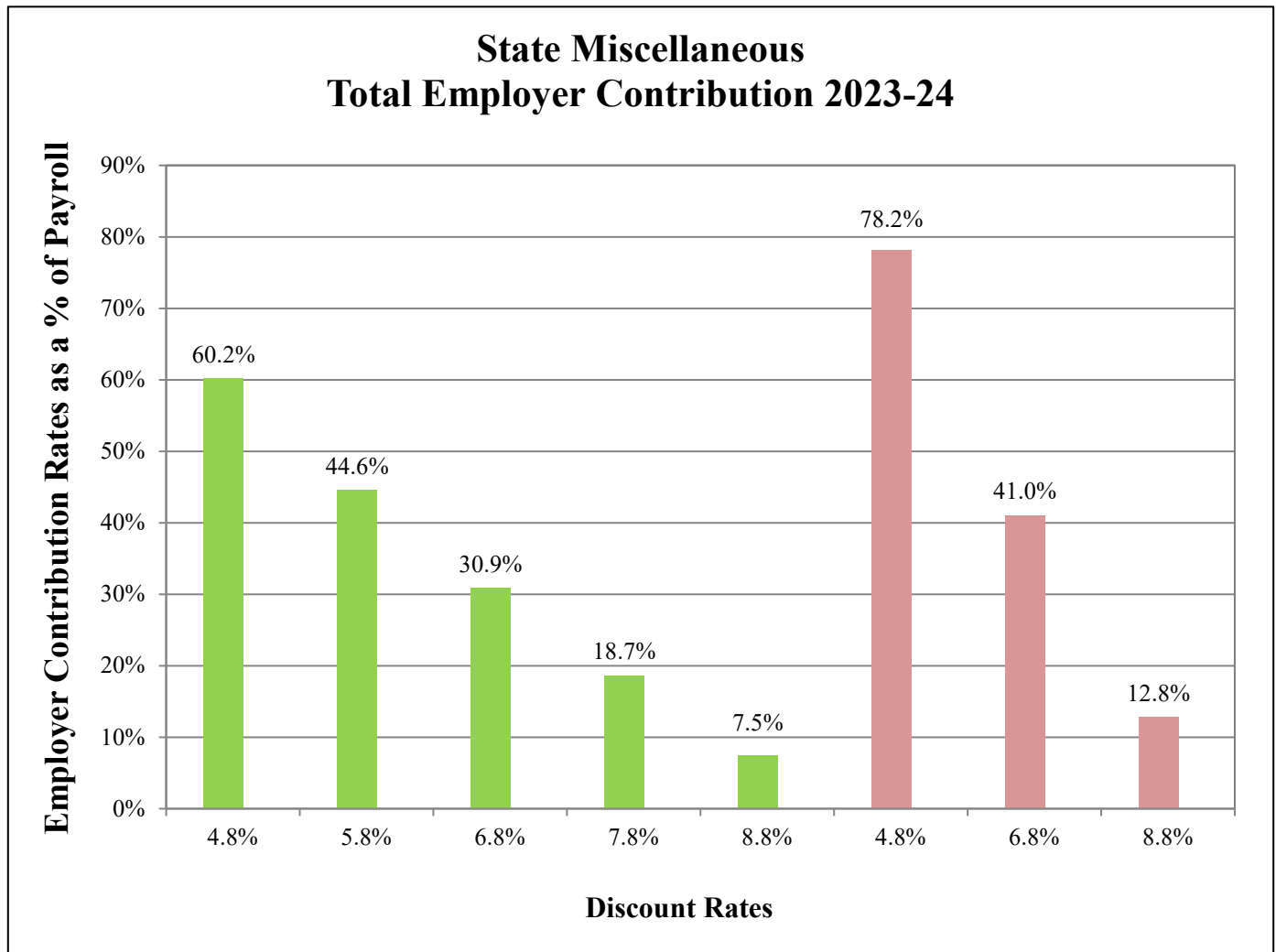
On the following pages, contribution rates and other key results are shown for the following discount rates:

- 4.8% (current discount rate -2%)
- 5.8% (current discount rate -1%)
- 6.8% (current discount rate)
- 7.8% (current discount rate +1%)
- 8.8% (current discount rate +2%)

The discount rates of 5.8% and 7.8% were selected as they reflect a 1% decrease or increase to the current rate of 6.8%. This shows the potential plan impacts if the PERF were to realize investment returns of 5.8% or 6.8% over the long term. The discount rates of 4.8% and 8.8% are shown in order to meet the requirements G.C. 20229. To further satisfy G.C. 20229, in the 4.8% and 8.8% discount rate scenarios, contribution rates for the current fiscal year are shown using both the current amortization method and amortization over the EARSP of the employees covered by the contributions.

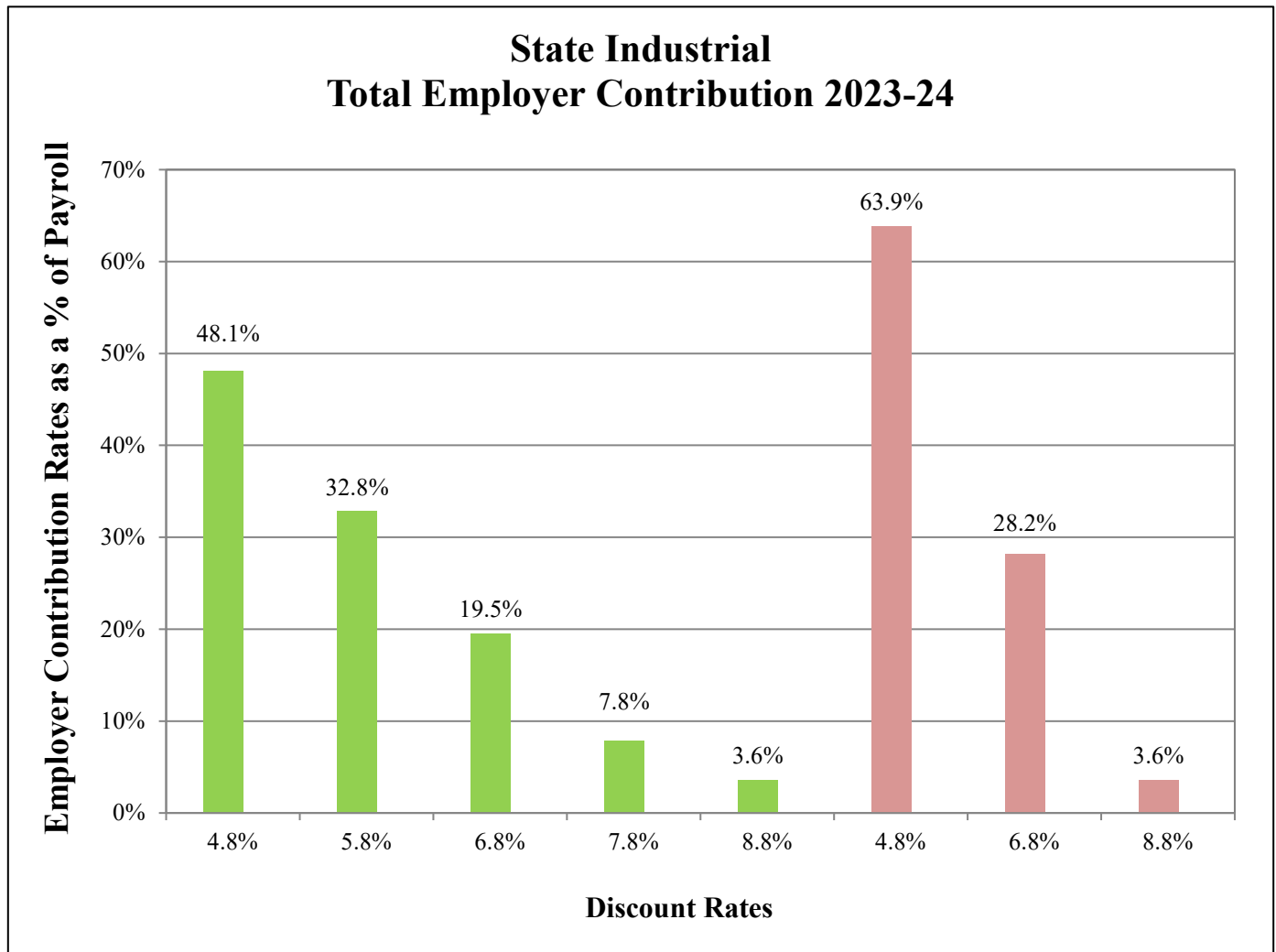
The results of the analysis are displayed in both graphical and tabular form. The reader may interpolate between the data points to estimate other data points of interest.

Discount Rate Sensitivity and Government Code Section 20229 (continued)



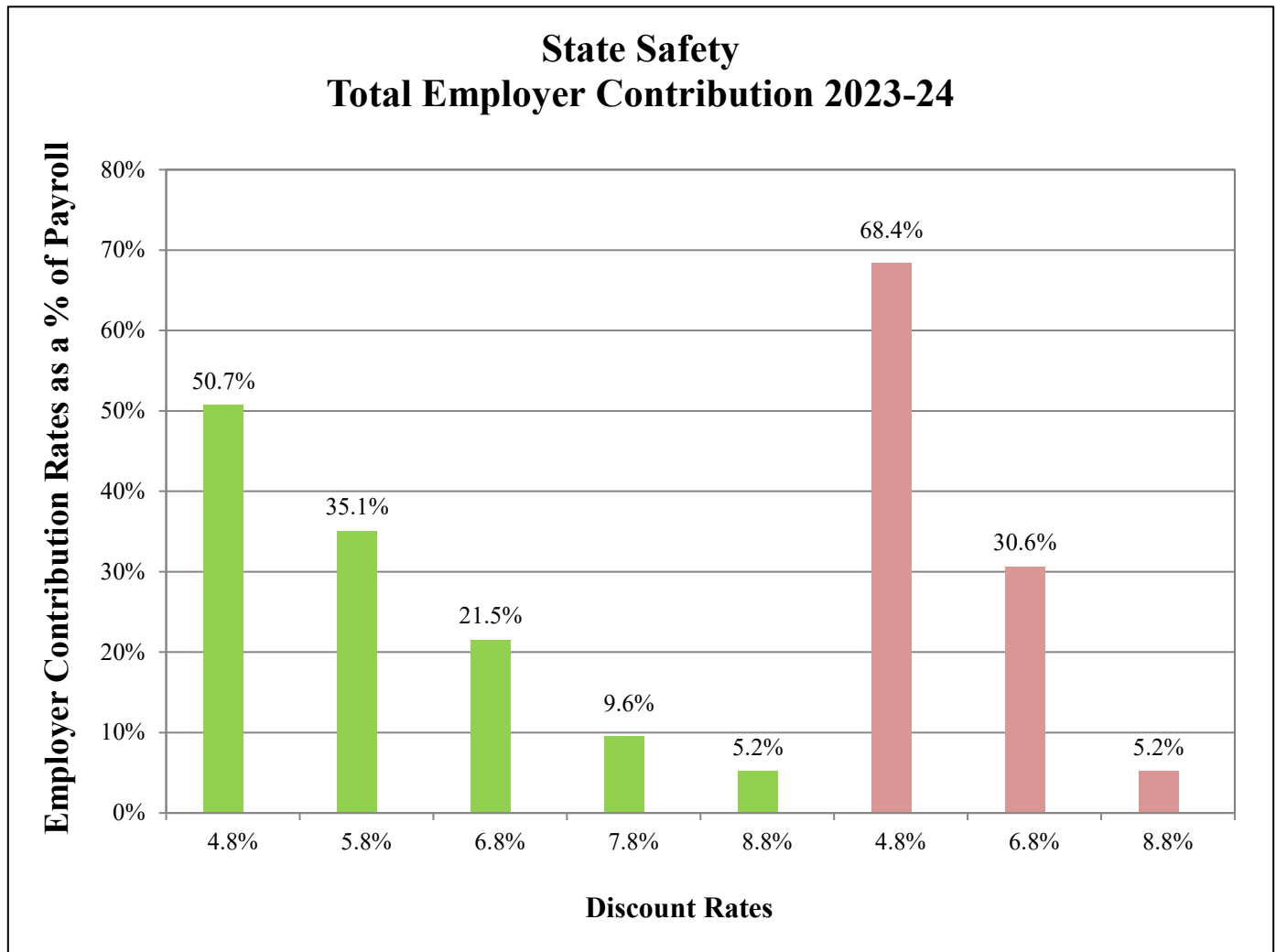
	Analysis of discount rate sensitivity based on current amortization method (varies from 1 to 26 years) or normal cost if in a surplus position
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (12 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity and Government Code Section 20229 (continued)



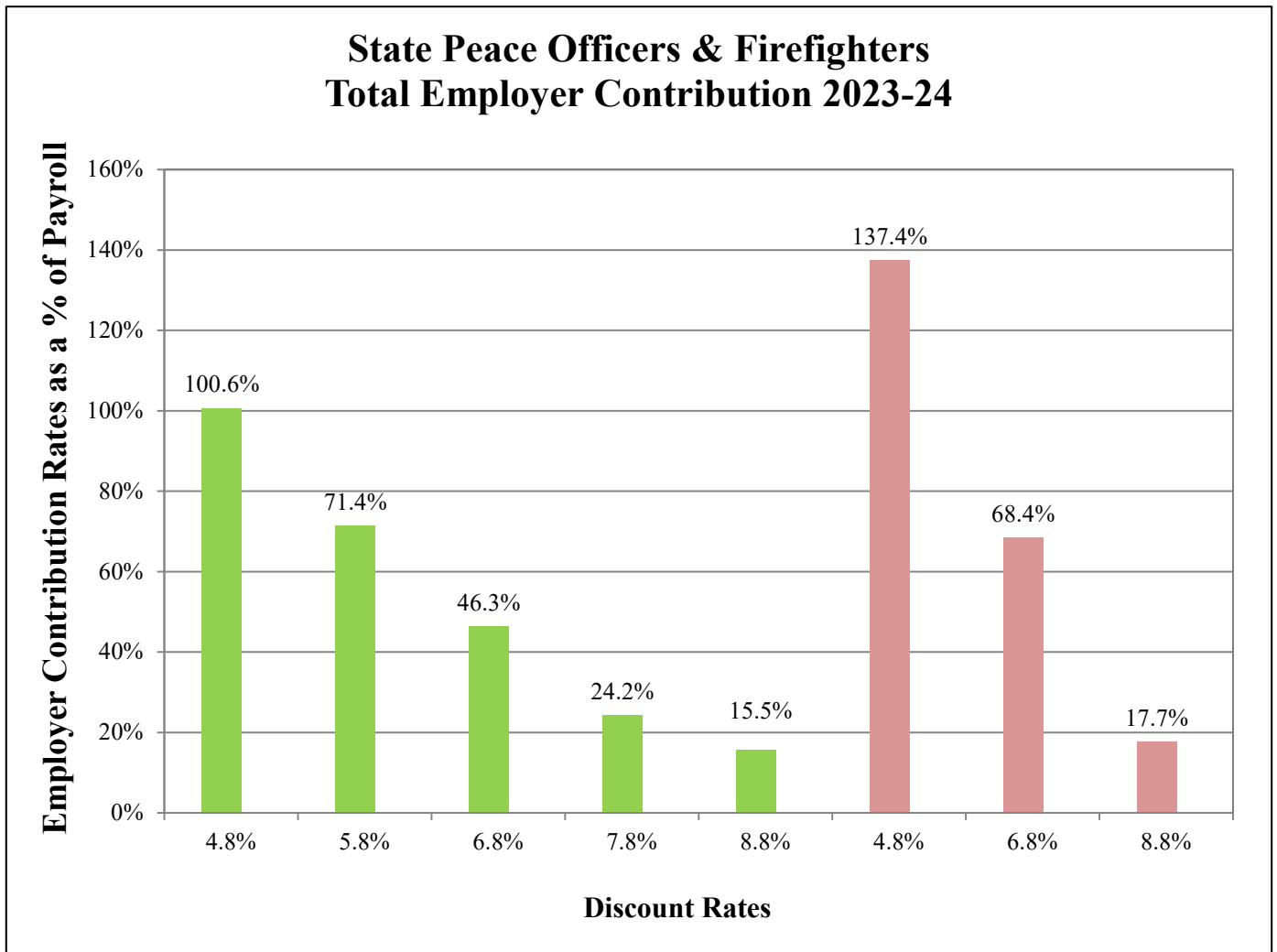
■	Analysis of discount rate sensitivity based on current amortization method (varies from 2 to 26 years) or normal cost if in a surplus position
■	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (12 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity and Government Code Section 20229 (continued)



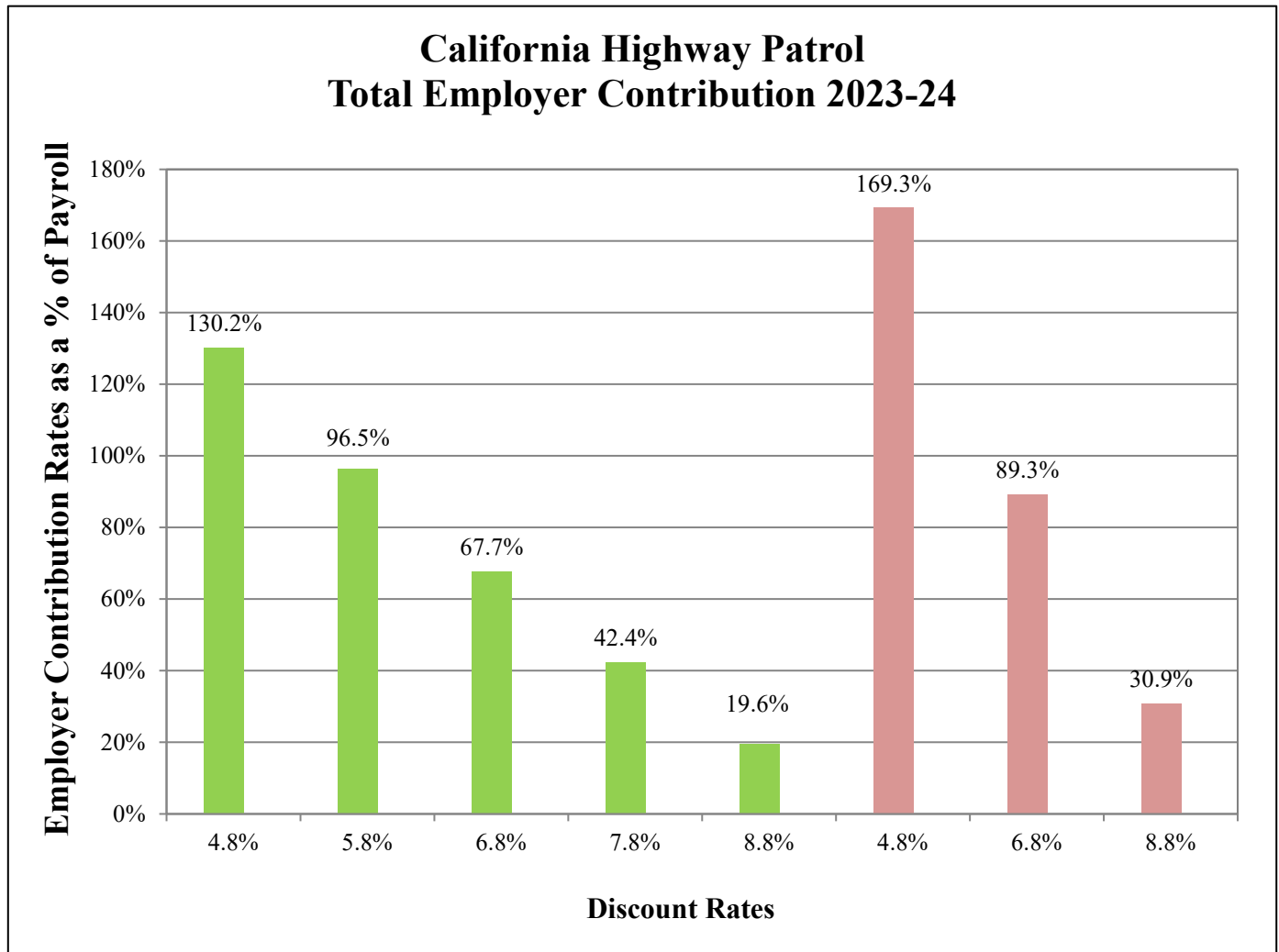
■	Analysis of discount rate sensitivity based on current amortization method (varies from 1 to 26 years) or normal cost if in a surplus position
■	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (11 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity and Government Code Section 20229 (continued)



	Analysis of discount rate sensitivity based on current amortization method (varies from 11 to 26 years) or normal cost if in a surplus position
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (12 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity and Government Code Section 20229 (continued)



	Analysis of discount rate sensitivity based on current amortization method (varies from 1 to 26 years) or normal cost if in a surplus position
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (12 years)
*	Required by Government Code section 20229

Risk Analysis

Discount Rate Sensitivity and Government Code Section 20229 (continued)

State Miscellaneous

Discount Rate Sensitivity (+/- 1% Change in Discount Rate)

Sensitivity Analysis						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
5.8%	15.0%	29.6%	44.6%	154,008,384,277	58,539,755,344	62.0%
6.8% (current discount rate)	10.1%	20.8%	30.9%	136,885,121,928	41,416,492,995	69.7%
7.8%	6.4%	12.2%	18.7%	122,600,069,641	27,131,440,708	77.9%

Government Code Section 20229 (+/- 2% Change in Discount Rate)

Current Amortization Method						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	21.5%	38.7%	60.2%	174,701,843,442	79,233,214,509	54.6%
6.8% (current discount rate)	10.1%	20.8%	30.9%	136,885,121,928	41,416,492,995	69.7%
8.8%	3.7%	3.8%	7.5%	110,589,945,477	15,121,316,544	86.3%

Amortization of Unfunded Accrued Liability over EARSP (11 Years)						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	21.5%	56.7%	78.2%	174,701,843,442	79,233,214,509	54.6%
6.8% (current discount rate)	10.1%	30.9%	41.0%	136,885,121,928	41,416,492,995	69.7%
8.8%	3.7%	9.2%	12.8%	110,589,945,477	15,121,316,544	86.3%

- The change in accrued liability due to the change in discount rate of +/-1% or +/-2% was amortized over 20 years as a level dollar amount (except for the "Amortization of Unfunded Accrued Liability over EARSP").
- In the case of a surplus, rates were calculated to equal the employer normal cost rate. This is based on a provision in the Public Employees' Pension Reform Act of 2013 (PEPRA) that requires a minimum employer contribution rate in combination with employee contributions shall not be less than the normal cost rate.
- Numbers may not add due to rounding.

Risk Analysis

Discount Rate Sensitivity and Government Code Section 20229 (continued)

State Industrial

Discount Rate Sensitivity (+/- 1% Change in Discount Rate)

Sensitivity Analysis						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
5.8%	15.1%	17.7%	32.8%	6,746,461,385	2,172,764,239	67.8%
6.8% (current discount rate)	10.2%	9.4%	19.5%	5,916,656,618	1,342,959,472	77.3%
7.8%	6.4%	1.4%	7.8%	5,236,448,000	662,750,854	87.3%

Government Code Section 20229 (+/- 2% Change in Discount Rate)

Current Amortization Method						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	21.6%	26.6%	48.1%	7,769,311,283	3,195,614,137	58.9%
6.8% (current discount rate)	10.2%	9.4%	19.5%	5,916,656,618	1,342,959,472	77.3%
8.8%	3.6%	0.0%	3.6%	4,673,438,074	99,740,928	97.9%

Amortization of Unfunded Accrued Liability over EARSP (11 Years)						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	21.6%	42.3%	63.9%	7,769,311,283	3,195,614,137	58.9%
6.8% (current discount rate)	10.2%	18.0%	28.2%	5,916,656,618	1,342,959,472	77.3%
8.8%	3.6%	0.0%	3.6%	4,673,438,074	15,121,316,544	97.9%

- The change in accrued liability due to the change in discount rate of +/-1% or +/-2% was amortized over 20 years as a level dollar amount (except for the "Amortization of Unfunded Accrued Liability over EARSP").
- In the case of a surplus, rates were calculated to equal the employer normal cost rate. This is based on a provision in the Public Employees' Pension Reform Act of 2013 (PEPRA) that requires a minimum employer contribution rate in combination with employee contributions shall not be less than the normal cost rate.
- Numbers may not add due to rounding.

Risk Analysis

Discount Rate Sensitivity and Government Code Section 20229 (continued)

State Safety

Discount Rate Sensitivity (+/- 1% Change in Discount Rate)

Sensitivity Analysis						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
5.8%	18.0%	17.1%	35.1%	19,889,111,771	6,060,878,518	69.5%
6.8% (current discount rate)	12.6%	8.9%	21.5%	17,527,672,227	3,699,438,974	78.9%
7.8%	8.4%	1.1%	9.6%	15,583,223,716	1,754,990,463	88.7%

Government Code Section 20229 (+/- 2% Change in Discount Rate)

Current Amortization Method						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	25.1%	25.6%	50.7%	22,786,244,977	8,958,011,724	60.7%
6.8% (current discount rate)	12.6%	8.9%	21.5%	17,527,672,227	3,699,438,974	78.9%
8.8%	5.2%	0.0%	5.2%	13,967,052,546	138,819,293	99.0%

Amortization of Unfunded Accrued Liability over EARSP (11 Years)						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	25.1%	43.3%	68.4%	22,786,244,977	8,958,011,724	60.7%
6.8% (current discount rate)	12.6%	18.0%	30.6%	17,527,672,227	3,699,438,974	78.9%
8.8%	5.2%	0.0%	5.2%	13,967,052,546	138,819,293	99.0%

- The change in accrued liability due to the change in discount rate of +/-1% or +/-2% was amortized over 20 years as a level dollar amount (except for the "Amortization of Unfunded Accrued Liability over EARSP").
- In the case of a surplus, rates were calculated to equal the employer normal cost rate. This is based on a provision in the Public Employees' Pension Reform Act of 2013 (PEPRA) that requires a minimum employer contribution rate in combination with employee contributions shall not be less than the normal cost rate.
- Numbers may not add due to rounding.

Risk Analysis

Discount Rate Sensitivity and Government Code Section 20229 (continued)

State Peace Officers and Firefighters

Discount Rate Sensitivity (+/- 1% Change in Discount Rate)

Sensitivity Analysis						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
5.8%	27.8%	43.6%	71.4%	69,828,054,777	27,292,347,609	60.9%
6.8% (current discount rate)	19.1%	27.1%	46.3%	61,229,068,218	18,693,361,050	69.5%
7.8%	12.7%	11.5%	24.2%	54,207,716,722	11,672,009,554	78.5%

Government Code Section 20229 (+/- 2% Change in Discount Rate)

Current Amortization Method						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	39.5%	61.1%	100.6%	80,481,305,097	37,945,597,929	52.9%
6.8% (current discount rate)	19.1%	27.1%	46.3%	61,229,068,218	18,693,361,050	69.5%
8.8%	7.8%	7.8%	15.5%	48,412,159,087	5,876,451,919	87.9%

Amortization of Unfunded Accrued Liability over EARSP (11 Years)						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	39.5%	97.9%	137.4%	80,481,305,097	37,945,597,929	52.9%
6.8% (current discount rate)	19.1%	49.2%	68.4%	61,229,068,218	18,693,361,050	69.5%
8.8%	7.8%	9.9%	17.7%	48,412,159,087	5,876,451,919	87.9%

- The change in accrued liability due to the change in discount rate of +/-1% or +/-2% was amortized over 20 years as a level dollar amount (except for the "Amortization of Unfunded Accrued Liability over EARSP").
- In the case of a surplus, rates were calculated to equal the employer normal cost rate. This is based on a provision in the Public Employees' Pension Reform Act of 2013 (PEPRA) that requires a minimum employer contribution rate in combination with employee contributions shall not be less than the normal cost rate.
- Numbers may not add due to rounding.

Risk Analysis

Discount Rate Sensitivity and Government Code Section 20229 (continued)

California Highway Patrol

Discount Rate Sensitivity (+/- 1% Change in Discount Rate)

Sensitivity Analysis						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
5.8%	29.7%	66.8%	96.5%	19,001,281,128	7,987,961,494	58.0%
6.8% (current discount rate)	20.0%	47.7%	67.7%	16,644,422,636	5,631,103,002	66.2%
7.8%	12.7%	29.6%	42.4%	14,722,390,306	3,709,070,672	74.8%

Government Code Section 20229 (+/- 2% Change in Discount Rate)

Current Amortization Method						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	43.0%	87.2%	130.2%	21,925,775,397	10,912,455,763	50.2%
6.8% (current discount rate)	20.0%	47.7%	67.7%	16,644,422,636	5,631,103,002	66.2%
8.8%	7.3%	12.4%	19.6%	13,137,419,919	2,124,100,285	83.8%

Amortization of Unfunded Accrued Liability over EARSP (12 Years)						
As of June 30, 2022	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	43.0%	126.4%	169.3%	21,925,775,397	10,912,455,763	50.2%
6.8% (current discount rate)	20.0%	69.3%	89.3%	16,644,422,636	5,631,103,002	66.2%
8.8%	7.3%	23.6%	30.9%	13,137,419,919	2,124,100,285	83.8%

- The change in accrued liability due to the change in discount rate of +/-1% or +/-2% was amortized over 20 years as a level dollar amount (except for the "Amortization of Unfunded Accrued Liability over EARSP").
- In the case of a surplus, rates were calculated to equal the employer normal cost rate. This is based on a provision in the Public Employees' Pension Reform Act of 2013 (PEPRA) that requires a minimum employer contribution rate in combination with employee contributions shall not be less than the normal cost rate.
- Numbers may not add due to rounding.

Risk Analysis

Mortality Rate Sensitivity

The following tables show key valuation results under two alternate longevity scenarios, namely assuming rates of mortality are 10% lower or 10% higher than the current mortality assumption. This type of analysis highlights the impact on the plans of improving or worsening mortality over the long term.

State Miscellaneous

As of June 30, 2022	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
10% lower mortality rates	\$140,097,781,528	\$95,468,628,933	\$44,629,152,595	68.1%	17.87%
Current mortality rates	136,885,121,928	95,468,628,933	41,416,492,995	69.7%	17.57%
10% higher mortality rates	133,946,228,606	95,468,628,933	38,477,599,673	71.3%	17.30%

State Industrial

As of June 30, 2022	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
10% lower mortality rates	\$6,038,838,264	\$4,573,697,146	\$1,465,141,118	75.7%	19.16%
Current mortality rates	5,916,656,618	4,573,697,146	1,342,959,472	77.3%	18.85%
10% higher mortality rates	5,804,360,968	4,573,697,146	1,230,663,822	78.8%	18.57%

State Safety

As of June 30, 2022	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
10% lower mortality rates	\$17,882,387,537	\$13,828,233,253	\$4,054,154,284	77.3%	23.88%
Current mortality rates	17,527,672,227	13,828,233,253	3,699,438,974	78.9%	23.53%
10% higher mortality rates	17,201,557,130	13,828,233,253	3,373,323,877	80.4%	23.21%

State Peace Officers & Firefighters

As of June 30, 2022	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
10% lower mortality rates	\$62,226,775,705	\$42,535,707,168	\$19,691,068,537	68.4%	31.35%
Current mortality rates	61,229,068,218	42,535,707,168	18,693,361,050	69.5%	31.00%
10% higher mortality rates	60,306,325,835	42,535,707,168	17,770,618,667	70.5%	30.67%

California Highway Patrol

As of June 30, 2022	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
10% lower mortality rates	\$16,914,774,320	\$11,013,319,634	\$5,901,454,686	65.1%	32.91%
Current mortality rates	16,644,422,636	11,013,319,634	5,631,103,002	66.2%	32.54%
10% higher mortality rates	16,394,674,497	11,013,319,634	5,381,354,863	67.2%	32.20%

Risk Analysis

Inflation Rate Sensitivity

The following tables show key valuation results under two alternate inflation rate scenarios, namely assuming the price inflation rate is 1% lower or 1% higher than the current assumption of 2.5%. For this analysis, the real rate of return is held constant at the current assumption of 4.5%. This type of analysis highlights the impact on the plans of higher or lower inflation over the long term.

State Miscellaneous

As of June 30, 2022	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
-1% inflation rate	\$141,157,417,774	\$95,468,628,933	\$45,688,788,841	67.6%	18.48%
Current inflation rate	136,885,121,928	95,468,628,933	41,416,492,995	69.7%	17.57%
+1% inflation rate	125,706,184,233	95,468,628,933	30,237,555,300	75.9%	15.84%

State Industrial

As of June 30, 2022	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
-1% inflation rate	\$6,122,198,194	\$4,573,697,146	\$1,548,501,048	74.7%	19.84%
Current inflation rate	5,916,656,618	4,573,697,146	1,342,959,472	77.3%	18.85%
+1% inflation rate	5,404,688,837	4,573,697,146	830,991,691	84.6%	16.95%

State Safety

As of June 30, 2022	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
-1% inflation rate	\$18,142,952,045	\$13,828,233,253	\$4,314,718,792	76.2%	24.77%
Current inflation rate	17,527,672,227	13,828,233,253	3,699,438,974	78.9%	23.53%
+1% inflation rate	15,998,291,889	13,828,233,253	2,170,058,636	86.4%	21.14%

State Peace Officers & Firefighters

As of June 30, 2022	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
-1% inflation rate	\$63,410,437,368	\$42,535,707,168	\$20,874,730,200	67.1%	32.66%
Current inflation rate	61,229,068,218	42,535,707,168	18,693,361,050	69.5%	31.00%
+1% inflation rate	55,583,246,628	42,535,707,168	13,047,539,460	76.5%	27.69%

California Highway Patrol

As of June 30, 2022	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
-1% inflation rate	\$17,242,416,654	\$11,013,319,634	\$6,229,097,020	63.9%	34.21%
Current inflation rate	16,644,422,636	11,013,319,634	5,631,103,002	66.2%	32.54%
+1% inflation rate	15,113,318,655	11,013,319,634	4,099,999,021	72.9%	29.09%

Risk Analysis

Maturity Measures

As pension plans mature they become more sensitive to risks. To understand plan maturity and how it affects the ability of a pension plan sponsor to tolerate risk, it is important to understand how a plan is impacted by investment return volatility, other economic variables and changes in longevity or other demographic assumptions.

One measure of a plan's maturity is the ratio of retiree liability to total liability. A pension plan in its infancy will have a very low ratio of retiree liability to total liability. As the plan matures, the ratio increases. A mature plan will often have a ratio above 60-65%. For both CalPERS and many other retirement systems in the United States, these ratios have been steadily increasing in recent years.

Ratio of Retiree Accrued Liability to Total Accrued Liability

Plan	June 30, 2021			June 30, 2022		
	Retiree Accrued Liability	Total Accrued Liability	Ratio	Retiree Accrued Liability	Total Accrued Liability	Ratio
State Miscellaneous	\$79,303,321,894	\$130,697,372,927	60.7%	\$83,022,168,367	\$136,885,121,928	60.7%
State Industrial	\$2,972,406,302	\$5,550,468,220	53.6%	3,169,813,182	5,916,656,618	53.6%
State Safety	\$9,314,695,160	\$16,397,024,160	56.8%	10,029,103,234	17,527,672,227	57.2%
State Peace Officers & Firefighters	\$37,338,743,628	\$57,507,446,617	64.9%	39,746,567,841	61,229,068,218	64.9%
California Highway Patrol	\$9,897,522,083	\$15,822,003,794	62.6%	10,533,289,011	16,644,422,636	63.3%

Another measure of maturity is the ratio of actives to retirees, also called the Support Ratio. A pension plan in its infancy will have a very high ratio of active to retired members. As the plan matures, and members retire, the ratio declines. A mature plan will often have a ratio near or below one.

Support Ratio

Plan	June 30, 2021			June 30, 2022		
	Number of Actives	Number of Retirees	Support Ratio	Number of Actives	Number of Retirees	Support Ratio
State Miscellaneous	178,955	206,393	86.7%	180,483	209,673	86.1%
State Industrial	11,525	16,788	68.7%	11,329	17,356	65.3%
State Safety	28,451	29,168	97.5%	27,211	30,202	90.1%
State Peace Officers & Firefighters	41,242	45,937	89.8%	41,366	47,598	86.9%
California Highway Patrol	6,662	9,786	68.1%	6,643	9,951	66.8%

Volatility ratios, presented in the following section, are another measure for assessing plan maturity.

Risk Analysis

Volatility Ratios

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

Asset Volatility Ratio

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

Liability Volatility Ratio

Plans that have higher liability-to-payroll ratios produce more volatile employer rates due to investment return and changes in liability. For example, a plan with a liability-to-payroll ratio of 12 is expected to have twice the contribution volatility of a plan with a liability-to-payroll ratio of 6. The liability volatility ratio is also included in the table below. It should be noted that this ratio indicates a longer-term potential for contribution volatility. The asset volatility ratio, described above, will tend to move closer to the liability volatility ratio as the plan matures.

Rate Volatility

	Market Value of Assets without Receivables	Annual Covered Payroll	Asset Volatility Ratio	Accrued Liability	Liability Volatility Ratio
Plan	(1)	(2)	(1)÷(2)	(3)	(3)÷(2)
State Miscellaneous	\$95,309,562,148	\$14,559,287,539	6.5	\$136,885,121,928	9.4
State Industrial	4,562,863,671	797,449,866	5.7	5,916,656,618	7.4
State Safety	13,818,741,361	2,360,540,355	5.9	17,527,672,227	7.4
State Peace Officers & Firefighters	42,490,581,392	3,993,247,438	10.6	61,229,068,218	15.3
California Highway Patrol	11,006,491,032	913,946,760	12.0	16,644,422,636	18.2

Appendices

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

B-1 Appendix B – Principal Plan Provisions

C-1 Appendix C – Participant Data

D-1 Appendix D – Supplemental Pension Payments and Budget Act for FY 2023-24

E-1 Appendix E – 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 for this valuation, has been obtained from various CalPERS databases. We have reviewed the valuation data and believe that it is reasonable and appropriate in aggregate. We are unaware of any potential data issues that would have a material effect on the results of this valuation, except that data does not always contain the latest salary information for former members now in reciprocal systems and does not recognize the potential for unusually large salary deviation in certain cases such as elected officials. Therefore, salary information in these cases may not be accurate. These situations are relatively infrequent, however, and when they do occur, they generally do not have a material impact on the employer contribution rates.

Actuarial Methods

Actuarial Cost Method

The actuarial cost method used for this report is the Entry Age Actuarial Cost Method. Under this method, projected benefits are determined for all members and the associated liabilities are spread in a manner that produces level annual cost as a percentage of pay in each year from the member's entry age to their assumed retirement age on the valuation date. The cost allocated to the current fiscal year is called the normal cost.

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

CalPERS uses an in-house proprietary actuarial model for calculating plan costs. We believe this model is fit for its intended purpose and meets all applicable Actuarial Standards of Practice. Furthermore, the actuarial results of our model are independently confirmed periodically by outside auditing actuaries. The actuarial assumptions used are internally consistent and the generated results reasonable.

Amortization of Unfunded Actuarial Accrued Liability

The excess of the total actuarial accrued liability over the market value of plan assets is called the unfunded actuarial accrued liability (UAL). Funding requirements are determined by adding the normal cost and a payment toward the UAL. The UAL payment is equal to the sum of individual amortization payments, each representing a different source of UAL for a given measurement period.

Amortization payments are determined according to the CalPERS amortization policy. The CalPERS Board adopted a new policy effective for the June 30, 2019 actuarial valuation. The new policy applies prospectively only; amortization bases (sources of UAL) established prior to the June 30, 2019 valuation will continue to be amortized according to the prior policy.

Appendix A – Statement of Actuarial Methods and Assumptions

Actuarial Methods (continued)

Prior Policy (Bases Established prior to June 30, 2019)

Amortization payments are determined as a level percentage of payroll whereby the payment increases each year at an escalation rate. Gains or losses are amortized over a fixed 30-year period with a 5-year ramp up at the beginning and a 5-year ramp down at the end of the amortization period. All changes in liability due to plan amendments (other than golden handshakes) are amortized over a 20-year period with no ramp. Changes in actuarial assumptions or changes in actuarial methodology are amortized over a 20-year period with a 5-year ramp up at the beginning and a 5-year ramp down at the end of the amortization period. Changes in unfunded accrued liability due to a Golden Handshake will be amortized over a period of five years. Bases established prior to June 30, 2013 may be amortized differently. A summary is provided in the following table:

	Source				
	(Gain)/Loss		Assumption/ Method Change	Benefit Change	Golden Handshake
	Investment	Non- investment			
Amortization Period	30 Years	30 Years	20 Years	20 Years	5 Years
Escalation Rate					
- Active Plans	2.75%	2.75%	2.75%	2.75%	2.75%
- Inactive Plans	0%	0%	0%	0%	0%
Ramp Up	5	5	5	0	0
Ramp Down	5	5	5	0	0

The 5-year ramp up means that the payments in the first four years of the amortization period are 20%, 40%, 60% and 80% of the “full” payment which begins in year five. The 5-year ramp down means that the reverse is true in the final four years of the amortization period.

Current Policy (Bases Established on or after June 30, 2019)

Amortization payments are determined as a level dollar amount. Investment gains or losses are amortized over a fixed 20-year period with a 5-year ramp up at the beginning of the amortization period. Non-investment gains or losses are amortized over a fixed 20-year period with no ramps. All changes in liability due to plan amendments (other than golden handshakes) are amortized over a 20-year period with no ramps. Changes in actuarial assumptions or changes in actuarial methodology are amortized over a 20-year period with no ramps. Changes in unfunded accrued liability due to a Golden Handshake are amortized over a period of five years. A summary is provided in the table below:

	Source				
	(Gain)/Loss		Assumption/ Method Change	Benefit Change	Golden Handshake
	Investment	Non- investment			
Amortization Period	20 Years	20 Years	20 Years	20 Years	5 Years
Escalation Rate	0%	0%	0%	0%	0%
Ramp Up	5	0	0	0	0
Ramp Down	0	0	0	0	0

Appendix A – Statement of Actuarial Methods and Assumptions

Actuarial Methods (continued)

Exceptions for Inconsistencies

An exception to the amortization rules above is used whenever their application results in inconsistencies. In these cases, a “fresh start” approach is used. This means that the current unfunded actuarial liability is projected and amortized over a set number of years. For example, a fresh start is needed in the following situations:

- When a negative payment would be required on a positive unfunded actuarial liability; or
- When the payment would completely amortize the total unfunded liability in a very short time period, and results in a large change in the employer contribution requirement.

It should be noted that the actuary may determine that a fresh start is necessary under other circumstances. In all cases of a fresh start, the period is set by the actuary at what is deemed appropriate; however, the period will not be greater than 20 years.

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

The Term Insurance Method is used for the State Group Term Life Insurance Program. The required contribution for the coming fiscal year is the expected benefit payments for the fiscal year plus any deficiency (or minus any excess) in the transfer for the previous fiscal year.

Purchasing Power Protection Act (PPPA) Method

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

For the State plans, the total annual outlay for PPPA benefits is limited by State statute to earnings of up to 1.1% of accumulated member contributions. If this annual outlay is insufficient to provide the PPPA benefits in a given fiscal year, the 75% maintenance target would be proportionately reduced. Since the inception of the PPPA benefit program, 1.1% has proved more than sufficient to provide the 75% percent maintenance. Under the inflation assumption of 2.3% compounded annually, the 1.1% appears to remain more than sufficient in the foreseeable future.

Internal Revenue Code Section 415

The valuation reflects the limitations on benefits imposed by Internal Revenue Code section 415. The current valuation is based on the IRC 415(b) dollar limit for 2022 of \$245,000.

Internal Revenue Code Section 401(a)(17)

The valuation reflects the limitations on pensionable compensation imposed by Internal Revenue Code section 401(a)(17). The current valuation is based on the IRC 401(a)(17) limit for 2022 of \$305,000,

Appendix A – Statement of Actuarial Methods and Assumptions

Actuarial Methods (continued)

PEPRA Assumptions

The Public Employees' Pension Reform Act of 2013 (PEPRA) mandated new benefit formulas and member contributions for members hired on or after January 1, 2013, as defined by PEPRA. Different assumptions for PEPRA members are disclosed below.

Asset Valuation Method

Market value of assets plus accounts receivable.

It is the policy of the CalPERS Board of Administration to use professionally accepted amortization methods to eliminate a surplus or an unfunded accrued liability in a manner that maintains benefit security for the members of the System while minimizing substantial variations in required employer contribution rates. As stated in the "Amortization of Unfunded Actuarial Accrued Liability" section above, CalPERS' policy in effect for this valuation amortizes all actuarial investment gains and losses over a fixed 20-year period. The increase or decrease in the rate is then spread directly over a 5-year period. This method is referred to as "direct rate smoothing." The direct rate smoothing method is equivalent to a method using a 5-year asset smoothing period with no actuarial value of asset corridor and a 15-year amortization period for gains and losses.

Accounts Receivable

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

Actuarial Assumptions

On November 17, 2021, the board adopted new actuarial assumptions based on the recommendations in the November 2022 CalPERS Experience Study and Review of Actuarial Assumptions. This study reviewed the retirement rates, termination rates, mortality rates, rates of salary increases, and inflation assumption for public agencies. These new assumptions are incorporated in this actuarial valuation and will impact the required contribution for FY 2024-25. In addition, the board adopted a new strategic asset allocation as part of its Asset Liability Management process. The new asset allocation, along with the new capital market assumptions and economic assumptions, support a discount rate of 6.8%.

All actuarial assumptions used in this valuation represent estimates of future experience rather than observations of estimates inherent in market data.

Appendix A – Statement of Actuarial Methods and Assumptions

Economic Assumptions

Discount Rate

6.8% compounded annually (net of investment and administrative expenses), as prescribed by the board.

Salary Growth

Annual increases vary by category, entry age, and duration of service. Merit rates in the tables below are adjusted for wage inflation to develop the total salary growth. A sample of assumed merit increases are shown below.

State Miscellaneous Tier 1 & Tier 2

Duration of Service	Entry Age		
	20	30	40
0	6.2%	4.0%	3.5%
3	5.2%	3.3%	2.6%
5	4.6%	3.0%	2.1%
10	2.6%	1.5%	1.0%
15	1.8%	1.2%	0.8%
20	1.3%	0.9%	0.7%
25	0.9%	0.7%	0.5%
30	0.7%	0.5%	0.4%

State Industrial

Duration of Service	Entry Age		
	20	30	40
0	5.8%	5.5%	5.5%
3	4.7%	3.9%	3.9%
5	4.1%	3.1%	3.1%
10	2.7%	1.6%	1.6%
15	1.8%	1.1%	1.1%
20	1.2%	0.8%	0.8%
25	0.8%	0.6%	0.6%
30	0.5%	0.4%	0.4%

State Safety, POFF and CHP

Duration of Service	State Safety	POFF	CHP
0	5.1%	11.5%	12.0%
3	3.3%	6.6%	5.2%
5	2.3%	4.3%	2.5%
10	1.1%	1.4%	1.2%
15	1.0%	1.1%	1.4%
20	0.9%	1.2%	2.3%
25	0.8%	1.3%	2.3%
30	0.7%	1.3%	1.5%

Appendix A – Statement of Actuarial Methods and Assumptions

Economic Assumptions (continued)

Price Inflation

2.30% compounded annually

Wage Inflation

2.80% compounded annually

Payroll Growth

2.80% compounded annually (used in projecting the payroll over which unfunded accrued liability is amortized for amortization bases established prior to June 30, 2019)

Demographic Assumptions

Post-Retirement Mortality

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

Age	Healthy Recipients		Non-Industrial Disabled (Not Job-Related)		Industrial Disabled (Job-Related)	
	Male	Female	Male	Female	Male	Female
50	0.00266	0.00199	0.01701	0.01439	0.00430	0.00311
55	0.00390	0.00325	0.02210	0.01734	0.00621	0.00549
60	0.00578	0.00455	0.02708	0.01962	0.00944	0.00868
65	0.00857	0.00612	0.03334	0.02276	0.01394	0.01190
70	0.01333	0.00996	0.04001	0.02910	0.02163	0.01858
75	0.02391	0.01783	0.05376	0.04160	0.03446	0.03134
80	0.04371	0.03403	0.07936	0.06111	0.05853	0.05183
85	0.08274	0.06166	0.11561	0.09385	0.10137	0.08045
90	0.14539	0.11086	0.16608	0.14396	0.16584	0.12434
95	0.24664	0.20364	0.24664	0.20364	0.24664	0.20364
100	0.36198	0.31582	0.36198	0.31582	0.36198	0.31582
105	0.52229	0.44679	0.52229	0.44679	0.52229	0.44679
110	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The post-retirement mortality rates above include 15 years of projected ongoing mortality improvement using 80% of Scale MP-2020 published by the Society of Actuaries.

Marital Status

For active members, it is assumed the following are married upon retirement.

Plan	Percent Married
State Miscellaneous	70%
State Industrial	70%
State Safety	70%
State Peace Officers & Firefighters	80%
California Highway Patrol	85%

Age of Spouse

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

Separated Members

Separated members who are not vested are assumed to refund immediately. Separated members who are vested are assumed to retire at age 59 (State Miscellaneous and Industrial) or age 54 (State Safety, State Peace Officers and Firefighters, and California Highway Patrol).

Appendix A – Statement of Actuarial Methods and Assumptions

Miscellaneous Loading Factors

Credit for Unused Sick Leave

Total years of service is increased by 1% for employees in plans with the Credit for Unused Sick Leave provision.

Norris Decision (Best Factors)

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

Miscellaneous Assumptions

Tier 2 Members electing Tier 1 benefits

In general, Tier 2 members of both the State Miscellaneous and State Industrial plans have the right to convert their Tier 2 service to Tier 1 service provided they make up the shortfall in their accumulated contributions with interest. In this valuation, we have assumed that all Tier 2 members eligible to convert their Tier 2 service to Tier 1 service will elect to do so.

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS

State Miscellaneous Tier 1

Service Retirement - Classic Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.014	0.011	0.010	0.013	0.014	0.014	0.015
52	0.019	0.013	0.012	0.015	0.015	0.015	0.016
54	0.014	0.014	0.015	0.021	0.024	0.027	0.030
56	0.029	0.033	0.031	0.056	0.079	0.105	0.157
58	0.026	0.035	0.034	0.061	0.085	0.115	0.169
60	0.017	0.036	0.063	0.113	0.126	0.162	0.189
62	0.076	0.115	0.118	0.188	0.197	0.238	0.284
65	0.141	0.164	0.155	0.232	0.218	0.232	0.251
70	0.151	0.226	0.246	0.300	0.278	0.255	0.266
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement - PEPRA Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000
52	0.009	0.008	0.009	0.013	0.014	0.016	0.022
54	0.008	0.012	0.014	0.021	0.025	0.027	0.034
56	0.016	0.025	0.030	0.043	0.058	0.074	0.116
58	0.020	0.032	0.035	0.056	0.067	0.091	0.128
60	0.030	0.050	0.060	0.095	0.113	0.140	0.197
62	0.070	0.102	0.122	0.177	0.210	0.248	0.285
65	0.081	0.142	0.158	0.221	0.224	0.271	0.310
70	0.140	0.176	0.184	0.223	0.276	0.299	0.299
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Termination with Refund

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

Duration of Service	Entry Age									
	Male					Female				
	20	25	30	35	40	20	25	30	35	40
0	0.16985	0.15937	0.14189	0.12441	0.11834	0.16943	0.15699	0.13627	0.11554	0.11293
1	0.14939	0.13949	0.12298	0.10647	0.09736	0.15663	0.14497	0.12554	0.10610	0.09781
2	0.12263	0.11406	0.09977	0.08548	0.07613	0.13191	0.12212	0.10582	0.08952	0.07981
3	0.09392	0.08700	0.07548	0.06395	0.05610	0.10177	0.09431	0.08186	0.06942	0.06102
4	0.06692	0.06164	0.05286	0.04407	0.03850	0.07189	0.06664	0.05790	0.04916	0.04333
5	0.04425	0.04041	0.03402	0.02762	0.02429	0.04647	0.04303	0.03730	0.03157	0.02835
6	0.02743	0.02474	0.02025	0.01577	0.01411	0.02794	0.02579	0.02221	0.01863	0.01722
7	0.01660	0.01475	0.01166	0.00857	0.00784	0.01659	0.01525	0.01303	0.01080	0.01017
8	0.01074	0.00945	0.00729	0.00514	0.00469	0.01094	0.01007	0.00862	0.00716	0.00652
9	0.00819	0.00724	0.00565	0.00406	0.00350	0.00879	0.00815	0.00709	0.00603	0.00502
10	0.00729	0.00653	0.00526	0.00399	0.00322	0.00811	0.00758	0.00670	0.00581	0.00449
15	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Miscellaneous Tier 1 (continued)

Termination with Vested Benefits

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

Duration of Service	Entry Age									
	Male					Female				
	20	25	30	35	40	20	25	30	35	40
5	0.04657	0.04657	0.03951	0.03245	0.02653	0.05259	0.05259	0.04556	0.03853	0.03160
6	0.04103	0.04103	0.03562	0.03021	0.02442	0.04847	0.04847	0.04180	0.03514	0.02900
7	0.03568	0.03568	0.03170	0.02771	0.02211	0.04351	0.04351	0.03759	0.03167	0.02582
8	0.03094	0.03094	0.02801	0.02507	0.01969	0.03848	0.03848	0.03336	0.02824	0.02246
9	0.02710	0.02710	0.02475	0.02241	0.01725	0.03398	0.03398	0.02945	0.02491	0.01924
10	0.02420	0.02420	0.02201	0.01982	0.01491	0.03027	0.03027	0.02600	0.02172	0.01639
14	0.01686	0.01686	0.01412	0.01138	0.00815	0.02020	0.02020	0.01618	0.01217	0.00972
15	0.01527	0.01527	0.01257	0.00986	0.00708	0.01822	0.01822	0.01453	0.01085	0.00900
19	0.01092	0.01092	0.00829	0.00565	0.00000	0.01239	0.01239	0.00945	0.00652	0.00000
20	0.01001	0.01001	0.00755	0.00509	0.00000	0.01127	0.01127	0.00836	0.00545	0.00000
24	0.00605	0.00605	0.00484	0.00000	0.00000	0.00685	0.00685	0.00506	0.00000	0.00000
25	0.00527	0.00527	0.00430	0.00000	0.00000	0.00601	0.00601	0.00457	0.00000	0.00000
29	0.00294	0.00294	0.00000	0.00000	0.00000	0.00411	0.00411	0.00000	0.00000	0.00000
30	0.00254	0.00254	0.00000	0.00000	0.00000	0.00376	0.00376	0.00000	0.00000	0.00000

- When a member is eligible to retire, the termination with vested benefits probability is set to zero.
- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

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

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

Attained Age	Non-Industrial Death (Not Job-Related)		Non-Industrial Disability (Not Job-Related)	
	Male	Female	Male	Female
20	0.00039	0.00014	0.00019	0.00030
25	0.00033	0.00013	0.00019	0.00031
30	0.00044	0.00019	0.00019	0.00044
35	0.00058	0.00029	0.00036	0.00079
40	0.00075	0.00039	0.00103	0.00150
45	0.00093	0.00054	0.00204	0.00291
50	0.00134	0.00081	0.00274	0.00403
55	0.00198	0.00123	0.00238	0.00292
60	0.00287	0.00179	0.00200	0.00238

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Miscellaneous Tier 2

Service Retirement - Classic Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.014	0.011	0.010	0.013	0.014	0.014	0.015
52	0.019	0.013	0.012	0.015	0.015	0.015	0.016
54	0.014	0.014	0.015	0.021	0.024	0.027	0.030
56	0.029	0.033	0.031	0.056	0.079	0.105	0.157
58	0.026	0.035	0.034	0.061	0.085	0.115	0.169
60	0.017	0.036	0.063	0.113	0.126	0.162	0.189
62	0.076	0.115	0.118	0.188	0.197	0.238	0.284
65	0.141	0.164	0.155	0.232	0.218	0.232	0.251
70	0.151	0.226	0.246	0.300	0.278	0.255	0.266
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement - PEPRA Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000
52	0.009	0.008	0.009	0.013	0.014	0.016	0.022
54	0.008	0.012	0.014	0.021	0.025	0.027	0.034
56	0.016	0.025	0.030	0.043	0.058	0.074	0.116
58	0.020	0.032	0.035	0.056	0.067	0.091	0.128
60	0.030	0.050	0.060	0.095	0.113	0.140	0.197
62	0.070	0.102	0.122	0.177	0.210	0.248	0.285
65	0.081	0.142	0.158	0.221	0.224	0.271	0.310
70	0.140	0.176	0.184	0.223	0.276	0.299	0.299
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Termination with Refund

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

Duration of Service	Entry Age									
	Male					Female				
	20	25	30	35	40	20	25	30	35	40
0	0.13873	0.13873	0.13873	0.13873	0.13873	0.13996	0.13996	0.13996	0.13996	0.13996
1	0.11679	0.11679	0.11679	0.11679	0.11679	0.11571	0.11571	0.11571	0.11571	0.11571
2	0.09536	0.09536	0.09536	0.09536	0.09536	0.10125	0.10125	0.10125	0.10125	0.10125
3	0.07470	0.07470	0.07470	0.07470	0.07470	0.08274	0.08274	0.08274	0.08274	0.08274
4	0.05523	0.05523	0.05523	0.05523	0.05523	0.06250	0.06250	0.06250	0.06250	0.06250
5	0.03777	0.03777	0.03777	0.03777	0.03777	0.04293	0.04293	0.04293	0.04293	0.04293
6	0.02340	0.02340	0.02340	0.02340	0.02340	0.02622	0.02622	0.02622	0.02622	0.02622
7	0.01295	0.01295	0.01295	0.01295	0.01295	0.01386	0.01386	0.01386	0.01386	0.01386
8	0.00659	0.00659	0.00659	0.00659	0.00659	0.00628	0.00628	0.00628	0.00628	0.00628
9	0.00373	0.00373	0.00373	0.00373	0.00373	0.00283	0.00283	0.00283	0.00283	0.00283
10	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Miscellaneous Tier 2 (continued)

Termination with Vested Deferred Benefits

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

Duration of Service	Entry Age									
	Male					Female				
	20	25	30	35	40	20	25	30	35	40
10	0.03062	0.03062	0.03062	0.03062	0.03062	0.03652	0.03652	0.03652	0.03652	0.03652
14	0.02199	0.02199	0.02199	0.02199	0.02199	0.02726	0.02726	0.02726	0.02726	0.02726
15	0.02025	0.02025	0.02025	0.02025	0.02025	0.02534	0.02534	0.02534	0.02534	0.02534
19	0.01454	0.01454	0.01454	0.01454	0.00000	0.01892	0.01892	0.01892	0.01892	0.00000
20	0.01339	0.01339	0.01339	0.01339	0.00000	0.01758	0.01758	0.01758	0.01758	0.00000
24	0.00961	0.00961	0.00961	0.00000	0.00000	0.01313	0.01313	0.01313	0.00000	0.00000
25	0.00798	0.00798	0.00798	0.00000	0.00000	0.01118	0.01118	0.01118	0.00000	0.00000
29	0.00479	0.00479	0.00000	0.00000	0.00000	0.00671	0.00671	0.00000	0.00000	0.00000
30	0.00399	0.00399	0.00000	0.00000	0.00000	0.00559	0.00559	0.00000	0.00000	0.00000

- When a member is eligible to retire, the termination with vested benefits probability is set to zero.
- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

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

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

Attained Age	Non-Industrial Death (Not Job-Related)		Non-Industrial Disability (Not Job-Related)	
	Male	Female	Male	Female
20	0.00039	0.00014	0.00019	0.00030
25	0.00033	0.00013	0.00019	0.00031
30	0.00044	0.00019	0.00019	0.00044
35	0.00058	0.00029	0.00036	0.00079
40	0.00075	0.00039	0.00103	0.00150
45	0.00093	0.00054	0.00204	0.00291
50	0.00134	0.00081	0.00274	0.00403
55	0.00198	0.00123	0.00238	0.00292
60	0.00287	0.00179	0.00200	0.00238

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Industrial

Service Retirement - Classic Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.001	0.009	0.013	0.016	0.023	0.022	0.024
52	0.004	0.013	0.016	0.018	0.024	0.023	0.025
54	0.009	0.025	0.032	0.037	0.049	0.047	0.051
56	0.001	0.028	0.063	0.142	0.157	0.181	0.201
58	0.107	0.038	0.048	0.116	0.133	0.156	0.174
60	0.015	0.065	0.084	0.187	0.196	0.216	0.240
62	0.034	0.190	0.212	0.374	0.321	0.332	0.361
65	0.297	0.261	0.205	0.214	0.243	0.243	0.243
70	0.227	0.227	0.227	0.227	0.227	0.227	0.227
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement - PEPRA Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000
52	0.005	0.006	0.011	0.016	0.022	0.024	0.030
54	0.010	0.014	0.021	0.032	0.043	0.048	0.060
56	0.020	0.028	0.043	0.066	0.088	0.098	0.122
58	0.022	0.031	0.048	0.074	0.098	0.109	0.136
60	0.034	0.048	0.074	0.114	0.153	0.169	0.210
62	0.063	0.090	0.141	0.213	0.286	0.318	0.394
65	0.073	0.105	0.164	0.248	0.334	0.372	0.460
70	0.097	0.139	0.217	0.329	0.443	0.493	0.611
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Termination with Refund

Rates vary by years of service. See sample rates in the table below.

Duration of Service									
0	5	10	15	20	25	30	35	40	45
0.07233	0.02799	0.00363	0.00297	0.00135	0.00088	0.00033	0.00083	0.00084	0.00000

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Industrial (continued)

Termination with Vested Deferred Benefits

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

Duration of Service	Entry Age				
	20	25	30	35	40
5	0.02613	0.02613	0.02613	0.02613	0.02613
6	0.02490	0.02490	0.02490	0.02490	0.02490
7	0.02372	0.02372	0.02372	0.02372	0.02372
8	0.02260	0.02260	0.02260	0.02260	0.02260
9	0.02154	0.02154	0.02154	0.02154	0.02154
10	0.02052	0.02052	0.02052	0.02052	0.02052
14	0.01691	0.01691	0.01691	0.01691	0.00000
15	0.01612	0.01612	0.01612	0.01612	0.00000
19	0.01328	0.01328	0.01328	0.00000	0.00000
20	0.01266	0.01266	0.01266	0.00000	0.00000
24	0.01043	0.01043	0.00000	0.00000	0.00000
25	0.00734	0.00734	0.00000	0.00000	0.00000
29	0.00440	0.00000	0.00000	0.00000	0.00000
30	0.00367	0.00000	0.00000	0.00000	0.00000

- When a member is eligible to retire, the termination with vested benefits probability is set to zero.
- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

Non-Industrial (Not Job-Related) Death

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

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

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

Attained Age	Non-Industrial Death		Non-Industrial Disability	Industrial Death		Industrial Disability
	Male	Female	Male and Female	Male	Female	Male and Female
20	0.00038	0.00014	0.00035	0.00004	0.00002	0.00006
25	0.00034	0.00018	0.00035	0.00004	0.00002	0.00006
30	0.00042	0.00025	0.00086	0.00005	0.00003	0.00006
35	0.00048	0.00034	0.00149	0.00005	0.00004	0.00012
40	0.00055	0.00042	0.00239	0.00006	0.00005	0.00012
45	0.00066	0.00053	0.00364	0.00007	0.00006	0.00018
50	0.00092	0.00073	0.00488	0.00010	0.00008	0.00018
55	0.00138	0.00106	0.00626	0.00015	0.00012	0.00023
60	0.00221	0.00151	0.00626	0.00025	0.00017	0.00023

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Safety

Service Retirement - Classic Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.009	0.014	0.018	0.028	0.022	0.024	0.024
52	0.017	0.019	0.019	0.026	0.018	0.019	0.019
54	0.012	0.018	0.024	0.038	0.034	0.042	0.042
56	0.019	0.042	0.058	0.122	0.161	0.196	0.214
58	0.055	0.050	0.057	0.112	0.127	0.166	0.205
60	0.062	0.057	0.070	0.136	0.170	0.205	0.222
62	0.088	0.104	0.151	0.224	0.212	0.245	0.245
65	0.197	0.163	0.213	0.281	0.229	0.250	0.250
70	0.128	0.223	0.253	0.260	0.260	0.260	0.260
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement - PEPRA Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.007	0.011	0.017	0.026	0.027	0.033	0.038
52	0.007	0.014	0.014	0.026	0.026	0.030	0.037
54	0.012	0.017	0.017	0.026	0.031	0.041	0.074
56	0.024	0.029	0.044	0.082	0.104	0.128	0.173
58	0.028	0.038	0.055	0.087	0.106	0.143	0.205
60	0.043	0.050	0.081	0.139	0.142	0.181	0.231
62	0.067	0.076	0.112	0.191	0.202	0.246	0.285
65	0.100	0.124	0.155	0.224	0.231	0.280	0.323
70	0.137	0.167	0.214	0.281	0.309	0.373	0.401
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Termination with Refund

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

Duration of Service	Male	Female
0	0.11560	0.14291
1	0.08866	0.11349
2	0.06558	0.08653
3	0.04648	0.06306
4	0.03141	0.04376
5	0.02027	0.02889
6	0.01283	0.01841
7	0.00850	0.01185
8	0.00640	0.00832
9	0.00560	0.00674

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Safety (continued)

Termination with Vested Deferred Benefits

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

Duration of Service	Male	Female
5	0.02284	0.03006
6	0.02148	0.02838
7	0.02020	0.02679
8	0.01900	0.02529
9	0.01787	0.02387
10	0.01681	0.02254
15	0.01236	0.01690
20	0.00910	0.01267
25	0.00669	0.00950
30	0.00492	0.00712
35	0.00000	0.00000

- When a member is eligible to retire, the termination with vested benefits probability is set to zero.
- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

Non-Industrial (Not Job-Related) Death

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

Non-Industrial (Not Job-Related) Disability, Industrial (Job-Related) Disability & Industrial (Job-Related) Death

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

Attained Age	Non-Industrial Death		Non-Industrial Disability	Industrial Death		Industrial Disability
	Male	Female	Male and Female	Male	Female	Male and Female
20	0.00038	0.00014	0.00036	0.00004	0.00002	0.00000
25	0.00034	0.00018	0.00054	0.00004	0.00002	0.00018
30	0.00042	0.00025	0.00063	0.00005	0.00003	0.00121
35	0.00048	0.00034	0.00072	0.00005	0.00004	0.00207
40	0.00055	0.00042	0.00072	0.00006	0.00005	0.00296
45	0.00066	0.00053	0.00108	0.00007	0.00006	0.00420
50	0.00092	0.00073	0.00201	0.00010	0.00008	0.00578
55	0.00138	0.00106	0.00240	0.00015	0.00012	0.00774
60	0.00221	0.00151	0.00320	0.00025	0.00017	0.00963

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Peace Officers and Firefighters

Service Retirement - Classic Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.089	0.029	0.048	0.149	0.290	0.386	0.386
52	0.010	0.023	0.040	0.100	0.174	0.225	0.225
54	0.149	0.026	0.043	0.111	0.214	0.228	0.246
56	0.026	0.034	0.059	0.148	0.217	0.282	0.316
58	0.031	0.041	0.068	0.172	0.233	0.255	0.257
60	0.061	0.075	0.111	0.207	0.319	0.311	0.325
62	0.080	0.113	0.171	0.262	0.337	0.330	0.359
65	0.235	0.181	0.217	0.293	0.347	0.321	0.341
70	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement - PEPRA Members – 2.5% @ 57

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.008	0.021	0.031	0.076	0.157	0.314	0.327
52	0.008	0.018	0.029	0.067	0.102	0.179	0.180
54	0.016	0.032	0.040	0.089	0.122	0.219	0.230
56	0.025	0.035	0.046	0.108	0.170	0.268	0.276
58	0.018	0.059	0.063	0.142	0.202	0.319	0.319
60	0.033	0.063	0.089	0.170	0.262	0.342	0.349
62	0.067	0.104	0.130	0.221	0.324	0.415	0.440
65	0.065	0.081	0.127	0.231	0.342	0.427	0.453
70	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Peace Officers and Firefighters (continued)

Service Retirement - PEPRA Members – 2.7% @ 57

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.008	0.021	0.031	0.076	0.157	0.314	0.327
52	0.009	0.020	0.031	0.072	0.109	0.191	0.193
54	0.017	0.034	0.042	0.094	0.130	0.234	0.245
56	0.026	0.037	0.048	0.115	0.181	0.285	0.293
58	0.020	0.065	0.070	0.158	0.224	0.354	0.354
60	0.035	0.066	0.094	0.179	0.276	0.360	0.367
62	0.067	0.104	0.130	0.221	0.324	0.415	0.440
65	0.065	0.081	0.127	0.231	0.342	0.427	0.453
70	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Termination with Refund

Rates vary by years of service. See sample rates in the table below.

Duration of Service	Male	Female
0	0.10139	0.10328
1	0.07185	0.07858
2	0.05263	0.06047
3	0.03958	0.04693
4	0.02961	0.03624
5	0.02133	0.02732
6	0.01459	0.01978
7	0.00963	0.01366
8	0.00642	0.00904
9	0.00462	0.00589

Termination with Vested Deferred Benefits

Rates vary by years of service. See sample rates in the table below.

Duration of Service	Male	Female
5	0.01109	0.02295
6	0.01065	0.02129
7	0.01022	0.01976
8	0.00979	0.01833
9	0.00937	0.01700
10	0.00895	0.01577
15	0.00699	0.01084
20	0.00522	0.00745
25	0.00362	0.00512
30	0.00221	0.00352
35	0.00000	0.00000

- When a member is eligible to retire, the termination with vested benefits probability is set to zero.
- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Peace Officers and Firefighters (continued)

Non-Industrial (Not Job-Related) Death

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

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

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

Attained Age	Non-Industrial Death		Non-Industrial Disability	Industrial Death		Industrial Disability
	Male	Female	Male and Female	Male	Female	Male and Female
20	0.00038	0.00014	0.00030	0.00004	0.00002	0.00039
25	0.00034	0.00018	0.00030	0.00004	0.00002	0.00087
30	0.00042	0.00025	0.00030	0.00005	0.00003	0.00167
35	0.00048	0.00034	0.00030	0.00005	0.00004	0.00289
40	0.00055	0.00042	0.00040	0.00006	0.00005	0.00464
45	0.00066	0.00053	0.00060	0.00007	0.00006	0.00706
50	0.00092	0.00073	0.00098	0.00010	0.00008	0.01027
55	0.00138	0.00106	0.00143	0.00015	0.00012	0.01442
60	0.00221	0.00151	0.00188	0.00025	0.00017	0.01966

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

California Highway Patrol

Service Retirement - Classic Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.043	0.043	0.046	0.087	0.211	0.374	0.423
52	0.030	0.030	0.032	0.061	0.148	0.263	0.297
54	0.032	0.032	0.034	0.064	0.155	0.275	0.311
56	0.091	0.091	0.091	0.135	0.221	0.308	0.351
58	0.095	0.095	0.095	0.140	0.230	0.320	0.365
60	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Service Retirement - PEPRA Members

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

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.027	0.027	0.027	0.034	0.075	0.293	0.317
52	0.020	0.020	0.020	0.020	0.070	0.236	0.287
54	0.030	0.030	0.030	0.030	0.099	0.247	0.323
56	0.043	0.043	0.043	0.071	0.118	0.298	0.323
58	0.044	0.044	0.044	0.044	0.154	0.304	0.315
60	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Termination with Refund

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

Duration of Service	Male	Female
0	0.03310	0.08000
1	0.02324	0.02208
2	0.01553	0.01475
3	0.00975	0.00927
4	0.00567	0.00538
5	0.00301	0.00286
6	0.00241	0.00229
7	0.00181	0.00172
8	0.00120	0.00114
9	0.00060	0.00057

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

California Highway Patrol (continued)

Termination with Vested Deferred Benefits

Duration of Service	Male	Female
5	0.00875	0.01750
6	0.00811	0.01622
7	0.00751	0.01503
8	0.00696	0.01392
9	0.00645	0.01290
10	0.00598	0.01195
15	0.00408	0.00816
20	0.00279	0.00557
25	0.00190	0.00380
30	0.00000	0.00000

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

- When a member is eligible to retire, the termination with vested benefits probability is set to zero.
- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

Non-Industrial (Not Job-Related) Death

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

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

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

Attained Age	Non-Industrial Death		Non-Industrial Disability	Industrial Death		Industrial Disability
	Male	Female	Male and Female	Male	Female	Male and Female
20	0.00038	0.00014	0.00008	0.00004	0.00002	0.00016
25	0.00034	0.00018	0.00008	0.00004	0.00002	0.00035
30	0.00042	0.00025	0.00008	0.00005	0.00003	0.00068
35	0.00048	0.00034	0.00008	0.00005	0.00004	0.00122
40	0.00055	0.00042	0.00008	0.00006	0.00005	0.00202
45	0.00066	0.00053	0.00017	0.00007	0.00006	0.00316
50	0.00092	0.00073	0.00017	0.00010	0.00008	0.01214
55	0.00138	0.00106	0.00017	0.00015	0.00012	0.05407
60	0.00221	0.00151	0.00017	0.00025	0.00017	0.20431

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 1

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

RETIREMENT PROGRAM

Service Retirement

Eligibility

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

Benefit

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

- The *benefit factor* for this group of employees comes from the **2% at 55** benefit factor table. New Classic members hired on or after January 15, 2011, are subject to the **2% at 60** benefit factor table. New PEPRA members hired on or after January 1, 2013, are subject to the **2% at 62** benefit factor table. The factor depends on the member's age at retirement. Listed below are the factors for retirement at whole year ages:

Retirement Age	2% @ 55 Factor	2% @ 60 Factor	2% @ 62 Factor
50	1.100%	1.092%	N/A
51	1.280%	1.156%	N/A
52	1.460%	1.224%	1.000%
53	1.640%	1.296%	1.100%
54	1.820%	1.376%	1.200%
55	2.000%	1.460%	1.300%
56	2.064%	1.552%	1.400%
57	2.126%	1.650%	1.500%
58	2.188%	1.758%	1.600%
59	2.250%	1.874%	1.700%
60	2.314%	2.000%	1.800%
61	2.376%	2.134%	1.900%
62	2.438%	2.272%	2.000%
63	2.500%	2.418%	2.100%
64	2.500%	2.418%	2.200%
65	2.500%	2.418%	2.300%
66	2.500%	2.418%	2.400%
67 & Up	2.500%	2.418%	2.500%

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 1 (continued)

- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For some new members hired after July 1, 2006, and for all new members hired on or after January 15, 2011, final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPRA members have a cap on the annual salary used to calculate final compensation based on the Social Security Contribution and Benefit Base. For employees who participate in Social Security this cap is \$134,974 for 2022 and for those employees who do not participate in Social Security the cap for 2022 is \$161,969. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- Employees may or may not be covered by Social Security. For employees covered by Social Security, the final compensation is offset by \$133.33 (or by one third if the final compensation is less than \$400). For some PEPRA members, the final compensation is not offset.
- The Service Retirement benefit is not capped.

Vested Deferred Retirement

Eligibility for Deferred Status

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

Eligibility to Start Receiving Benefits

Classic members become eligible to receive a deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 50. PEPRA members become eligible to receive the deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 52.

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 1 (continued)

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

For retirement allowances with respect to service earned by employment in this group, 25% (50% for those without social security) of the retirement allowance will automatically be continued to certain statutory beneficiaries upon the death of the retiree, *without* a reduction in the retiree's allowance. This additional benefit is often referred to as *post retirement survivor allowance* (PRSA) or simply as *survivor continuance*.

In other words, 25% (50% for those without social security) of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 75% (50% for those without social security) of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. The retiree may choose to provide for some of this *option portion* to be paid to any designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

An employee's beneficiary (or estate) will receive the Group Term Life Insurance benefit if the member dies while actively employed. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. This benefit is in addition to other pre-retirement death benefits.

Benefit

The benefit is a lump sum payment of \$5,000 plus an additional amount equal to 50% of the annual compensation earned by the deceased member during the 12 months immediately preceding the member's death. The additional amount will not be paid if the member is eligible for service retirement or the Alternate Death Benefit.

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 1 (continued)

For members with less than 20 years of service credit and not age-eligible to retire:

Basic Death Benefit

Eligibility

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

Benefit

The Basic Death Benefit is a lump sum in the amount of the member's accumulated contributions, where interest is credited at the greater of 6% or the prevailing discount rate. In addition, a lump sum in the amount of six months' salary shall be paid only if the member is eligible for service retirement or eligible for the Alternate Death Benefit. For purposes of this benefit, one month's salary is defined as the member's average monthly full-time rate of compensation during the 12 months preceding death.

For members with more than 20 years of service credit and not age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

Alternate Death Benefit

Eligibility

This benefit may be received in lieu of the lump sum Basic Death Benefit if there is a surviving spouse or minor child of the member. The member must have died before reaching the minimum retirement age and must have been credited with at least 20 years of state service.

Benefit

The Alternate Death Benefit is calculated as though the member were the minimum retirement age and elected an optional form of benefit that provided 100% continuance to the member's spouse. If the member did not have a spouse at the time of death, one-half of the formula benefit would be paid to the surviving child. If the benefit is payable to a surviving child, the benefit will be discontinued upon death or the attainment of age 18.

For members who are age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

1957 Survivor Benefit

Eligibility

An employee's *eligible survivor(s)* may receive the 1957 Survivor benefit if the member dies while actively employed, has attained at least age 50 for Classic and Safety PEPRA members and age 52 for Miscellaneous PEPRA members, and has at least five years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death or, if there is no eligible spouse, to the member's unmarried children under age 18. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the Optional Settlement 2W Death benefit.

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 1 (continued)

Benefit

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

Optional Settlement 2W Death Benefit

Eligibility

An employee's *eligible survivor* may receive the Optional Settlement 2W Death benefit if the member dies while actively employed, has attained at least age 50 for Classic and Safety PEPRA members and age 52 for Miscellaneous PEPRA members, and has at least five years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the 1957 Survivor benefit.

Benefit

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

Cost-of-Living Adjustments

Retirement and survivor allowances are adjusted each year in May for cost of living, beginning the second calendar year after the year of retirement. The standard cost-of-living adjustment (COLA) is 2%. Annual adjustments are calculated by first determining the lesser of 1) 2% compounded from the end of the year of retirement or 2) actual rate of inflation. The resulting increase is divided by the total increase provided in prior years. For any particular year, the COLA adjustment may be less than 2% (when the rate of inflation is low), may be greater than the rate of inflation (when the rate of inflation is low after several years of high inflation) or may even be greater than 2% (when inflation is high after several years of low inflation).

Purchasing Power Protection Allowance (PPPA)

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 1 (continued)

Employee Contributions

Each employee contributes toward his or her retirement based upon one of the following schedules. The employer may choose to “pick up” these contributions for the employees. For employees covered by Social Security, the monthly compensation breakpoint is \$513, and the contribution schedule is as follows:

- The percent contributed below the monthly compensation breakpoint is 0%.
- The percent contributed above the monthly compensation breakpoint ranges from 5% to 10%.

There are a small number of employees not covered by Social Security in this plan. For those employees, the monthly compensation breakpoint is \$317, and contributions are as follows:

- The percent contributed below the monthly compensation breakpoint is 0%.
- The percent contributed above the monthly compensation breakpoint is 1% greater than the contribution paid by those covered by Social Security.

For some new PEPRA members, the monthly compensation breakpoint is \$0, and contributions are as follows:

- The percent contributed below the monthly compensation breakpoint is 0%.
- The percent contributed above the monthly compensation breakpoint is half of the total normal cost. See the “PEPRA Member Contribution Rates” section of this report for more information.

Refund of Employee Contributions

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

1959 Survivor Benefits Program

For these benefits, please refer to the 1959 Survivor Benefit Program Actuarial Valuation Report available on our website.

State Miscellaneous Tier 2

The following is a summary of the major plan provisions applicable to State Miscellaneous Tier 2 members. Many of the statements in this summary are general in nature and intended to provide an easily understood summary of the complex Public Employees’ Retirement Law. The law itself governs in all situations.

RETIREMENT PROGRAM

Tier 2 Members electing Tier 1 benefits

In general, State Miscellaneous Tier 2 members have the right to convert their Tier 2 service to Tier 1 service provided they make up the shortfall in their accumulated contributions with interest. In this valuation, we have assumed that all State Miscellaneous Tier 2 members eligible to convert their Tier 2 service to Tier 1 service will elect to do so.

Service Retirement

Eligibility

A member becomes eligible for Service Retirement upon attainment of age 55 with at least 10 years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements).

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 2 (continued)

Benefit

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

- The *benefit factor* for Classic employees comes from the **1.25% at 65** Tier 2 benefit factor table. New PEPRA members hired on or after January 1, 2013, are subject to the **1.25% at 67** benefit factor table. The factor depends on the member's age at retirement. Listed below are the factors for retirement at whole year ages:

Retirement Age	1.25% @ 65 Tier 2 Factor	1.25% @ 67 Tier 2 Factor
50	0.500%	N/A
51	0.550%	N/A
52	0.600%	0.650%
53	0.650%	0.690%
54	0.700%	0.730%
55	0.750%	0.770%
56	0.800%	0.810%
57	0.850%	0.850%
58	0.900%	0.890%
59	0.950%	0.930%
60	1.000%	0.970%
61	1.050%	1.010%
62	1.100%	1.050%
63	1.150%	1.090%
64	1.200%	1.130%
65	1.250%	1.170%
66	1.250%	1.210%
67 & Up	1.250%	1.250%

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, and then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.
- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For some new members hired after July 1, 2006, and for all new members hired on or after January 15, 2011, final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPRA members have a cap on the annual salary used to calculate final compensation based on the Social Security Contribution and Benefit Base. For employees who participate in Social Security this cap is \$134,974 for 2022 and for those employees who do not participate in Social Security the cap for 2022 is \$161,969. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers
- Employees may or may not be covered by Social Security. The final compensation is not offset by a dollar amount.
- The Service Retirement benefit is not capped.

Vested Deferred Retirement

Eligibility for Deferred Status

A member becomes eligible for a deferred vested retirement benefit when he or she leaves employment, keeps his or her contribution account balance on deposit with CalPERS, and has earned at least 10 years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements).

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 2 (continued)

Eligibility to Start Receiving Benefits

The member becomes eligible to receive a deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 55. Members with five years of service before January 1, 1985, are eligible at age 50.

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

A CalPERS member is eligible for Non-Industrial Disability Retirement if he or she becomes disabled and has at least 10 years of credited service (total service across all PERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements). There is no special age requirement. Disabled means the member is unable to perform his or her job because of an illness or injury which is expected to be permanent or to last indefinitely. The illness or injury does not have to be job related. A CalPERS member must be actively working with any CalPERS employer at the time of disability in order to be eligible for this benefit. Members with five years of service before January 1, 1985, are also eligible.

Benefit

The Non-Industrial Disability Retirement benefit is a monthly allowance equal to 1.125% of final compensation, multiplied by service, which is determined as follows:

- Service is CalPERS credited service, for members with less than 10 years of service or greater than 29.628 years of service; or
- Service is CalPERS credited service plus the additional number of years that the member would have worked until age 65, for members with at least 10 years but not more than 29.628 years of service. The maximum benefit in this case is 33-1/3% of Final Compensation.

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 2 (continued)

For retirement allowances with respect to service earned by employment in this group, 25% (50% for those without social security) of the retirement allowance will automatically be continued to certain statutory beneficiaries upon the death of the retiree, *without* a reduction in the retiree's allowance. This additional benefit is often referred to as post-retirement survivor allowance (PRSA) or simply as *survivor continuance*.

In other words, 25% (50% for those without social security) of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 75% (50% for those without social security) of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. The retiree may choose to provide for some of this *option portion* to be paid to any designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

An employee's beneficiary (or estate) will receive the Group Term Life Insurance benefit if the member dies while actively employed. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. This benefit is in addition to other pre-retirement death benefits.

Benefit

The benefit is a lump sum payment of \$5,000 plus an additional amount equal to 50% of the annual compensation earned by the deceased member during the 12 months immediately preceding the member's death. The additional amount will not be paid if the member is eligible for service retirement or the Alternate Death Benefit.

For members with less than 20 years of service credit and not age-eligible to retire:

Basic Death Benefit

Eligibility

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

Benefit

The Basic Death Benefit is a lump sum in the amount of the member's accumulated contributions, where interest is the greater of 6% or the prevailing discount rate. In addition, a lump sum in the amount of six months' salary shall be paid only if the member is eligible for service retirement or eligible for the Alternate Death Benefit. For purposes of this benefit, one month's salary is defined as the member's average monthly full-time rate of compensation during the 12 months preceding death.

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 2 (continued)

For members with more than 20 years of service credit and not age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

Alternate Death Benefit

Eligibility

This benefit may be received in lieu of the lump sum Basic Death Benefit if there is a surviving spouse or minor child of the member. The member must have died before reaching the minimum retirement age and must have been credited with at least 20 years of state service.

Benefit

The Alternate Death Benefit is calculated as though the member were the minimum retirement age and elected an optional form of benefit that provided 100% continuance to the member's spouse. If the member did not have a spouse at the time of death, one-half of the formula benefit would be paid to the surviving child. If the benefit is payable to a surviving child, the benefit will be discontinued upon death or the attainment of age 18.

For members who are age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

1957 Survivor Benefit

Eligibility

An employee's *eligible survivor(s)* may receive the 1957 Survivor benefit if the member dies while actively employed and has attained retirement eligibility. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death or, if there is no eligible spouse, to the member's unmarried children under age 18. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the Optional Settlement 2W Death benefit.

Benefit

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

Optional Settlement 2W Death Benefit

Eligibility

An employee's *eligible survivor* may receive the Optional Settlement 2W Death benefit if the member dies while actively employed and has attained retirement eligibility. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the 1957 Survivor benefit.

Benefit

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 2 (continued)

Cost-of-Living Adjustments

Beginning the second calendar year after the year of retirement, retirement and survivor allowances will be annually adjusted on a compound basis by 3%.

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

- The percent contributed above the monthly compensation breakpoint is 3.75%.
- The monthly compensation breakpoint is \$0.
- The percent contributed below the monthly compensation breakpoint is 0%.

Refund of Employee Contributions

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

1959 Survivor Benefits Program

For these benefits, please refer to the 1959 Survivor Benefit Program Actuarial Valuation Report available on our website.

State Industrial Tier 1

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

RETIREMENT PROGRAM

Service Retirement

Eligibility

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

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Benefit

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

- The *benefit factor* for this group of employees comes from the **2% at 55** benefit factor table. New Classic members hired on or after January 15, 2011, are subject to the **2% at 60** benefit factor table. New PEPRA members hired on or after January 1, 2013, are subject to the **2% at 62** benefit factor table. The factor depends on the member's age at retirement. Listed below are the factors for retirement at whole year ages:

Retirement Age	2% @ 55 Factor	2% @ 60 Factor	2% @ 62 Factor
50	1.100%	1.092%	N/A
51	1.280%	1.156%	N/A
52	1.460%	1.224%	1.000%
53	1.640%	1.296%	1.100%
54	1.820%	1.376%	1.200%
55	2.000%	1.460%	1.300%
56	2.064%	1.552%	1.400%
57	2.126%	1.650%	1.500%
58	2.188%	1.758%	1.600%
59	2.250%	1.874%	1.700%
60	2.314%	2.000%	1.800%
61	2.376%	2.134%	1.900%
62	2.438%	2.272%	2.000%
63	2.500%	2.418%	2.100%
64	2.500%	2.418%	2.200%
65	2.500%	2.418%	2.300%
66	2.500%	2.418%	2.400%
67 & Up	2.500%	2.418%	2.500%

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, and then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.
- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For some new members hired after July 1, 2006, and for all new members hired on or after January 15, 2011, final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPRA members have a cap on the annual salary used to calculate final compensation based on the Social Security Contribution and Benefit Base. For employees who participate in Social Security this cap is \$134,974 for 2022 and for those employees who do not participate in Social Security the cap for 2022 is \$161,969. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- Employees may or may not be covered by Social Security. For employees covered by Social Security, the final compensation is offset by \$133.33 (or by one third if the final compensation is less than \$400). For some PEPRA members, the final compensation is not offset.
- The Service Retirement benefit is not capped.

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Vested Deferred Retirement

Eligibility for Deferred Status

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

Eligibility to Start Receiving Benefits

Classic members become eligible to receive the deferred benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 50. PEPRA Miscellaneous members become eligible to receive the deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 52.

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

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

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Industrial (Job-Related) Disability Retirement

Eligibility

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

Benefit

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

For retirement allowances with respect to service earned by employment in this group, 25% (50% for those without social security) of the retirement allowance will automatically be continued to certain statutory beneficiaries upon the death of the retiree *without* a reduction in the retiree's allowance. This additional benefit is often referred to as post-retirement survivor allowance (PRSA) or simply as *survivor continuance*.

In other words, 25% (50% for those without social security) of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 75% (50% for those without social security) of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. Or, the retiree may choose to provide for some of this *option portion* to be paid to any designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

An employee's beneficiary (or estate) will receive the Group Term Life Insurance benefit if the member dies while actively employed. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. This benefit is in addition to other pre-retirement death benefits.

Benefit

The benefit is a lump sum payment of \$5,000 plus an additional amount equal to 50% of the annual compensation earned by the deceased member during the 12 months immediately preceding the member's death. The additional amount will not be paid if the member is eligible for service retirement or the Alternate Death Benefit.

For members with less than 20 years of service credit and not age-eligible to retire:

Basic Death Benefit

Eligibility

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

Benefit

The Basic Death Benefit is a lump sum in the amount of the member's accumulated contributions, where interest is the greater of 6% or the prevailing discount rate. In addition, a lump sum in the amount of six months' salary shall be paid only if the member is eligible for service retirement or eligible for the Alternate Death Benefit. For purposes of this benefit, one month's salary is defined as the member's average monthly full-time rate of compensation during the 12 months preceding death.

Special Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

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

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

For members with more than 20 years of service credit and not age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

Alternate Death Benefit

Eligibility

This benefit may be received in lieu of the lump sum Basic Death Benefit if there is a surviving spouse or minor child of the member. The member must have died before reaching the minimum retirement age and must have been credited with at least 20 years of state service.

Benefit

The Alternate Death Benefit is calculated as though the member were the minimum retirement age and elected an optional form of benefit that provided 100% continuance to the member's spouse. If the member did not have a spouse at the time of death, one-half of the formula benefit would be paid to the surviving child. If the benefit is payable to a surviving child, the benefit will be discontinued upon death or the attainment of age 18.

For members who are age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

1957 Survivor Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Optional Settlement 2W Death Benefit

Eligibility

An employee's *eligible survivor* may receive the Optional Settlement 2W Death benefit if the member dies while actively employed, has attained at least age 50 for Classic and Safety PEPRA members and age 52 for Miscellaneous PEPRA members, and has at least five years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the 1957 Survivor benefit.

Benefit

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

Cost-of-Living Adjustments

Retirement and survivor allowances are adjusted each year in May for cost of living, beginning the second calendar year after the year of retirement. The standard cost-of-living adjustment (COLA) is 2%. Annual adjustments are calculated by first determining the lesser of 1) 2% compounded from the end of the year of retirement or 2) actual rate of inflation. The resulting increase is divided by the total increase provided in prior years. For any particular year, the COLA adjustment may be less than 2% (when the rate of inflation is low), may be greater than the rate of inflation (when the rate of inflation is low after several years of high inflation) or may even be greater than 2% (when inflation is high after several years of low inflation).

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

Each employee contributes toward his or her retirement based upon one of the following schedules. The employer may choose to "pick-up" these contributions for the employees. For employees covered by Social Security, the monthly compensation breakpoint is \$513, and the contribution schedule is as follows:

- The percent contributed below the monthly compensation breakpoint is 0%.
- The percent contributed above the monthly compensation breakpoint ranges from 5% to 10%.

There are a small number of employees not covered by Social Security in this plan. For those employees, the monthly compensation breakpoint is \$317, and contributions are as follows:

- The percent contributed below the monthly compensation breakpoint is 0%.
- The percent contributed above the monthly compensation breakpoint is 1% greater than those covered by Social Security.

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Refund of Employee Contributions

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

1959 Survivor Benefits Program

For these benefits, please refer to the 1959 Survivor Benefit Program Actuarial Valuation Report available on our website.

State Industrial Tier 2

The following is a summary of the major plan provisions applicable to State Industrial Tier 2 Members. Many of the statements in this summary are general in nature and intended to provide an easily understood summary of the complex Public Employees' Retirement Law. The law itself governs in all situations.

RETIREMENT PROGRAM

Tier 2 Members Electing Tier 1 Benefits

State Industrial Tier 2 members have the right to convert their Tier 2 service to Tier 1 service provided they make up the shortfall in their accumulated contributions with interest. In this valuation, we have assumed that all State Industrial Tier 2 members eligible to convert their Tier 2 service to Tier 1 service will elect to do so.

Service Retirement

Eligibility

A CalPERS member becomes eligible for Service Retirement upon attainment of age 55 with at least 10 years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements). Members with 5 years of service before January 1, 1985, are also eligible.

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

Benefit

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

- The benefit factor for Classic employees comes from the **1.25% at 65** Tier 2 benefit factor table. PEPRA members are subject to the **1.25% at 67** benefit factor table. The factor depends on the member's age at retirement. Listed below are the factors for retirement at whole year ages:

Retirement Age	1.25% @ 65 Tier 2 Factor	1.25% @ 67 Tier 2 Factor
50	0.500%	N/A
51	0.550%	N/A
52	0.600%	0.650%
53	0.650%	0.690%
54	0.700%	0.730%
55	0.750%	0.770%
56	0.800%	0.810%
57	0.850%	0.850%
58	0.900%	0.890%
59	0.950%	0.930%
60	1.000%	0.970%
61	1.050%	1.010%
62	1.100%	1.050%
63	1.150%	1.090%
64	1.200%	1.130%
65	1.250%	1.170%
66	1.250%	1.210%
67 & Up	1.250%	1.250%

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, and then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.
- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For some new members hired after July 1, 2006, and for all new members hired on or after January 15, 2011, final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPRA members have a cap on the annual salary used to calculate final compensation based on the Social Security Contribution and Benefit Base. For employees who participate in Social Security this cap is \$134,974 for 2022 and for those employees who do not participate in Social Security the cap for 2022 is \$161,969. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- The employees in this group may or may not be covered by Social Security. The final compensation is not offset by a dollar amount.
- The Service Retirement benefit is not capped.

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

Vested Deferred Retirement

Eligibility for Deferred Status

A CalPERS member becomes eligible for a deferred vested retirement benefit when he or she leaves employment, keeps his or her contribution account balance on deposit with CalPERS, and has earned at least 10 years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements). Members with five years of service before January 1, 1985, are also eligible.

Eligibility to Start Receiving Benefits

The CalPERS member becomes eligible to receive the deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 55. Members with five years of service before January 1, 1985, are eligible at age 50.

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

A CalPERS member is eligible for Non-Industrial Disability Retirement if he or she becomes *disabled* and has at least 10 years of credited service (total service across all PERS employers, and with certain other Retirement Systems with which PERS has reciprocity agreements). There is no special age requirement. *Disabled* means the member is unable to perform his or her job because of an illness or injury which is expected to be permanent or to last indefinitely. The illness or injury does not have to be job-related. A CalPERS member must be actively working with any CalPERS employer at the time of disability in order to be eligible for this benefit. Members with five years of service before January 1, 1985, are also eligible.

Benefit

The Non-Industrial Disability Retirement benefit is a monthly allowance equal to 1.125% of final compensation, multiplied by *service*, which is determined as follows:

- *Service* is CalPERS credited service, for members with less than 10 years of service or greater than 29.628 years of service; or
- *Service* is CalPERS credited service plus the additional number of years that the member would have worked until age 65, for members with at least 10 years but not more than 29.628 years of service. The maximum benefit in this case is 33-1/3% of Final Compensation.

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

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

Industrial (Job-Related) Disability Retirement

Eligibility

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

Benefit

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

For retirement allowances with respect to service earned by employment in this group, 50% of the retirement allowance will automatically be continued to certain statutory beneficiaries upon the death of the retiree, without a reduction in the retiree's allowance. This additional benefit is often referred to as post-retirement survivor allowance (PRSA) or simply as *survivor continuance*.

In other words, 50% of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 50% of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. Or, the retiree may choose to provide for some of this *option portion* to be paid to any designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

An employee's beneficiary (or estate) will receive the Group Term Life Insurance benefit if the member dies while actively employed. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. This benefit is in addition to other pre-retirement death benefits.

Benefit

The benefit is a lump sum payment of \$5,000 plus an additional amount equal to 50% of the annual compensation earned by the deceased member during the 12 months immediately preceding the member's death. The additional amount will not be paid if the member is eligible for service retirement or the Alternate Death Benefit.

For members with less than 20 years of service credit and not age-eligible to retire:

Basic Death Benefit

Eligibility

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

Benefit

The Basic Death Benefit is a lump sum in the amount of the member's accumulated contributions, where interest is the greater of 6% or the prevailing discount rate. In addition, a lump sum in the amount of six months' salary shall be paid only if the member is eligible for service retirement or eligible for the Alternate Death Benefit. For purposes of this benefit, one month's salary is defined as the member's average monthly full-time rate of compensation during the 12 months preceding death.

Special Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

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

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

For members with more than 20 years of service credit and not age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

Alternate Death Benefit

Eligibility

This benefit may be received in lieu of the lump sum Basic Death Benefit if there is a surviving spouse or minor child of the member. The member must have died before reaching the minimum retirement age and must have been credited with at least 20 years of state service.

Benefit

The Alternate Death Benefit is calculated as though the member were the minimum retirement age and elected an optional form of benefit that provided 100% continuance to the member's spouse. If the member did not have a spouse at the time of death, one-half of the formula benefit would be paid to the surviving child. If the benefit is payable to a surviving child, the benefit will be discontinued upon death or the attainment of age 18.

For members who are age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

1957 Survivor Benefit

Eligibility

An employee's *eligible survivor(s)* may receive the 1957 Survivor benefit if the member dies while actively employed and has attained retirement eligibility. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death or, if there is no eligible spouse, to the member's unmarried children under age 18. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the Special Death benefit.

Benefit

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

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

Optional Settlement 2W Death Benefit

Eligibility

An employee's *eligible survivor* may receive the Optional Settlement 2W Death benefit if the member dies while actively employed and has attained retirement eligibility. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the 1957 Survivor benefit.

Benefit

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

Cost-of-Living Adjustments

Beginning the second calendar year after the year of retirement, retirement and survivor allowances will be annually adjusted on a compound basis by 3%.

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

- The percent contributed above the monthly compensation breakpoint is 3.75%.
- The monthly compensation breakpoint is \$0.
- The percent contributed below the monthly compensation breakpoint is 0%.

Refund of Employee Contributions

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

1959 Survivor Benefits Program

For these benefits, please refer to the 1959 Survivor Benefit Program Actuarial Valuation Report available on our website.

Appendix B – Principal Plan Provisions

State Safety

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

RETIREMENT PROGRAM

Service Retirement

Eligibility

Members become eligible for Service Retirement upon attainment of age 50 with at least five years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements).

Benefit

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

- The *benefit factor* for this group of employees comes from the **2.5% at 55** Safety benefit factor table. Classic members hired on or after January 15, 2011, are subject to either the **2.5% at 60** Safety or the **2% at 55** Safety benefit factor table. PEPRAs members are subject to the **2% at 57** benefit factor table. The factor depends on the member's age at retirement. Listed below are the factors for retirement at whole year ages:

Retirement Age	2.5% @ 55 Factor	2.5% @ 60 Factor	2% @ 55 Factor	2% @ 57 Factor
50	1.700%	1.426%	1.426%	1.426%
51	1.800%	1.522%	1.522%	1.508%
52	1.900%	1.628%	1.628%	1.590%
53	2.000%	1.742%	1.742%	1.672%
54	2.250%	1.866%	1.866%	1.754%
55	2.500%	2.000%	2.000%	1.836%
56	2.500%	2.100%	2.000%	1.918%
57	2.500%	2.200%	2.000%	2.000%
58	2.500%	2.300%	2.000%	2.000%
59	2.500%	2.400%	2.000%	2.000%
60 & Up	2.500%	2.500%	2.000%	2.000%

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.
- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For some new members hired after July 1, 2006, and for all new members hired on or after January 15, 2011, final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPRAs members have a cap on the annual salary used to calculate final compensation based on the Social Security Contribution and Benefit Base. For employees who participate in Social Security this cap is \$134,974 for 2022 and for those employees who do not participate in Social Security the cap for 2022 is \$161,969. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- The employees in this group are not covered by Social Security. The final compensation is not offset by a dollar amount.
- The Service Retirement benefit for Classic members is capped at 80% of final compensation.

Appendix B – Principal Plan Provisions

State Safety (continued)

Vested Deferred Retirement

Eligibility for Deferred Status

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

Eligibility to Start Receiving Benefits

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

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

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

Appendix B – Principal Plan Provisions

State Safety (continued)

Industrial (Job-Related) Disability Retirement

Eligibility

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

Benefit

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

For retirement allowances with respect to service earned by employment in this group, 50% of the retirement allowance will automatically be continued to certain statutory beneficiaries upon the death of the retiree, *without* a reduction in the retiree's allowance. This additional benefit is often referred to as *post-retirement survivor allowance* (PRSA) or simply as *survivor continuance*.

In other words, 50% of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 50% of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. The retiree may choose to provide for some of this *option portion* to be paid to any designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Appendix B – Principal Plan Provisions

State Safety (continued)

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

An employee's beneficiary (or estate) will receive the Group Term Life Insurance benefit if the member dies while actively employed. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. This benefit is in addition to other pre-retirement death benefits.

Benefit

The benefit is a lump sum payment of \$5,000 plus an additional amount equal to 50% of the annual compensation earned by the deceased member during the 12 months immediately preceding the member's death. The additional amount will not be paid if the member is eligible for service retirement or the Alternate Death Benefit.

For members with less than 20 years of service credit and not age-eligible to retire:

Basic Death Benefit

Eligibility

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

Benefit

The Basic Death Benefit is a lump sum in the amount of the member's accumulated contributions, where interest is the greater of 6% or the prevailing discount rate. In addition, a lump sum in the amount of six months' salary shall be paid only if the member is eligible for service retirement or eligible for the Alternate Death Benefit. For purposes of this benefit, one month's salary is defined as the member's average monthly full-time rate of compensation during the 12 months preceding death.

Special Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Safety (continued)

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

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

For members with more than 20 years of service credit and not age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

Alternate Death Benefit

Eligibility

This benefit may be received in lieu of the lump sum Basic Death Benefit if there is a surviving spouse or minor child of the member. The member must have died before reaching the minimum retirement age and must have been credited with at least 20 years of state service.

Benefit

The Alternate Death Benefit is calculated as though the member were the minimum retirement age and elected an optional form of benefit that provided 100% continuance to the member's spouse. If the member did not have a spouse at the time of death, one-half of the formula benefit would be paid to the surviving child. If the benefit is payable to a surviving child, the benefit will be discontinued upon death or the attainment of age 18.

For members who are age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

1957 Survivor Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Safety (continued)

Optional Settlement 2W Death Benefit

Eligibility

An employee's *eligible survivor* may receive the Optional Settlement 2W Death benefit if the member dies while actively employed, has attained at least age 50, and has at least five years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the 1957 Survivor benefit.

Benefit

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

Cost-of-Living Adjustments

Retirement and survivor allowances are adjusted each year in May for cost of living, beginning the second calendar year after the year of retirement. The standard cost-of-living adjustment (COLA) is 2%. Annual adjustments are calculated by first determining the lesser of 1) 2% compounded from the end of the year of retirement or 2) actual rate of inflation. The resulting increase is divided by the total increase provided in prior years. For any particular year, the COLA adjustment may be less than 2% (when the rate of inflation is low), may be greater than the rate of inflation (when the rate of inflation is low after several years of high inflation) or may even be greater than 2% (when inflation is high after several years of low inflation).

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

The active population is subject to the following schedule:

- The percent contributed below the monthly compensation breakpoint is 0%.
- The monthly compensation breakpoint is \$317.
- The percent contributed above the monthly compensation breakpoint is 11%, or half of the normal cost, depending on bargaining unit.

Appendix B – Principal Plan Provisions

State Safety (continued)

Refund of Employee Contributions

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

1959 Survivor Benefits Program

For these benefits, please refer to the 1959 Survivor Benefit Program Actuarial Valuation Report available on our website.

State Peace Officers and Firefighters

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

RETIREMENT PROGRAM

Service Retirement

Eligibility

Members become eligible for Service Retirement upon attainment of age 50 with at least five years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements).

Benefit

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

- The *benefit factor* for this group of employees comes from either the **3% at 55** or the **3% at 50** benefit factor table. New Classic members, except firefighters, hired on or after January 15, 2011, are subject to the **2.5% at 55** Safety benefit factor table. New Classic firefighters hired on or after October 31, 2010, are subject to the **3% at 55** benefit factor table. The factor depends on the member's age at retirement. PEPRA members are subject to the **2.5% at 57** or **2.7% at 57** benefit factor table. Listed below are the factors for retirement at whole year ages:

Retirement Age	3% @ 50 Factor	3% @ 55 Factor	2.5% @ 55 Factor	2.5% @ 57 Factor	2.7% @ 57 Factor
50	3.000%	2.400%	2.000%	2.000%	2.000%
51	3.000%	2.520%	2.100%	2.071%	2.100%
52	3.000%	2.640%	2.200%	2.143%	2.200%
53	3.000%	2.760%	2.300%	2.214%	2.300%
54	3.000%	2.880%	2.400%	2.286%	2.400%
55	3.000%	3.000%	2.500%	2.357%	2.500%
56	3.000%	3.000%	2.500%	2.429%	2.600%
57 & Up	3.000%	3.000%	2.500%	2.500%	2.700%

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For some new members hired after January 1, 2007, and for all new members hired on or after January 15, 2011, final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPRA members have a cap on the annual salary used to calculate final compensation based on the Social Security Contribution and Benefit Base. For employees who participate in Social Security this cap is \$134,974 for 2022 and for those employees who do not participate in Social Security the cap for 2022 is \$161,969. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- The employees in this group are not covered by Social Security. The final compensation is not offset by a dollar amount.
- The Service Retirement benefit for Classic members is capped at 90% of final compensation.

Vested Deferred Retirement

Eligibility for Deferred Status

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

Eligibility to Start Receiving Benefits

Members become eligible to receive the deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 50.

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

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

Industrial (Job-Related) Disability Retirement

Eligibility

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

Benefit

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

For retirement allowances with respect to service earned by employment in this group, 50% of the retirement allowance will automatically be continued to certain statutory beneficiaries upon the death of the retiree, without a reduction in the retiree's allowance. This additional benefit is often referred to as *post retirement survivor allowance* (PRSA) or simply as *survivor continuance*. In other words, 50% of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 50% of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. The retiree may choose to provide for some of this *option portion* to be paid to any designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

An employee's beneficiary (or estate) will receive the Group Term Life Insurance benefit if the member dies while actively employed. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. This benefit is in addition to other pre-retirement death benefits.

Benefit

The benefit is a lump sum payment of \$5,000 plus an additional amount equal to 50% of the annual compensation earned by the deceased member during the 12 months immediately preceding the member's death. The additional amount will not be paid if the member is eligible for service retirement or the Alternate Death Benefit.

For members with less than 20 years of service credit and not age-eligible to retire:

Basic Death Benefit

Eligibility

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

Benefit

The Basic Death Benefit is a lump sum in the amount of the member's accumulated contributions, where interest is the greater of 6% or the prevailing discount rate. In addition, a lump sum in the amount of six months' salary shall be paid only if the member is eligible for service retirement or eligible for the Alternate Death Benefit. For purposes of this benefit, one month's salary is defined as the member's average monthly full-time rate of compensation during the 12 months preceding death.

Special Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

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

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

For members with more than 20 years of service credit and not age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

Alternate Death Benefit

Eligibility

This benefit may be received in lieu of the lump sum Basic Death Benefit if there is a surviving spouse or minor child of the member. The member must have died before reaching the minimum retirement age and must have been credited with at least 20 years of state service.

Benefit

The Alternate Death Benefit is calculated as though the member were the minimum retirement age and elected an optional form of benefit that provided 100% continuance to the member's spouse. If the member did not have a spouse at the time of death, one-half of the formula benefit would be paid to the surviving child. If the benefit is payable to a surviving child, the benefit will be discontinued upon death or the attainment of age 18.

For members who are age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

1957 Survivor Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

Optional Settlement 2W Death Benefit

Eligibility

An employee's *eligible survivor* may receive the Optional Settlement 2W Death benefit if the member dies while actively employed, has attained at least age 50, and has at least five years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the 1957 Survivor benefit.

Benefit

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

Cost-of-Living Adjustments

Retirement and survivor allowances are adjusted each year in May for cost of living, beginning the second calendar year after the year of retirement. The standard cost-of-living adjustment (COLA) is 2%. Annual adjustments are calculated by first determining the lesser of 1) 2% compounded from the end of the year of retirement or 2) actual rate of inflation. The resulting increase is divided by the total increase provided in prior years. For any particular year, the COLA adjustment may be less than 2% (when the rate of inflation is low), may be greater than the rate of inflation (when the rate of inflation is low after several years of high inflation) or may even be greater than 2% (when inflation is high after several years of low inflation).

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

Most of the active population has a monthly compensation breakpoint of \$238, \$513, or \$863 and is subject to the following schedule:

- The percent contributed below the monthly compensation breakpoint is 0%.
- The percent contributed above the monthly compensation breakpoint is 13%.

A small portion of the Classic members have a monthly compensation breakpoint of \$238 and are subject to the following schedule:

- The percent contributed below the monthly compensation breakpoint is 0%.
- The percent contributed above the monthly compensation breakpoint is 8%.

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

A small portion of the PEPRA members have a monthly compensation breakpoint of \$0 and are subject to the following schedule:

- The percent contributed below the monthly compensation breakpoint is 0%.
- The percent contributed above the monthly compensation breakpoint is half of the total normal cost. See the “PEPRA Member Contribution Rates” section of this report for more information.

Refund of Employee Contributions

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

1959 Survivor Benefits Program

For these benefits, please refer to the 1959 Survivor Benefit Program Actuarial Valuation Report available on our website.

California Highway Patrol

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

RETIREMENT PROGRAM

Service Retirement

Eligibility

Members become eligible for Service Retirement upon attainment of age 50 with at least five years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements).

Benefit

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

- The *benefit factor* for this group of employees is **3% at 50**. Classic members hired on or after October 31, 2010, are subject to the **3% at 55** benefit factor table. PEPRA members are subject to the **2.7% at 57** benefit factor table.

Retirement Age	3% @ 50 Factor	3% @ 55 Factor	2.7% @ 57 Factor
50	3.000%	2.400%	2.000%
51	3.000%	2.520%	2.100%
52	3.000%	2.640%	2.200%
53	3.000%	2.760%	2.300%
54	3.000%	2.880%	2.400%
55	3.000%	3.000%	2.500%
56	3.000%	3.000%	2.600%
57 & Up	3.000%	3.000%	2.700%

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer’s contract with CalPERS including service at the CHP Academy for graduating members). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer’s contract, and then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.

Appendix B – Principal Plan Provisions

California Highway Patrol (continued)

- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). The *final compensation* for an employee hired on or after October 31, 2010, is the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPRA members have a cap on the annual salary used to calculate final compensation based on the Social Security Contribution and Benefit Base. For employees who participate in Social Security this cap is \$134,974 for 2022 and for those employees who do not participate in Social Security the cap for 2022 is \$161,969. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- The employees in this group are not covered by Social Security. The final compensation is not offset by a dollar amount.
- The Service Retirement benefit for Classic members is capped at 90% of final compensation.

Vested Deferred Retirement

Eligibility for Deferred Status

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

Eligibility to Start Receiving Benefits

Members become eligible to receive the deferred retirement benefit upon satisfying the eligibility requirements for Deferred Status and upon attainment of age 50.

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

Appendix B – Principal Plan Provisions

California Highway Patrol (continued)

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

Industrial (Job-Related) Disability Retirement

Eligibility

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

Benefit

The Industrial Disability Retirement benefit is a monthly allowance equal to 50% of final compensation. For members who, as a result of a single event, incur serious bodily injury, the benefit provided is equal to the greater of 50% of final compensation, or, 3% of final compensation multiplied by the number of years of service credited to the member, plus an annuity purchased with the accumulated additional contributions, if any. However, if a member is eligible for Service Retirement and if the Service Retirement benefit is more than the Industrial Disability Retirement benefit, the member may choose to receive the larger benefit, plus an annuity purchased with the accumulated additional contributions, if any. For a CalPERS member not actively employed in this group who became disabled while employed by some other CalPERS employer, the benefit is a return or annuitization of the accumulated member contributions with respect to employment in this group.

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

For retirement allowances with respect to service earned by employment in this group, 50% of the retirement allowance will automatically be continued to certain statutory beneficiaries upon the death of the retiree, *without* a reduction in the retiree's allowance. This additional benefit is often referred to as *post retirement survivor allowance* (PRSA) or simply as *survivor continuance*.

In other words, 50% of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 50% of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. The retiree may choose to provide for some of this option portion to be paid to any designated beneficiary after the retiree's death. Benefit options applicable to the option portion are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the option portion.

Appendix B – Principal Plan Provisions

California Highway Patrol (continued)

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

An employee's beneficiary (or estate) will receive the Group Term Life Insurance benefit if the member dies while actively employed. A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. This benefit is in addition to other pre-retirement death benefits.

Benefit

The benefit is a lump sum payment of \$5,000 plus an additional amount equal to 50% of the annual compensation earned by the deceased member during the 12 months immediately preceding the member's death. The additional amount will not be paid if the member is eligible for service retirement or the Alternate Death Benefit.

For members with less than 20 years of service credit and not age-eligible to retire:

Basic Death Benefit

Eligibility

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

Benefit

The Basic Death Benefit is a lump sum in the amount of the member's accumulated contributions, where interest is the greater of 6% or the prevailing discount rate. In addition, a lump sum in the amount of six months' salary shall be paid only if the member is eligible for service retirement or eligible for the Alternate Death Benefit. For purposes of this benefit, one month's salary is defined as the member's average monthly full-time rate of compensation during the 12 months preceding death.

Special Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

California Highway Patrol (continued)

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

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

For members with more than 20 years of service credit and not age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

Alternate Death Benefit

Eligibility

This benefit may be received in lieu of the lump sum Basic Death Benefit if there is a surviving spouse or minor child of the member. The member must have died before reaching the minimum retirement age and must have been credited with at least 20 years of state service.

Benefit

The Alternate Death Benefit is calculated as though the member were the minimum retirement age and elected an optional form of benefit that provided 100% continuance to the member's spouse. If the member did not have a spouse at the time of death, one-half of the formula benefit would be paid to the surviving child. If the benefit is payable to a surviving child, the benefit will be discontinued upon death or the attainment of age 18.

For members who are age-eligible to retire:

In addition to the above pre-retirement death benefits, members are eligible for:

1957 Survivor Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

California Highway Patrol (continued)

Optional Settlement 2W Death Benefit

Eligibility

An employee's *eligible survivor* may receive the Optional Settlement 2W Death benefit if the member dies while actively employed, has attained at least age 50, and has at least five years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member who is no longer actively employed with any CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the 1957 Survivor Benefit.

Benefit

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

Cost-of-Living Adjustments

Retirement and survivor allowances are adjusted each year in May for cost of living, beginning the second calendar year after the year of retirement. The standard cost-of-living adjustment (COLA) is 2%. Annual adjustments are calculated by first determining the lesser of 1) 2% compounded from the end of the year of retirement or 2) actual rate of inflation. The resulting increase is divided by the total increase provided in prior years. For any particular year, the COLA adjustment may be less than 2% (when the rate of inflation is low), may be greater than the rate of inflation (when the rate of inflation is low after several years of high inflation) or may even be greater than 2% (when inflation is high after several years of low inflation).

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

- The percent contributed below the monthly compensation breakpoint is 0%.
- The monthly compensation breakpoint is \$863.
- The percent contributed above the monthly compensation breakpoint is 13.5%. This rate was originally scheduled to increase 1%/year until it reached 50% of normal cost, but this gradual increase has been temporarily suspended.

Refund of Employee Contributions

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

1959 Survivor Benefits Program

For these benefits, please refer to the 1959 Survivor Benefit Program Actuarial Valuation Report available on our website.

Appendix C – Participant Data

Source of Participant Information

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

- Individual member and beneficiary information,
- Employment and payroll information,
- Accumulated contributions with interest,
- Service information,
- Benefit payment information,
- Information about the various organizations which contract with CalPERS, and
- Detailed information about the plan provisions applicable to each group of members.

Data Validation

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

Checks on the data included:

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

As a result of the tests on the data, a number of adjustments were determined to be necessary, such as dates of hire and dates of entry being adjusted to be consistent with the service fields, the date of birth and each other.

Appendix C – Participant Data

Data Statement

The data does not contain information about reciprocal systems and hence salary information for separated participants covered by reciprocal systems may not be up to date. This situation is not expected to have a material impact on the employer contribution rates since the total present value for all separated participants represents less than 2% of the present value of benefits for all members. We are unaware of any other data issues that would have a material effect on the results of this valuation.

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

Reconciliation of Participants

State Miscellaneous¹

	Active	Transfer	Separated	Receiving	Total
As of June 30, 2021	178,955	29,331	68,270	206,393	482,949
Retirement	(6,315)	(1,677)	(754)	8,746	-
Industrial Disabilities	(2)	(65)	(1)	68	-
Non-Industrial Disabilities	(136)	(43)	(20)	199	-
Deaths ²	(369)	(52)	(115)	(7,309)	(7,845)
New Survivors	n/a	n/a	n/a	1,788	1,788
Non-Vested Separations ³	(5,234)	(354)	5,588	-	-
Vested Separations	(2,597)	(500)	3,097	-	-
Refunds of Contributions	(685)	(78)	(1,044)	-	(1,807)
Transfer	(1,531)	2,513	(956)	(26)	-
Redeposits/Rehires	2,170	(531)	(1,580)	(59)	-
First Year in Status	16,004	488	1,168	29	17,689
Data Corrections ⁴	223	(4,010)	1,674	(156)	(2,269)
As of June 30, 2022	180,483	25,022	75,327	209,673	490,505

(1) Includes State Miscellaneous Tier 1 and Tier 2.

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

(3) Includes non-vested separated participants with employee contributions left in the plan.

(4) May include the combining of data records into a single record.

Appendix C – Participant Data

Reconciliation of Participants (continued)

State Industrial

	Active	Transfer	Separated	Receiving	Total
As of June 30, 2021	11,525	7,710	4,043	16,788	40,066
Retirement	(380)	(374)	(51)	801	(4)
Industrial Disabilities	-	(17)	-	20	3
Non-Industrial Disabilities	(21)	(11)	(7)	40	1
Deaths ¹	(21)	(20)	(7)	(398)	(446)
New Survivors	n/a	n/a	n/a	109	109
Non-Vested Separations ²	(272)	(50)	322	-	-
Vested Separations	(180)	(124)	306	(2)	-
Refunds of Contributions	(69)	(18)	(85)	-	(172)
Transfer	(653)	804	(148)	(3)	-
Redeposits/Rehires	183	(127)	(53)	(3)	-
First Year in Status	1,277	86	73	33	1,469
Data Corrections ³	(60)	(1)	(7)	(29)	(97)
As of June 30, 2022	11,329	7,858	4,386	17,356	40,929

(1) Includes both deaths without survivors and deaths with survivors receiving a benefit.

(2) Includes non-vested separated participants with employee contributions left in the plan.

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

State Safety

	Active	Transfer	Separated	Receiving	Total
As of June 30, 2021	28,451	5,545	8,971	29,168	72,135
Retirement	(971)	(212)	(108)	1,273	(18)
Industrial Disabilities	(155)	(15)	(14)	202	18
Non-Industrial Disabilities	(29)	(7)	(3)	39	-
Deaths ¹	(65)	(12)	(14)	(848)	(939)
New Survivors	n/a	n/a	n/a	268	268
Non-Vested Separations ²	(897)	(65)	963	(1)	-
Vested Separations	(776)	(114)	893	(3)	-
Refunds of Contributions	(236)	(27)	(241)	-	(504)
Transfer	(534)	679	(139)	(6)	-
Redeposits/Rehires	304	(85)	(212)	(7)	-
First Year in Status	2,186	82	241	128	2,637
Data Corrections ³	(67)	(4)	(37)	(11)	(119)
As of June 30, 2022	27,211	5,765	10,300	30,202	73,478

(1) Includes both deaths without survivors and deaths with survivors receiving a benefit.

(2) Includes non-vested separated participants with employee contributions left in the plan.

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

Appendix C – Participant Data

Reconciliation of Participants (continued)

State Peace Officers and Firefighters

	Active	Transfer	Separated	Receiving	Total
As of June 30, 2021	41,242	5,285	8,085	45,937	100,549
Retirement	(1,285)	(169)	(139)	1,544	(49)
Industrial Disabilities	(293)	(39)	(22)	413	59
Non-Industrial Disabilities	(15)	(2)	(2)	9	(10)
Deaths ¹	(67)	(6)	(10)	(852)	(935)
New Survivors	n/a	n/a	n/a	427	427
Non-Vested Separations ²	(767)	(56)	824	(1)	0
Vested Separations	(337)	(85)	426	(4)	0
Refunds of Contributions	(125)	(9)	(122)	0	(256)
Transfer	(367)	580	(210)	(3)	0
Redeposits/Rehires	271	(27)	(241)	(3)	0
First Year in Status	3,163	220	248	191	3822
Data Corrections ³	(54)	(176)	(52)	(60)	(342)
As of June 30, 2022	41,366	5,516	8,785	47,598	103,265

(1) Includes both deaths without survivors and deaths with survivors receiving a benefit.

(2) Includes non-vested separated participants with employee contributions left in the plan.

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

California Highway Patrol

	Active	Transfer	Separated	Receiving	Total
As of June 30, 2021	6,662	250	562	9,786	17,260
Retirement	(210)	(11)	(22)	241	(2)
Industrial Disabilities	(90)	(4)	(1)	99	4
Non-Industrial Disabilities	-	-	-	(2)	(2)
Deaths ¹	(5)	-	(1)	(316)	(322)
New Survivors	n/a	n/a	n/a	124	124
Non-Vested Separations ²	(14)	(2)	16	-	-
Vested Separations	(68)	(5)	73	-	-
Refunds of Contributions	(10)	-	(26)	-	(36)
Transfer	(13)	19	(6)	-	-
Redeposits/Rehires	7	-	(6)	(1)	-
First Year in Status	385	2	18	24	429
Data Corrections ³	(1)	1	(3)	(4)	(7)
As of June 30, 2022	6,643	250	604	9,951	17,448

(1) Includes both deaths without survivors and deaths with survivors receiving a benefit.

(2) Includes non-vested separated participants with employee contributions left in the plan.

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

Appendix C – Participant Data

Active Members – State Miscellaneous

Distribution of Active Members by Age and Years of Service

State Miscellaneous – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	2,861	7	0	0	0	0	2,868	\$132,322,423
25 - 29	11,120	1,395	2	0	0	0	12,517	705,171,459
30 - 34	12,783	6,995	807	13	0	0	20,598	1,369,041,551
35 - 39	10,164	8,435	4,261	786	94	2	23,742	1,813,613,901
40 - 44	7,686	6,953	4,910	3,007	1,310	80	23,946	1,971,975,677
45 - 49	5,762	5,066	4,082	3,454	3,889	830	23,083	1,995,162,480
50 - 54	4,759	4,402	3,736	3,719	5,156	3,819	25,591	2,281,534,461
55 - 59	3,532	3,521	3,147	2,878	4,274	5,527	22,879	2,057,271,373
60 - 64	2,232	2,720	2,377	2,097	2,996	3,771	16,193	1,434,215,557
65 and over	1,208	1,630	1,489	1,288	1,511	1,940	9,066	798,978,653
Total	62,107	41,124	24,811	17,242	19,230	15,969	180,483	\$14,559,287,539

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

Distribution of Average Annual Salaries by Age and Years of Service

State Miscellaneous – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+	
15 - 24	\$46,131	\$48,816	\$0	\$0	\$0	\$0	\$46,138
25 - 29	55,209	65,307	71,585	0	0	0	56,337
30 - 34	61,875	72,979	82,534	76,786	0	0	66,465
35 - 39	67,102	79,651	88,766	91,172	102,245	112,896	76,388
40 - 44	68,076	82,756	93,104	92,749	97,849	114,064	82,351
45 - 49	67,898	80,992	92,898	96,027	101,017	108,295	86,434
50 - 54	66,931	79,155	89,953	94,868	101,910	104,804	89,154
55 - 59	65,056	77,786	86,647	91,786	98,949	107,448	89,920
60 - 64	64,216	75,118	83,119	88,943	99,949	106,876	88,570
65 and over	59,466	74,242	84,248	88,980	101,677	109,507	88,129
Average	\$62,743	\$77,987	\$89,198	\$92,874	\$100,473	\$107,009	\$80,668

Appendix C – Participant Data

Active Members – State Industrial

Distribution of Active Members by Age and Years of Service

State Industrial – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	256	0	0	0	0	0	256	\$10,400,787
25 - 29	760	123	0	0	0	0	883	42,747,895
30 - 34	885	476	72	4	1	0	1,438	83,463,323
35 - 39	654	587	323	51	1	0	1,616	112,343,088
40 - 44	492	438	393	185	61	0	1,569	114,940,477
45 - 49	408	391	334	206	146	40	1,525	119,937,495
50 - 54	339	339	329	229	197	171	1,604	126,076,520
55 - 59	242	284	271	213	149	159	1,318	103,482,429
60 - 64	118	188	164	131	90	84	775	57,249,166
65 and over	40	93	84	61	36	31	345	26,808,682
Total	4,194	2,919	1,970	1,080	681	485	11,329	\$797,449,866

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

Distribution of Average Annual Salaries by Age and Years of Service

State Industrial – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+	
15 - 24	\$40,628	\$0	\$0	\$0	\$0	\$0	\$40,628
25 - 29	47,281	55,402	0	0	0	0	48,412
30 - 34	52,733	65,259	74,410	70,921	90,632	0	58,041
35 - 39	62,582	72,965	75,915	78,088	80,868	0	69,519
40 - 44	64,717	75,932	78,626	77,439	75,659	0	73,257
45 - 49	72,090	81,824	78,804	80,876	82,558	87,428	78,648
50 - 54	75,893	78,747	79,715	78,818	77,243	82,816	78,601
55 - 59	73,247	82,588	80,402	75,990	76,930	80,909	78,515
60 - 64	74,468	77,132	72,479	71,913	70,800	74,785	73,870
65 and over	69,386	77,016	85,330	73,429	75,587	80,733	77,706
Average	\$59,657	\$74,605	\$78,258	\$77,211	\$77,258	\$81,047	\$70,390

Appendix C – Participant Data

Active Members – State Safety

Distribution of Active Members by Age and Years of Service

State Safety – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	326	1	0	0	0	0	327	\$15,073,820
25 - 29	1,293	172	1	0	0	0	1,466	90,434,713
30 - 34	1,880	952	95	2	0	0	2,929	215,926,575
35 - 39	1,759	1,394	497	124	1	0	3,775	311,449,954
40 - 44	1,359	1,238	812	452	51	0	3,912	335,101,176
45 - 49	1,146	1,125	763	726	171	8	3,939	360,088,204
50 - 54	959	1,067	768	790	327	106	4,017	379,236,522
55 - 59	736	871	603	678	241	89	3,218	294,692,556
60 - 64	410	635	508	476	189	80	2,298	214,307,965
65 and over	143	356	305	307	154	65	1,330	144,228,867
Total	10,011	7,811	4,352	3,555	1,134	348	27,211	\$2,360,540,355

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

Distribution of Average Annual Salaries by Age and Years of Service

State Safety – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+	
15 - 24	\$46,021	\$70,878	\$0	\$0	\$0	\$0	\$46,097
25 - 29	60,808	68,278	65,775	0	0	0	61,688
30 - 34	71,424	77,464	81,616	75,166	0	0	73,720
35 - 39	76,460	87,597	90,047	80,837	68,567	0	82,503
40 - 44	77,610	87,291	95,707	87,295	86,093	0	85,660
45 - 49	76,704	90,419	103,702	101,241	99,680	99,146	91,416
50 - 54	78,890	88,965	108,988	101,092	103,668	105,577	94,408
55 - 59	76,219	89,130	104,062	95,978	100,567	100,040	91,576
60 - 64	74,747	88,841	104,136	96,437	107,851	100,736	93,258
65 and over	89,364	95,376	125,826	111,406	116,879	106,433	108,443
Average	\$73,015	\$87,106	\$102,744	\$97,939	\$104,078	\$103,060	\$86,749

Appendix C – Participant Data

Active Members – State Peace Officers and Firefighters

Distribution of Active Members by Age and Years of Service State Peace Officers and

Firefighters – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	1,855	1	0	0	0	0	1,856	\$95,933,781
25 - 29	3,963	902	0	0	0	0	4,865	343,748,123
30 - 34	3,042	3,426	201	1	0	0	6,670	569,303,403
35 - 39	1,576	2,400	1,774	774	2	0	6,526	629,585,992
40 - 44	678	1,215	1,656	2,461	692	1	6,703	702,949,839
45 - 49	355	629	1,089	1,974	2,329	581	6,957	776,796,382
50 - 54	226	353	660	1,177	1,244	930	4,590	521,333,239
55 - 59	105	177	348	590	468	412	2,100	233,199,667
60 - 64	35	71	131	238	193	190	858	93,990,193
65 and over	11	23	36	56	51	64	241	26,406,817
Total	11,846	9,197	5,895	7,271	4,979	2,178	41,366	\$3,993,247,438

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

Distribution of Average Annual Salaries by Age and Years of Service

State Peace Officers and Firefighters – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+	
15 - 24	\$51,668	\$89,774	\$0	\$0	\$0	\$0	\$51,688
25 - 29	65,865	91,713	0	0	0	0	70,657
30 - 34	71,897	96,103	105,644	110,803	0	0	85,353
35 - 39	75,953	97,698	107,039	110,213	108,988	0	96,473
40 - 44	78,436	98,469	106,057	110,466	119,245	123,919	104,871
45 - 49	84,619	99,318	107,876	109,712	118,792	126,627	111,657
50 - 54	91,234	104,361	109,559	109,792	118,381	123,736	113,580
55 - 59	98,023	106,328	108,564	107,344	115,425	118,823	111,047
60 - 64	86,642	105,467	108,156	105,966	113,713	116,499	109,546
65 and over	77,033	104,508	106,949	106,582	113,131	118,239	109,572
Average	\$68,655	\$97,227	\$107,267	\$109,695	\$118,177	\$122,785	\$96,535

Appendix C – Participant Data

Active Members – California Highway Patrol

Distribution of Active Members by Age and Years of Service

California Highway Patrol – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	79	0	0	0	0	0	79	\$6,579,204
25 - 29	442	157	0	0	0	0	599	67,526,990
30 - 34	358	424	61	0	0	0	843	104,651,054
35 - 39	174	372	555	190	0	0	1,291	171,353,363
40 - 44	32	167	462	458	229	0	1,348	189,110,198
45 - 49	2	37	263	356	599	268	1,525	226,071,288
50 - 54	0	0	27	151	355	293	826	127,115,169
55 - 59	0	1	0	16	25	90	132	21,539,494
60 - 64	0	0	0	0	0	0	0	0
65 and over	0	0	0	0	0	0	0	0
Total	1,087	1,158	1,368	1,171	1,208	651	6,643	\$913,946,760

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

Distribution of Average Annual Salaries by Age and Years of Service

California Highway Patrol – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+	
15 - 24	\$83,281	\$0	\$0	\$0	\$0	\$0	\$83,281
25 - 29	105,918	131,918	0	0	0	0	112,733
30 - 34	112,110	132,546	136,330	0	0	0	124,141
35 - 39	112,971	132,944	135,916	141,095	0	0	132,729
40 - 44	122,511	132,337	136,614	142,389	151,788	0	140,289
45 - 49	102,265	131,246	136,578	142,344	150,921	164,232	148,243
50 - 54	0	0	137,697	141,862	149,032	167,474	153,892
55 - 59	0	130,891	0	147,154	154,441	168,813	163,178
60 - 64	0	0	0	0	0	0	0
65 and over	0	0	0	0	0	0	0
Average	\$107,923	\$132,516	\$136,332	\$142,163	\$150,603	\$166,325	\$137,580

Appendix C – Participant Data

Transferred and Separated Participants - State Miscellaneous

Distribution by Age and Years of Service – Transfers to Other CalPERS Plans

State Miscellaneous – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	182	0	0	0	0	0	182	\$57,103
25 - 29	1,517	32	0	0	0	0	1,549	74,281
30 - 34	2,476	281	11	0	0	0	2,768	78,982
35 - 39	2,502	622	139	12	1	0	3,276	82,168
40 - 44	2,464	753	298	113	10	2	3,640	88,295
45 - 49	2,393	771	345	203	46	2	3,760	93,366
50 - 54	2,219	932	424	239	117	49	3,980	94,281
55 - 59	1,632	653	378	228	107	58	3,056	90,586
60 - 64	1,135	365	192	117	63	39	1,911	85,397
65 and over	601	164	76	35	15	9	900	83,106
Total	17,121	4,573	1,863	947	359	159	25,022	\$86,954

Distribution by Age and Years of Service – Separated Participants with Funds on Deposit

State Miscellaneous – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	836	0	0	0	0	0	836	\$37,038
25 - 29	4,918	131	0	0	0	0	5,049	40,316
30 - 34	7,806	869	30	0	0	0	8,705	44,501
35 - 39	8,605	1,549	279	20	0	0	10,453	48,478
40 - 44	8,934	1,789	529	120	16	1	11,389	49,760
45 - 49	7,159	1,848	719	292	88	5	10,111	53,703
50 - 54	6,343	1,895	841	312	131	43	9,565	54,716
55 - 59	5,164	1,478	714	226	96	46	7,724	52,054
60 - 64	4,392	934	494	170	57	28	6,075	47,473
65 and over	4,349	584	324	99	39	25	5,420	43,883
Total	58,506	11,077	3,930	1,239	427	148	75,327	\$48,987

Appendix C – Participant Data

Transferred and Separated Participants - State Industrial

Distribution by Age and Years of Service – Transfers to Other CalPERS Plans

State Industrial – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	26	0	0	0	0	0	26	\$41,492
25 - 29	287	10	0	0	0	0	297	50,356
30 - 34	646	76	4	0	0	0	726	61,968
35 - 39	847	190	45	3	0	0	1,085	73,738
40 - 44	834	231	66	16	2	0	1,149	83,752
45 - 49	806	239	105	39	8	2	1,199	87,420
50 - 54	955	291	150	47	23	15	1,481	89,423
55 - 59	723	199	102	24	25	9	1,082	87,538
60 - 64	394	105	50	15	8	1	573	83,177
65 and over	184	39	13	2	2	0	240	82,550
Total	5,702	1,380	535	146	68	27	7,858	\$81,026

Distribution by Age and Years of Service – Separated Participants with Funds on Deposit

State Industrial – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	46	0	0	0	0	0	46	\$34,903
25 - 29	244	11	0	0	0	0	255	38,503
30 - 34	439	42	1	0	0	0	482	41,542
35 - 39	442	81	18	0	0	0	541	47,529
40 - 44	415	88	34	9	0	0	546	47,138
45 - 49	390	94	33	20	8	1	546	49,121
50 - 54	478	115	37	17	6	6	659	46,978
55 - 59	381	81	28	10	3	1	504	42,251
60 - 64	290	57	11	1	1	0	360	40,469
65 and over	383	55	5	3	1	0	447	37,060
Total	3,508	624	167	60	19	8	4,386	\$44,028

Appendix C – Participant Data

Transferred and Separated Participants – State Safety

Distribution by Age and Years of Service – Transfers to Other CalPERS Plans

State Safety – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	38	0	0	0	0	0	38	\$50,282
25 - 29	290	3	0	0	0	0	293	58,953
30 - 34	560	62	4	0	0	0	626	71,353
35 - 39	643	156	35	3	0	0	837	81,982
40 - 44	633	203	66	10	0	0	912	89,501
45 - 49	642	198	82	20	1	0	943	93,271
50 - 54	587	179	89	30	11	1	897	96,767
55 - 59	428	133	58	27	6	0	652	96,381
60 - 64	252	80	38	16	2	3	391	93,355
65 and over	120	37	10	3	5	1	176	94,422
Total	4,193	1,051	382	109	25	5	5,765	\$87,565

Distribution by Age and Years of Service – Separated Participants with Funds on Deposit

State Safety – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	110	0	0	0	0	0	110	\$39,508
25 - 29	569	12	0	0	0	0	581	48,159
30 - 34	986	126	4	0	0	0	1,116	57,784
35 - 39	1,141	239	39	3	0	0	1,422	66,620
40 - 44	1,160	265	66	10	1	0	1,502	69,917
45 - 49	1,051	289	118	22	4	0	1,484	81,516
50 - 54	1,039	245	104	27	9	0	1,424	78,119
55 - 59	798	139	47	14	5	0	1,003	76,763
60 - 64	712	88	35	11	3	5	854	76,996
65 and over	694	45	36	20	4	5	804	80,067
Total	8,260	1,448	449	107	26	10	10,300	\$71,446

Appendix C – Participant Data

Transferred and Separated Participants - State Peace Officers and Firefighters

Distribution by Age and Years of Service – Transfers to Other CalPERS Plans

State Peace Officers and Firefighters – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	106	0	0	0	0	0	106	\$52,890
25 - 29	477	7	0	0	0	0	484	72,128
30 - 34	769	92	3	0	0	0	864	84,946
35 - 39	808	144	31	0	0	0	983	94,803
40 - 44	853	127	45	12	1	0	1,038	108,980
45 - 49	695	100	45	15	8	0	863	114,118
50 - 54	559	112	24	6	1	1	703	115,957
55 - 59	244	54	15	4	1	1	319	104,097
60 - 64	78	23	4	2	0	0	107	89,893
65 and over	37	7	2	2	0	1	49	81,206
Total	4,626	666	169	41	11	3	5,516	\$99,171

Distribution by Age and Years of Service – Separated Participants with Funds on Deposit

State Peace Officers and Firefighters – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	329	0	0	0	0	0	329	\$43,556
25 - 29	945	26	0	0	0	0	971	46,931
30 - 34	1,037	103	5	0	0	0	1,145	48,323
35 - 39	1,054	175	49	5	0	0	1,283	48,187
40 - 44	1,108	218	113	50	7	0	1,496	51,143
45 - 49	914	198	107	78	34	4	1,335	54,162
50 - 54	804	127	42	14	4	2	993	42,930
55 - 59	550	85	25	5	7	2	674	39,326
60 - 64	294	34	10	4	0	2	344	37,219
65 and over	185	18	6	3	2	1	215	39,355
Total	7,220	984	357	159	54	11	8,785	\$47,384

Appendix C – Participant Data

Transferred and Separated Participants - California Highway Patrol

Distribution by Age and Years of Service – Transfers to Other CalPERS Plans

California Highway Patrol – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	0	0	0	0	0	0	0	\$0
25 - 29	10	0	0	0	0	0	10	91,055
30 - 34	17	5	1	0	0	0	23	105,264
35 - 39	22	8	2	0	0	0	32	100,428
40 - 44	26	3	4	1	0	0	34	114,883
45 - 49	42	17	9	1	2	0	71	122,304
50 - 54	38	5	5	2	0	0	50	117,282
55 - 59	16	2	1	1	0	0	20	95,921
60 - 64	6	0	1	1	0	0	8	103,688
65 and over	2	0	0	0	0	0	2	104,004
Total	179	40	23	6	2	0	250	\$111,820

Distribution by Age and Years of Service – Separated Participants with Funds on Deposit

California Highway Patrol – As of June 30, 2022

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	0	0	0	0	0	0	0	\$0
25 - 29	23	2	0	0	0	0	25	85,636
30 - 34	42	17	0	0	0	0	59	91,486
35 - 39	35	22	24	1	0	0	82	99,864
40 - 44	38	37	26	15	5	0	121	105,969
45 - 49	59	51	33	22	14	2	181	102,066
50 - 54	46	19	12	0	5	3	85	83,361
55 - 59	21	8	1	0	0	2	32	71,538
60 - 64	7	5	2	0	0	0	14	60,186
65 and over	5	0	0	0	0	0	5	43,881
Total	276	161	98	38	24	7	604	\$95,133

Appendix C – Participant Data

Retired Members and Beneficiaries - State Miscellaneous

Number of Retirees and Beneficiaries - by Age and Retirement Type

State Miscellaneous – As of June 30, 2022

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	2	0	10	2	246	260
30-34	0	6	8	0	0	163	177
35-39	0	23	16	2	1	235	277
40-44	1	87	32	8	3	348	479
45-49	0	193	52	31	5	349	630
50-54	1,465	557	140	78	7	539	2,786
55-59	9,253	1,067	280	173	12	884	11,669
60-64	23,116	1,859	506	284	19	1,572	27,356
65-69	36,167	2,248	500	338	9	2,587	41,849
70-74	37,506	2,105	438	383	7	3,710	44,149
75-79	27,191	1,440	257	292	9	4,371	33,560
80-84	16,301	843	164	216	5	4,393	21,922
85 and Over	15,699	568	91	265	7	7,929	24,559
Total	166,699	10,998	2,484	2,080	86	27,326	209,673

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

Annual Allowance Amounts for Retirees and Beneficiaries - by Age and Retirement Type

State Miscellaneous – Annual Amounts Including PPPA Payments – As of June 30, 2022

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$7,428	\$0	\$93,727	\$43,459	\$2,187,053	\$2,331,666
30-34	0	53,004	1,637	0	0	1,912,672	1,967,313
35-39	0	263,689	8,974	49,499	172	2,321,801	2,644,135
40-44	20,712	1,172,353	41,306	165,470	405	4,122,582	5,522,828
45-49	0	2,965,218	63,336	805,766	90,241	5,311,441	9,236,001
50-54	19,355,592	9,557,959	592,309	1,784,660	8,345	8,532,663	39,831,529
55-59	298,987,654	17,996,320	1,221,561	4,968,576	137,568	15,600,894	338,912,573
60-64	881,626,775	33,295,670	2,852,950	7,892,695	266,994	30,903,278	956,838,362
65-69	1,402,882,946	41,233,216	2,513,434	9,472,976	50,394	61,559,418	1,517,712,386
70-74	1,432,651,363	38,833,638	2,224,271	11,977,436	180,980	100,197,443	1,586,065,132
75-79	1,054,134,794	27,054,031	1,633,994	8,957,737	25,311	128,144,330	1,219,950,197
80-84	638,183,276	16,319,445	908,677	6,998,214	8,301	140,781,635	803,199,549
85 and Over	566,954,049	9,471,307	495,242	7,928,278	11,505	248,883,473	833,743,852
Total	\$6,294,797,161	\$198,223,279	\$12,557,691	\$61,095,033	\$823,675	\$750,458,683	\$7,317,955,523

Appendix C – Participant Data

Retired Members and Beneficiaries - State Miscellaneous (continued)

Number of Retirees and Beneficiaries - by Years Retired and Retirement Type

State Miscellaneous – As of June 30, 2022

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	42,088	1,133	327	352	13	9,285	53,198
5 - 9	36,558	1,697	323	345	6	6,552	45,481
10 - 14	33,251	1,477	269	355	14	4,361	39,727
15 - 19	24,990	1,628	379	290	7	3,064	30,358
20 - 24	15,492	2,085	427	273	12	1,839	20,128
25 - 29	8,128	1,572	348	167	12	1,159	11,386
30 and over	6,192	1,406	411	298	22	1,066	9,395
Total	166,699	10,998	2,484	2,080	86	27,326	209,673

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

Annual Allowance Amounts for Retirees and Beneficiaries - by Years Retired and Retirement Type

State Miscellaneous – Annual Amounts Including PPPA Payments – As of June 30, 2022

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$1,688,768,420	\$19,340,451	\$1,476,784	\$10,657,104	\$235,608	\$278,500,266	\$1,998,978,634
5 - 9	1,353,706,392	29,450,512	1,992,509	9,620,649	132,481	190,391,566	1,585,294,110
10 - 14	1,332,790,445	27,356,223	1,949,245	11,075,678	141,586	116,684,284	1,489,997,461
15 - 19	945,011,147	31,343,348	2,543,365	8,325,630	158,251	77,886,471	1,065,268,212
20 - 24	578,673,682	40,117,695	2,518,782	8,373,378	116,949	44,815,234	674,615,721
25 - 29	246,444,286	29,711,149	1,358,123	5,212,329	23,163	24,550,259	307,299,309
30 and over	149,402,789	20,903,900	718,883	7,830,264	15,636	17,630,603	196,502,075
Total	\$6,294,797,161	\$198,223,279	\$12,557,691	\$61,095,033	\$823,675	\$750,458,683	\$7,317,955,523

Appendix C – Participant Data

Retired Members and Beneficiaries - State Industrial

Number of Retirees and Beneficiaries – by Age and Retirement Type

State Industrial – As of June 30, 2022

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	0	0	0	14	14
30-34	0	0	2	0	0	16	18
35-39	0	5	1	0	0	15	21
40-44	0	18	12	0	0	35	65
45-49	0	43	15	5	0	31	94
50-54	251	114	49	6	1	35	456
55-59	1,355	220	74	17	0	80	1,746
60-64	2,640	279	114	18	2	107	3,160
65-69	3,359	278	122	22	1	165	3,947
70-74	2,837	247	87	17	0	231	3,419
75-79	1,889	153	50	17	1	225	2,335
80-84	842	73	25	11	1	179	1,131
85 and Over	614	41	21	6	3	265	950
Total	13,787	1,471	572	119	9	1,398	17,356

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

Annual Allowance Amounts for Retirees and Beneficiaries – by Age and Retirement Type

State Industrial – Annual Amounts Including PPPA Payments – As of June 30, 2022

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$0	\$0	\$0	\$69,837	\$69,837
30-34	0	0	425	0	0	59,572	59,997
35-39	0	42,077	360	0	0	71,273	113,710
40-44	0	176,550	6,669	0	0	223,574	406,793
45-49	0	394,572	139,119	69,005	0	395,917	998,613
50-54	1,763,848	1,165,669	296,917	49,495	6,419	306,699	3,589,048
55-59	21,184,905	2,751,298	470,433	234,673	0	517,678	25,158,988
60-64	44,910,369	2,926,110	741,402	98,541	1,768	776,191	49,454,381
65-69	53,136,179	2,988,963	1,054,395	260,427	75	1,645,560	59,085,598
70-74	44,033,345	2,516,401	651,908	119,696	0	2,594,081	49,915,432
75-79	31,078,143	1,677,914	444,338	296,592	21,320	2,655,345	36,173,652
80-84	14,144,627	876,053	116,597	205,642	1,690	2,306,161	17,650,770
85 and Over	11,196,578	625,051	151,550	227,972	87,195	4,893,774	17,182,119
Total	\$221,447,994	\$16,140,658	\$4,074,114	\$1,562,044	\$118,467	\$16,515,661	\$259,858,938

Appendix C – Participant Data

Retired Members and Beneficiaries - State Industrial (continued)

Number of Retirees and Beneficiaries - by Years Retired and Retirement Type

State Industrial – As of June 30, 2022

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	4,125	206	97	32	0	525	4,985
5 - 9	3,439	330	103	22	3	353	4,250
10 - 14	2,989	231	77	19	0	217	3,533
15 - 19	1,761	233	104	21	1	156	2,276
20 - 24	934	260	90	11	0	70	1,365
25 - 29	348	131	57	9	0	50	595
30 and over	191	80	44	5	5	27	352
Total	13,787	1,471	572	119	9	1,398	17,356

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

Annual Allowance Amounts for Retirees and Beneficiaries - by Years Retired and Retirement Type

State Industrial – Annual Amounts Including PPPA Payments – As of June 30, 2022

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$73,052,653	\$2,512,901	\$773,398	\$285,534	\$0	\$6,734,353	\$83,358,838
5 - 9	53,356,688	3,698,166	684,588	355,145	6,987	4,183,095	62,284,669
10 - 14	47,499,337	2,602,409	699,270	360,225	0	2,320,859	53,482,100
15 - 19	26,841,541	2,496,689	843,774	350,772	1,275	1,919,008	32,453,058
20 - 24	14,030,688	2,780,421	572,546	86,549	0	738,564	18,208,768
25 - 29	4,179,077	1,276,456	327,766	85,037	0	362,950	6,231,285
30 and over	2,488,010	773,616	172,772	38,782	110,205	256,833	3,840,219
Total	\$221,447,994	\$16,140,658	\$4,074,114	\$1,562,044	\$118,467	\$16,515,661	\$259,858,938

Appendix C – Participant Data

Retired Members and Beneficiaries - State Safety

Number of Retirees and Beneficiaries - by Age and Retirement Type

State Safety – As of June 30, 2022

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	1	2	1	45	49
30-34	0	0	12	1	1	18	32
35-39	0	4	70	1	1	32	108
40-44	0	16	105	1	1	40	163
45-49	0	36	162	8	1	45	252
50-54	369	55	315	14	3	68	824
55-59	1,759	105	484	28	4	139	2,519
60-64	3,674	141	757	59	13	281	4,925
65-69	5,044	184	910	62	18	447	6,665
70-74	4,760	167	895	73	10	609	6,514
75-79	2,962	105	553	32	11	633	4,296
80-84	1,387	36	275	25	7	470	2,200
85 and Over	780	21	161	17	16	660	1,655
Total	20,735	870	4,700	323	87	3,487	30,202

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

Annual Allowance Amounts for Retirees and Beneficiaries - by Age and Retirement Type

State Safety – Annual Amounts Including PPPA Payments – As of June 30, 2022

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$33,810	\$9,087	\$33,330	\$356,068	\$432,296
30-34	0	0	403,820	79,115	51,411	182,767	717,112
35-39	0	22,913	2,349,816	37,605	36,221	352,846	2,799,401
40-44	0	296,155	3,486,924	20,236	21,636	494,802	4,319,754
45-49	0	621,055	5,570,136	301,961	60,699	587,289	7,141,140
50-54	6,186,468	759,905	11,217,350	445,905	102,909	721,979	19,434,516
55-59	49,899,433	1,358,535	16,084,476	661,814	172,883	2,363,547	70,540,689
60-64	99,296,081	2,331,900	24,998,854	1,249,839	656,224	4,983,203	133,516,102
65-69	141,967,881	2,955,882	29,836,339	1,351,826	465,865	9,092,303	185,670,096
70-74	129,329,429	2,740,756	27,727,014	1,386,342	325,216	12,605,824	174,114,580
75-79	77,677,145	1,452,908	16,647,809	586,216	389,114	12,653,925	109,407,116
80-84	34,293,240	795,604	8,660,503	544,979	265,694	8,859,802	53,419,823
85 and Over	17,439,982	406,418	5,100,881	378,318	514,666	12,012,412	35,852,678
Total	\$556,089,661	\$13,742,032	\$152,117,731	\$7,053,243	\$3,095,867	\$65,266,768	\$797,365,302

Appendix C – Participant Data

Retired Members and Beneficiaries - State Safety (continued)

Number of Retirees and Beneficiaries - by Years Retired and Retirement Type

State Safety – As of June 30, 2022

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	6,369	208	893	68	12	1,347	8,897
5 - 9	5,223	236	988	66	2	899	7,414
10 - 14	4,730	138	686	55	9	531	6,149
15 - 19	2,607	100	677	73	6	313	3,776
20 - 24	1,222	103	525	32	15	195	2,092
25 - 29	373	47	261	12	5	104	802
30 and over	211	38	670	17	38	98	1,072
Total	20,735	870	4,700	323	87	3,487	30,202

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

Annual Allowance Amounts for Retirees and Beneficiaries - by Years Retired and Retirement Type

State Safety – Annual Amounts Including PPPA Payments – As of June 30, 2022

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$200,824,068	\$4,273,732	\$34,324,885	\$2,109,736	\$599,613	\$27,717,981	\$269,850,014
5 - 9	145,310,070	4,132,960	36,694,626	1,515,472	58,717	16,707,373	204,419,218
10 - 14	132,517,027	2,594,415	25,202,685	1,114,652	571,572	9,485,868	171,486,219
15 - 19	49,776,754	1,095,478	19,544,243	1,279,279	204,354	5,629,822	77,529,930
20 - 24	19,526,483	983,398	14,205,432	535,307	422,817	2,795,647	38,469,084
25 - 29	4,780,632	371,350	6,546,982	187,898	189,021	1,338,122	13,414,006
30 and over	3,354,626	290,699	15,598,879	310,899	1,049,774	1,591,955	22,196,832
Total	\$556,089,661	\$13,742,032	\$152,117,731	\$7,053,243	\$3,095,867	\$65,266,768	\$797,365,302

Appendix C – Participant Data

Retired Members and Beneficiaries - State Peace Officers and Firefighters

Number of Retirees and Beneficiaries - by Age and Retirement Type

State Peace Officers and Firefighters – As of June 30, 2022

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	4	1	9	56	70
30-34	0	1	35	0	0	34	70
35-39	0	5	127	3	12	42	189
40-44	0	22	374	3	14	53	466
45-49	0	21	625	12	26	65	749
50-54	3,340	70	1,319	35	19	128	4,911
55-59	5,990	76	1,913	40	37	234	8,290
60-64	6,828	109	2,093	58	26	447	9,561
65-69	5,862	101	1,703	47	23	641	8,377
70-74	4,716	81	1,370	48	23	773	7,011
75-79	2,855	43	804	36	16	711	4,465
80-84	1,319	10	296	10	8	509	2,152
85 and Over	668	8	126	11	6	468	1,287
Total	31,578	547	10,789	304	219	4,161	47,598

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

Annual Allowance Amounts for Retirees and Beneficiaries - by Age and Retirement Type

State Peace Officers and Firefighters – Annual Amounts Including PPPA Payments – As of June 30, 2022

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$153,120	\$28,836	\$214,316	\$747,235	\$1,143,508
30-34	0	9,847	1,126,398	0	0	599,192	1,735,437
35-39	0	89,436	4,966,948	134,025	461,064	704,255	6,355,729
40-44	0	404,509	14,934,932	102,621	662,314	1,514,274	17,618,651
45-49	0	492,333	25,793,042	636,596	1,412,249	1,982,668	30,316,889
50-54	236,314,021	2,498,456	63,662,313	2,199,360	924,800	4,775,630	310,374,580
55-59	414,410,023	1,925,061	95,626,817	2,108,772	1,866,079	10,169,197	526,105,949
60-64	468,174,771	3,017,520	100,350,316	3,142,705	1,171,368	19,816,441	595,673,120
65-69	392,449,097	3,178,420	81,949,897	2,097,120	979,861	28,887,720	509,542,115
70-74	303,866,151	2,464,993	67,774,544	2,308,823	975,448	36,371,476	413,761,435
75-79	170,761,331	1,458,090	39,699,805	1,700,841	600,702	32,465,460	246,686,228
80-84	71,066,164	308,837	13,934,635	483,936	306,465	21,824,181	107,924,219
85 and Over	32,415,409	248,025	5,469,624	329,591	213,289	19,488,100	58,164,039
Total	\$2,089,456,968	\$16,095,528	\$515,442,394	\$15,273,226	\$9,787,954	\$179,345,830	\$2,825,401,899

Appendix C – Participant Data

Retired Members and Beneficiaries – State Peace Officers and Firefighters (continued)

Number of Retirees and Beneficiaries - by Years Retired and Retirement Type

State Peace Officers and Firefighters – As of June 30, 2022

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	8,828	99	1,860	66	58	1,710	12,621
5 - 9	7,614	116	2,073	54	24	1,069	10,950
10 - 14	7,541	91	1,382	44	25	633	9,716
15 - 19	4,276	68	1,673	64	53	387	6,521
20 - 24	2,037	103	1,759	41	21	188	4,149
25 - 29	834	53	1,086	21	13	116	2,123
30 and over	448	17	956	14	25	58	1,518
Total	31,578	547	10,789	304	219	4,161	47,598

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

Annual Allowance Amounts for Retirees and Beneficiaries - by Years Retired and Retirement Type

State Peace Officers and Firefighters – Annual Amounts Including PPPA Payments – As of June 30, 2022

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$584,788,815	\$4,133,625	\$105,155,139	\$3,851,514	\$2,720,956	\$78,672,681	\$779,322,730
5 - 9	495,438,101	3,385,658	105,942,496	2,747,721	1,234,266	48,308,183	657,056,424
10 - 14	539,978,727	3,096,633	75,099,689	2,415,192	1,336,685	25,975,685	647,902,610
15 - 19	286,965,600	1,853,142	81,217,030	3,146,155	2,358,947	14,393,580	389,934,453
20 - 24	117,767,387	2,312,043	73,279,786	1,645,077	792,492	6,844,145	202,640,932
25 - 29	41,912,773	1,035,264	43,140,441	971,759	536,560	3,541,687	91,138,484
30 and over	22,605,564	279,162	31,607,813	495,807	808,049	1,609,868	57,406,265
Total	\$2,089,456,968	\$16,095,528	\$515,442,394	\$15,273,226	\$9,787,954	\$179,345,830	\$2,825,401,899

Appendix C – Participant Data

Retired Members and Beneficiaries – California Highway Patrol

Number of Retirees and Beneficiaries - by Age and Retirement Type

California Highway Patrol – As of June 30, 2022

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	0	0	8	10	18
30-34	0	0	4	0	2	2	8
35-39	0	0	34	0	8	7	49
40-44	0	3	44	0	7	7	61
45-49	0	1	84	0	8	7	100
50-54	662	1	224	4	19	21	931
55-59	950	3	328	4	19	42	1,346
60-64	1,023	6	424	6	18	83	1,560
65-69	724	4	424	6	8	136	1,302
70-74	461	6	421	8	9	215	1,120
75-79	529	3	641	6	13	341	1,533
80-84	318	5	470	2	13	308	1,116
85 and Over	180	1	266	2	15	343	807
Total	4,847	33	3,364	38	147	1,522	9,951

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

Annual Allowance Amounts for Retirees and Beneficiaries - by Age and Retirement Type

California Highway Patrol – Annual Amounts Including PPPA Payments – As of June 30, 2022

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$0	\$0	\$244,635	\$192,095	\$436,729
30-34	0	0	241,124	0	161,615	20,336	423,075
35-39	0	0	2,048,079	0	587,108	105,044	2,740,230
40-44	0	57,910	2,522,099	0	613,535	149,172	3,342,716
45-49	0	37,840	4,739,170	0	578,959	40,139	5,396,108
50-54	67,588,728	8,310	18,953,608	369,941	1,450,161	1,084,501	89,455,248
55-59	104,120,540	55,457	28,108,405	237,958	1,382,792	2,985,595	136,890,746
60-64	110,636,878	106,174	31,792,334	561,527	1,107,061	5,440,022	149,643,997
65-69	73,335,432	77,557	32,489,054	492,079	441,711	7,676,766	114,512,600
70-74	39,240,973	328,056	31,250,882	603,426	267,238	9,642,672	81,333,245
75-79	34,488,981	108,514	42,260,479	340,003	411,474	13,647,921	91,257,372
80-84	17,652,527	128,268	24,396,422	103,684	426,739	11,670,158	54,377,797
85 and Over	8,636,207	41,490	12,246,778	43,755	440,270	11,372,083	32,780,582
Total	\$455,700,266	\$949,575	\$231,048,433	\$2,752,373	\$8,113,296	\$64,026,503	\$762,590,445

Appendix C – Participant Data

Retired Members and Beneficiaries – California Highway Patrol (continued)

Number of Retirees and Beneficiaries - by Years Retired and Retirement Type

California Highway Patrol – As of June 30, 2022

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	1,287	2	373	3	37	523	2,225
5 - 9	1,007	4	290	5	16	329	1,651
10 - 14	968	2	310	2	21	251	1,554
15 - 19	631	4	471	7	14	137	1,264
20 - 24	496	7	556	11	5	129	1,204
25 - 29	283	7	477	5	5	63	840
30 and over	175	7	887	5	49	90	1,213
Total	4,847	33	3,364	38	147	1,522	9,951

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

Annual Allowance Amounts for Retirees and Beneficiaries - by Years Retired and Retirement Type

California Highway Patrol – Annual Amounts Including PPPA Payments – As of June 30, 2022

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$137,738,293	\$79,308	\$35,022,817	\$317,456	\$2,719,140	\$25,995,148	\$201,872,161
5 - 9	106,240,265	63,000	27,455,761	424,396	1,213,360	14,289,409	149,686,191
10 - 14	103,059,400	180,988	31,119,489	184,959	1,306,604	11,230,673	147,082,114
15 - 19	51,714,262	228,835	41,702,162	586,846	900,957	4,835,236	99,968,298
20 - 24	33,458,587	196,413	40,031,145	814,068	262,778	3,831,831	78,594,822
25 - 29	15,442,366	114,936	25,097,447	278,220	223,777	1,681,687	42,838,434
30 and over	8,047,092	86,096	30,619,611	146,427	1,486,679	2,162,520	42,548,426
Total	\$455,700,266	\$949,575	\$231,048,433	\$2,752,373	\$8,113,296	\$64,026,503	\$762,590,445

Appendix C – Participant Data

Retired Members and Beneficiaries

Number Counts and Benefits - by Year of Retirement – As of June 30, 2022

State Miscellaneous

Year Retired	Total Retirement	Total Benefits	Average Benefits
2022 ¹	3,847	\$122,303,651	\$31,792
2021	10,536	381,882,792	36,246
2020	11,404	449,025,986	39,374
2019	10,539	399,423,923	37,900
2018	10,444	385,330,894	36,895
2017	9,863	366,869,770	37,197
2016	9,490	335,166,536	35,318
2015	9,399	331,107,300	35,228
2014	9,373	330,559,475	35,267
2013	8,104	269,175,629	33,215
2012	8,781	309,678,275	35,267
2011	8,668	302,385,780	34,885
2010	9,187	354,761,604	38,616
2009	7,870	318,282,028	40,442
2008	6,703	254,821,633	38,016
2007	6,338	227,743,708	35,933
2006	5,966	198,370,145	33,250
2005	6,623	236,090,137	35,647
2004	7,395	277,925,982	37,583
2003	5,169	175,380,693	33,929
2002	4,906	172,059,604	35,071
2001	4,828	187,097,875	38,753
2000	5,938	230,969,743	38,897
1999	2,451	58,799,196	23,990
1998	3,202	86,617,805	27,051
1997	3,023	81,534,630	26,971
1996	2,683	74,705,424	27,844
1995	2,261	64,770,201	28,647
1994	2,164	58,274,260	26,929
1993 and Earlier	12,518	276,840,842	22,115
Total	209,673	\$7,317,955,521	\$34,902

State Industrial

Year Retired	Total Retirement	Total Benefits	Average Benefits
2022 ¹	351	\$5,552,747	\$15,820
2021	1,000	16,515,035	16,515
2020	1,076	20,078,053	18,660
2019	1,026	16,849,829	16,423
2018	932	14,747,057	15,823
2017	890	13,704,528	15,398
2016	911	13,833,943	15,185
2015	891	13,076,045	14,676
2014	838	11,660,489	13,915
2013	742	10,279,321	13,854
2012	853	13,414,974	15,727
2011	765	11,021,671	14,407
2010	879	13,846,196	15,752
2009	734	11,075,040	15,089
2008	569	8,565,108	15,053
2007	461	6,815,819	14,785
2006	492	6,818,356	13,858
2005	476	7,530,815	15,821
2004	558	8,191,826	14,681
2003	376	4,723,017	12,561
2002	367	5,055,203	13,774
2001	334	5,093,732	15,251
2000	414	6,388,919	15,432
1999	152	1,560,254	10,265
1998	205	2,061,916	10,058
1997	176	1,933,630	10,987
1996	138	1,331,446	9,648
1995	133	1,371,482	10,312
1994	111	1,076,688	9,700
1993 and Earlier	506	5,685,800	11,237
Total	17,356	\$259,858,939	\$14,972

¹ The numbers for 2022 represent the first 6 months of the calendar year only.

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

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

Number Counts and Benefits - by Year of Retirement – As of June 30, 2022 (continued)

State Safety

Year Retired	Total Retirement	Total Benefits	Average Benefits
2022 ¹	732	\$22,365,144	\$30,553
2021	1,876	57,138,707	30,458
2020	1,999	62,505,857	31,269
2019	1,673	50,153,885	29,978
2018	1,680	50,193,954	29,877
2017	1,519	44,386,369	29,221
2016	1,538	44,607,894	29,004
2015	1,489	41,218,818	27,682
2014	1,502	39,551,411	26,332
2013	1,365	37,199,368	27,252
2012	1,493	39,918,316	26,737
2011	1,381	38,468,016	27,855
2010	1,492	46,430,594	31,120
2009	1,233	34,827,456	28,246
2008	941	24,300,588	25,824
2007	867	19,826,615	22,868
2006	810	15,757,523	19,454
2005	842	17,392,699	20,656
2004	837	17,668,506	21,109
2003	620	12,282,444	19,810
2002	569	11,010,777	19,351
2001	554	11,084,167	20,008
2000	588	11,717,388	19,928
1999	283	4,816,384	17,019
1998	299	4,430,541	14,818
1997	247	4,316,067	17,474
1996	190	3,010,396	15,844
1995	154	2,265,327	14,710
1994	167	2,788,697	16,699
1993 and Earlier	1,262	25,731,394	20,389
Total	30,202	\$797,365,302	\$26,401

State Peace Officers and Firefighters

Year Retired	Total Retirement	Total Benefits	Average Benefits
2022 ¹	977	\$56,937,446	\$58,278
2021	2,485	146,200,672	58,833
2020	3,246	216,434,503	66,677
2019	2,208	130,834,986	59,255
2018	2,295	140,335,698	61,148
2017	2,149	129,207,932	60,125
2016	2,049	119,526,057	58,334
2015	2,262	139,621,084	61,725
2014	2,203	131,192,213	59,552
2013	2,111	123,132,304	58,329
2012	2,396	149,946,814	62,582
2011	2,103	128,129,811	60,927
2010	2,287	150,795,504	65,936
2009	2,041	144,840,372	70,965
2008	1,446	100,626,487	69,590
2007	1,617	114,481,384	70,799
2006	1,817	124,159,900	68,332
2005	1,124	65,421,961	58,205
2004	1,282	69,512,226	54,222
2003	1,046	54,896,933	52,483
2002	1,129	61,231,447	54,235
2001	1,018	53,230,013	52,289
2000	1,284	72,989,079	56,845
1999	501	18,360,740	36,648
1998	560	21,010,806	37,519
1997	541	22,320,798	41,258
1996	484	21,915,474	45,280
1995	414	18,287,174	44,172
1994	387	15,529,504	40,128
1993 and Earlier	2,136	84,292,578	39,463
Total	47,598	\$2,825,401,900	\$59,360

¹ The numbers for 2022 represent the first 6 months of the calendar year only.

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

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

Number Counts and Benefits - by Year of Retirement – As of June 30, 2022 (continued)

California Highway Patrol

Year Retired	Total Retirement	Total Benefits	Average Benefits
2022 ¹	171	\$13,312,070	\$77,848
2021	475	40,561,954	85,394
2020	475	44,286,270	93,234
2019	435	40,560,922	93,243
2018	377	32,147,141	85,271
2017	392	38,829,998	99,056
2016	336	29,836,192	88,798
2015	388	36,090,877	93,018
2014	284	25,890,529	91,164
2013	293	25,140,075	85,802
2012	350	32,581,571	93,090
2011	348	33,169,804	95,316
2010	362	35,279,035	97,456
2009	335	33,499,440	99,998
2008	255	23,761,540	93,183
2007	260	22,061,176	84,851
2006	287	23,633,875	82,348
2005	326	28,336,395	86,921
2004	242	18,506,281	76,472
2003	177	11,711,251	66,165
2002	259	18,585,462	71,759
2001	265	20,280,149	76,529
2000	375	26,262,947	70,035
1999	134	6,916,700	51,617
1998	169	8,851,142	52,374
1997	190	10,046,772	52,878
1996	214	12,606,504	58,909
1995	171	9,092,565	53,173
1994	145	6,691,382	46,147
1993 and Earlier	1,461	54,060,427	37,002
Total	9,951	\$762,590,446	\$76,635

¹ The numbers for 2022 represent the first 6 months of the calendar year only.

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

Appendix D – Supplemental Pension Payments and Budget Act for FY 2023-24

Supplemental Pension Payments Pursuant to Proposition 2

In 2014, California voters passed Proposition 2, which amended the State Constitution to require certain funds be appropriated to repay specific State debts, including unfunded liabilities for state-level pension plans. The Supplemental Pension Payments (SPP) shown below were the first payments made to these rate plans under Proposition 2.

Plan	Supplemental Pension Payments	
	July 28, 2021	July 27, 2022
State Miscellaneous	\$865,017,000	\$1,333,958,000
State Industrial	50,499,000	81,612,000
State Safety	112,346,000	171,392,000
State Peace Officers & Firefighters	853,138,000	1,338,038,000
California Highway Patrol	0	0
Total	\$1,881,000,000	\$2,925,000,000

On July 27, 2023, the State contributed the third payments of \$1.657 billion listed below. These payments are not yet reflected in this valuation report.

Plan	Supplemental Pension Payments Made on July 27, 2023
State Miscellaneous	\$769,620,000
State Industrial	44,500,000
State Safety	99,924,000
State Peace Officers & Firefighters	742,956,000
California Highway Patrol	0
Total	\$1,657,000,000

The Constitution does not allow these payments to supplant funding that would have otherwise been used to pay for the unfunded liability in the fiscal year the payment was appropriated or the subsequent fiscal year. The supplemental payments, however, do reduce the actuarially required contribution rates in FY 2023-24 and later. The objective of the supplemental payments is to generate long-term savings rather than short-term savings, and to pay off the unfunded liability sooner than if the payments had not been made, which can be accomplished by budgeting and appropriating a contribution rate that is higher than the actuarially required rate.

Appendix D – Supplemental Pension Payments and Budget Act for Fiscal Year 2022-23

Supplemental Pension Payments Pursuant to Bargaining Unit 5 Agreement

Under the 2019 agreement between the State and the California Association of Highway Patrolmen, the following SPPs have been made.

Plan	Supplemental Pension Payments
August 10, 2020	\$25,000,000
August 21, 2020	243,000,000
August 13, 2021	25,000,000
April 28, 2022	25,000,000
Total	\$318,000,000

Under the terms of the agreement, the supplemental payments may not decrease employer contributions during the term of the agreement, which expires on July 1, 2024.

On April 21, 2023, the State contributed an additional \$25 million. This payment is not yet reflected in this valuation report.

Budgeted State Employer Contribution Rates for FY 2023-24

The additional contribution rates shown here were selected by the State Department of Finance, with assistance from the Actuarial Office, and are intended to achieve long-term savings, shorten the time until the plans achieve a 100% funded ratio, and achieve a more stable and predictable contribution rate. This adjustment, referred to as the Contribution Stabilization adjustment, affords the State some budget flexibility and allows the contribution rates in the Budget Act to closely align with the State's own budget projections.

The table below shows the actuarially required contribution rates along with adjustments needed to determine the budgeted contribution rates, which should be appropriated in the annual Budget Act.

Plan	Actuarially Required Employer Contribution Rate FY 2023-24	Additional Employer Contribution Rate Under Section 20683.2	Contribution Stabilization Adjustment	Budget Act Contribution Rate FY 2023-24
State Miscellaneous	30.87%	0.10%	1.03%	32.00%
State Industrial	19.54%	0.88%	0.58%	21.00%
State Safety	21.54%	1.18%	0.03%	22.75%
State Peace Officers & Firefighters	46.26%	1.65%	2.09%	50.00%
California Highway Patrol	67.69%	1.32%	2.77% ¹	71.78%

¹Includes Bargaining Unit 5 adjustment for FY23-24.

Appendix E – Glossary of Actuarial Terms

Accrued Liability (*Actuarial Accrued Liability*): The portion of the Present Value of Benefits allocated to prior years. Based on CalPERS funding policies, the accrued liability is the target level of assets on any valuation date.

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 cost method, amortization policy and asset valuation method.

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 Bases: Separate payment schedules for different portions of the Unfunded Accrued Liability. The total Unfunded Accrued Liability of a rate plan can be segregated by cause. The impact of such individual causes on the UAL are quantified at the time of their occurrence, resulting in new amortization bases. Each base is separately amortized and paid for over a specific period of time. Generally, in an actuarial valuation, the separate bases consist of changes in UAL due to contract amendments, actuarial assumption changes, method changes, and/or gains and losses.

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

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

Discount Rate: This is the rate used to discount the expected future benefit payments to the valuation date to determine the Projected Value of Benefits. The discount rate is based on the assumed long-term rate of return on plan assets, net of investment and administrative expenses. This rate is called the “actuarial interest rate” in Section 20014 of the California Public Employees’ Retirement Law.

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

Appendix E – Glossary of Actuarial Terms

Glossary of Actuarial Terms (continued)

Entry Age Actuarial Cost Method: An actuarial cost method designed to fund a member's total plan benefit in a level manner over the course of his or her career. This method yields a total normal cost rate, expressed as a percentage of payroll, which is designed to remain level throughout the member's career.

Fresh Start: A Fresh Start is when multiple Amortization Bases are combined into a single base and amortized over a new Amortization Period.

Funded Ratio: Defined as Market Value of Assets divided by Accrued Liability. It is a measure of how well funded a rate plan is. A ratio greater than 100% means the rate plan has more assets than the target established by CalPERS funding policies on the valuation date and the employer need only contribute the Normal Cost. A ratio less than 100% means assets are less than the funding target and contributions in addition to Normal Cost are required.

GASB 68: Statement No. 68 of the Governmental Accounting Standards Board, the accounting standard governing a state or local governmental employer's accounting and financial reporting for pensions.

New Member (under PEPR): A new member is an individual who becomes a member of a public retirement system in the State of California for the first time on or after January 1, 2013, was not a member of another public retirement system prior to that date and is not subject to reciprocity with another public retirement system.

Normal Cost: The portion of the Present Value of Benefits allocated to the upcoming fiscal year for active employees. The normal cost plus the required amortization of the UAL, if any, make up the required contributions.

Pension Actuary: A business professional proficient in mathematics and statistics who performs the calculations necessary to properly fund a pension plan and allow the plan sponsor to disclose its liabilities. A pension actuary must satisfy the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States regarding pensions.

PEPR): The California Public Employees' Pension Reform Act of 2013.

Present Value of Benefits (PVB): The total dollars needed as of the valuation date to fund all benefits earned in the past and expected to be earned in the future for *current* members.

Unfunded Accrued Liability (UAL): The Accrued Liability minus the Market Value of Assets. If the UAL for a rate plan is positive, the employer is required to make contributions in excess of the Normal Cost. A UAL that is negative is also called the surplus.

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California Public Employees' Retirement System
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