

California Public Employees' Retirement System

State Actuarial Valuation

as of June 30, 2023

Required Contributions for Fiscal Year

July 1, 2024 — June 30, 2025

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Actuarial Certification



July 2024

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, 2023 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, as recommended by the Chief Actuary and adopted by the CalPERS Board of Administration, are internally consistent and reasonable for these plans.

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, 2023, 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) 2024-25.

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

This actuarial valuation was performed by the CalPERS Actuarial Office using data as of June 30, 2023. The purpose of the report is to:

- Set forth the assets and accrued liabilities of the State plans as of June 30, 2023.
- Determine the minimum required employer contribution rates of these plans for the FY July 1, 2024 through June 30, 2025.
- Provide actuarial information as of June 30, 2023 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 such factors 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 and recommended by the California Actuarial Advisory Panel (CAAP) in the Model Disclosure Elements document:

- 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.
- Funded Status - Low-Default-Risk Basis - Low default-risk obligation measure (LDRM) of benefit costs accrued as of the valuation date has been added to this year's report.

Highlights and Executive Summary

Required Employer Contribution Rates

The actuarially required employer contribution rates for fiscal year July 1, 2024 through June 30, 2025 are shown in the table below. For comparison purposes, the corresponding contribution rates for fiscal year July 1, 2023 through June 30, 2024 are also provided. The contribution amounts that these rates are expected to generate are also shown.

Plan	Fiscal Year 2023-24		Fiscal Year 2024-25	
	Expected Employer Contribution	Required Employer Rate ¹	Expected Employer Contribution	Required Employer Rate ¹
State Miscellaneous	\$4,749,786,466	30.87%	\$5,122,933,617	31.39%
State Industrial	164,652,179	19.54%	178,276,087	20.18%
State Safety	537,239,490	21.54%	564,510,090	22.03%
State Peace Officers & Firefighters	1,952,093,631	46.26%	2,063,718,698	48.09%
California Highway Patrol	653,800,914	67.69%	686,478,187	69.89%
Total State	\$8,057,572,680		\$8,615,916,679	

¹ Excludes additional contributions pursuant to Government Code section 20683.2. 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.

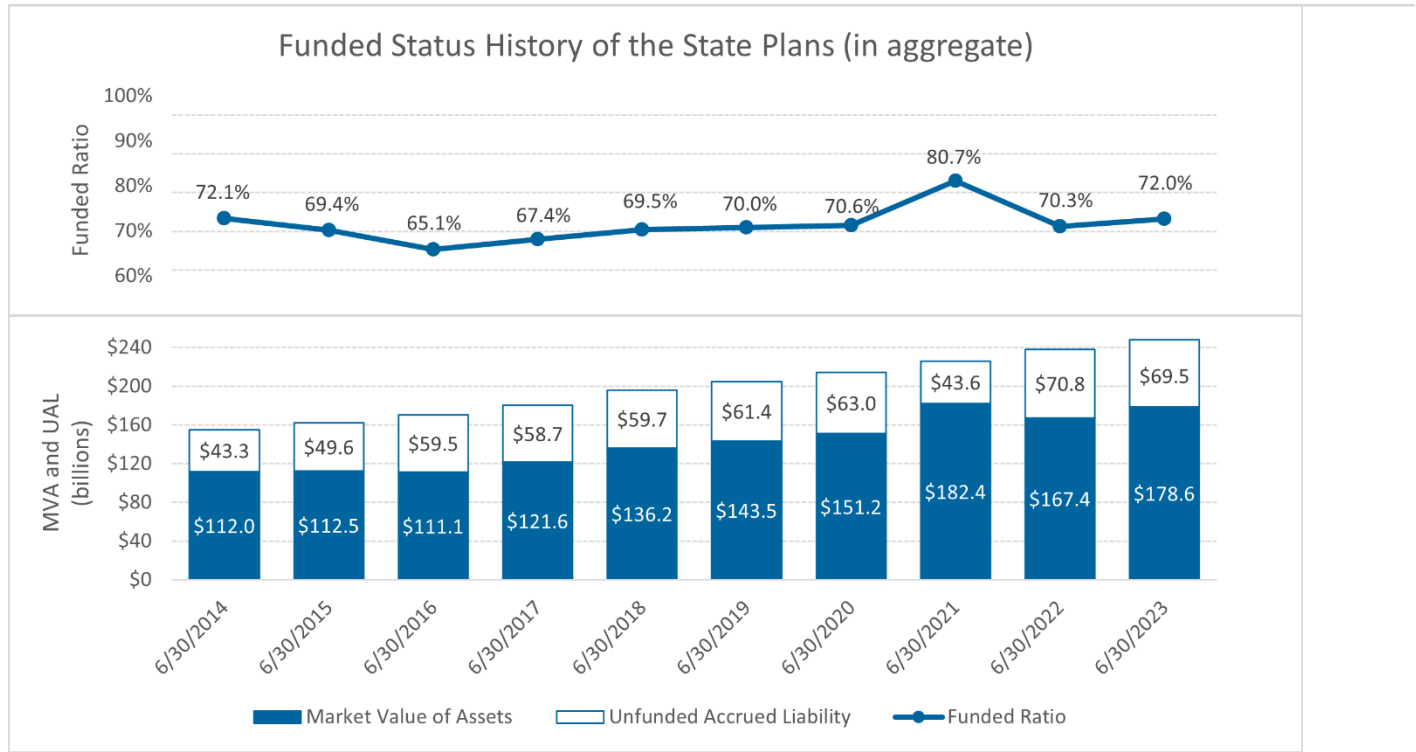
The payroll used to calculate the expected dollar contribution is payroll reported for the fiscal year ending on the valuation date projected forward two years using the annual payroll growth assumption in effect on the valuation date. For example, expected fiscal year 2024-25 contributions are based on fiscal year 2022-23 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 Contribution Amounts](#) in the Liabilities and Employer Contributions section of this report explain the changes in required contribution rates and expected contribution amounts from fiscal year 2023-24 to fiscal year 2024-25.

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, 2022, to June 30, 2023 the aggregated funded ratio for the State plans increased by approximately 1.7%.



Unfunded Liability and Funded Status on June 30, 2023

Plan	Present Value of Benefits	Entry Age Normal Accrued Liability	Market Value of Assets	Unfunded Liability	Funded Status
State Miscellaneous	\$166,745,206,539	\$142,014,028,700	\$101,088,491,055	\$40,925,537,645	71.2%
State Industrial	7,673,707,488	6,219,461,196	4,908,182,724	1,311,278,472	78.9%
State Safety	23,123,400,603	18,524,055,315	14,875,485,155	3,648,570,160	80.3%
State Peace Officers & Firefighters	75,354,872,872	63,916,044,325	46,091,266,637	17,824,777,688	72.1%
California Highway Patrol	20,171,102,237	17,455,908,560	11,683,147,992	5,772,760,568	66.9%
Total for the State	\$293,068,289,739	\$248,129,498,096	\$178,646,573,563	\$69,482,924,533	72.0%

Funded Status History

Plan	June 30, 2019	June 30, 2020	June 30, 2021	June 30, 2022	June 30, 2023
State Miscellaneous	69.8%	69.8%	79.8%	69.7%	71.2%
State Industrial	77.3%	78.1%	89.2%	77.3%	78.9%
State Safety	78.6%	79.8%	91.2%	78.9%	80.3%
State Peace Officers & Firefighters	69.0%	70.8%	80.3%	69.5%	72.1%
California Highway Patrol	64.5%	64.3%	75.4%	66.2%	66.9%
Total for the State	70.0%	70.6%	80.7%	70.3%	72.0%

Highlights and Executive Summary

Changes Since the Prior Year's Valuation

Overall, the required contributions for the State plans increased by \$558 million between fiscal years 2023-24 and 2024-25, a 6.9% relative increase. The table below details the change in the required contributions.

Reason for Change	Change in Required Contribution (in millions)
Change due to progression of existing amortization bases	\$404.8
Effect due to change in overall payroll	124.0
Decrease in normal cost due to new demographics	(38.6)
Decrease due to change in member contribution rates	(5.2)
Decrease due to Budget Act Additional Contributions	(57.6)
Decrease due to Supplemental Pension Payment made after January 1, 2023	(2.0)
First installment of the 20-year amortization of the following sources of experience gains and losses:	
• Investment experience (reflects five-year ramp)	28.9
• Demographic experience	103.9
Total Change in Required Contributions	\$558.3

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.

New Disclosure Items

In December 2021, the Actuarial Standards Board issued a revision of Actuarial Standard of Practice No. 4 (ASOP 4) requiring actuaries to disclose a low-default-risk obligation measure (LDRM) of the benefits earned. This information is shown in a new exhibit, Funded Status – Low-Default-Risk Basis.

Plan Experience

On July 18, 2023, CalPERS reported a preliminary net return of 5.8%, before reduction for administrative expenses, for the year ending June 30, 2023. This return was approximately 1% lower than the assumed rate of return of 6.8% resulting in an 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.

Payroll across the State plans increased by 4.7%, compared to the payroll growth assumption of 2.8%, resulting in an increase of \$124.0 million in the required contribution. The change in payroll for the year ranges from a 1.7% increase for State Peace Officers and Firefighters to a 6.1% increase for State Miscellaneous.

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 51% of payroll for State Safety to a low of 30% 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 2024-25.

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 \$1.7 billion were made on July 27, 2023 and are not reflected in the amortization schedules nor the projections in this report. The impact of these payments can be found in the Subsequent Events and Appendix D.

An additional \$343 million in supplemental pension payments were made in 2020 through 2023 towards to the California Highway Patrol Plan. These payments are reflected in the actuarially required contribution rates.

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 and the resulting total contribution rate for fiscal year 2024-25 to be paid by the State for each plan.

Plan	Actuarially Required Employer Contribution FY 2024-25	Additional Statutory Contribution per GC §20683.2	Total Contribution FY 2024-25
State Miscellaneous	31.39%	0.10%	31.49%
State Industrial	20.18%	0.88%	21.06%
State Safety	22.03%	1.18%	23.21%
State Peace Officers & Firefighters	48.09%	1.65%	49.74%
California Highway Patrol	69.89%	1.32%	71.21%

The rates and information shown in the remainder of this report reflect the rates set by the board at its April 2024 meeting (shown above as the actuarially required employer contribution). The additional contribution pursuant to Government Code section 20683.2 will be realized in future valuations as actuarial gains.

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 April 2024.

On July 27, 2023, the State contributed a supplemental pension payment of \$1.657 billion under Government Code section 20825.14. In accordance with the statute, the funds were applied to the State rate plans as shown below.

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

California's Budget Act calls for the application of the July 27, 2023 Supplemental Pension Payment towards the FY 2024-25 required contributions. The table below shows the reduced rates for each plan.

Plan	Actuarially Required Employer Contribution FY 2024-25	Contribution Reduction for Supplemental Pension Payments Made on July 27, 2023	Additional Statutory Contribution per GC §20683.2	Budget Act Total Net Contribution FY 2024-25
State Miscellaneous	31.39%	(5.18%)	0.10%	26.31%
State Industrial	20.18%	(5.54%)	0.88%	15.52%
State Safety	22.03%	(4.29%)	1.18%	18.92%
State Peace Officers & Firefighters	48.09%	(19.02%)	1.65%	30.72%
California Highway Patrol	69.89%	0.00%	1.32%	71.21%

The rates and information shown in the remainder of this report reflect the rates set by the Board at its April 2024 meeting (shown above as the actuarially required employer contribution). The additional contribution pursuant to Government Code section 20683.2 will be realized in future valuations as actuarial gains.

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, 2024 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.

Highlights and Executive Summary

Projected Employer Contribution Rates

The following table illustrates projected actuarially required employer contribution rates for the next five fiscal years. Projected results reflect asset and liability information as of the valuation date, June 30, 2023. Projected rates assume all actuarial assumptions will be realized, including the investment return of 6.8% 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. Projections are, by their nature, not a guarantee of future results. Actual contributions rates will differ, perhaps significantly, from the projections below. 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.

The actual investment return for FY 2023-24 was not known at the time this report was prepared. Projected rates assume all actuarial assumptions will be realized, including the investment return of 6.8% per year beyond June 30, 2023. Updated projections will be provided in a circular letter in August 2024 after preliminary return figures for FY 2023-24 are available. The circular letter will also include a "scenario test" projecting contribution rates under various investment income returns.

Plan	Actual	Projected Employer Contribution Rates				
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
State Miscellaneous	31.39%	32.2%	32.7%	34.6%	34.4%	34.1%
State Industrial	20.18%	20.9%	21.3%	22.9%	22.7%	22.4%
State Safety	22.03%	22.7%	23.1%	24.8%	24.6%	24.3%
State Peace Officers & Firefighters	48.09%	49.3%	50.0%	52.9%	52.5%	51.9%
California Highway Patrol	69.89%	71.5%	69.9%	73.0%	72.3%	73.8%

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.

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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, 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
2) 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
3) Market Value of Assets as of June 30, 2022 [(1) - (2)]	\$95,309,562,148	\$4,562,863,671	\$13,818,741,360	\$42,490,581,393	\$11,006,491,032
4) Employer Contributions Received in 2022- 23	6,271,649,581	256,851,652	771,611,913	3,371,914,274	674,103,324
5) Employee Contributions Received in 2022- 23	1,113,313,996	68,638,365	277,422,074	481,817,079	120,468,995
6) Benefit Payments in 2022- 23	(7,517,643,569)	(270,178,047)	(834,062,400)	(2,936,660,801)	(791,577,132)
7) Refunds in 2022- 23	(51,998,009)	(3,213,719)	(22,839,730)	(19,963,125)	(3,215,587)
8) Transfers In/(Out)	(1,849,522)	149,967	586,081	930,132	183,342
9) SCP Payment and Interest	44,121,241	2,560,295	2,807,895	14,400,898	3,213,424
10) Miscellaneous Adjustments	1	0	0	0	0
11) Investment Return	5,837,190,474	283,378,363	861,021,511	2,673,876,990	673,818,802
12) Administrative Expense	(56,652,008)	(2,723,031)	(8,239,669)	(25,311,059)	(6,559,234)
13) Market Value of Assets as of June 30, 2023 [(3) + (4) + (5) + (6) + (7) + (8) + (9) + (10) + (11) + (12)]	\$100,947,694,332	\$4,898,327,517	\$14,867,049,035	\$46,051,585,780	\$11,676,926,966
14) Receivables for Tier 1 Conversion and Service Buybacks as of June 30, 2023	140,796,723	9,855,207	8,436,119	39,680,857	6,221,026
15) Market Value of Assets as of June 30, 2023 Including Receivables for Tier 1 Conversion and Service Buybacks	\$101,088,491,055	\$4,908,182,724	\$14,875,485,155	\$46,091,266,637	\$11,683,147,992

Assets

Asset Allocation

CalPERS adheres to an Asset Allocation Strategy that sets 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 as of June 30, 2023. The assets of the State plans are part of the PERF and are invested accordingly.

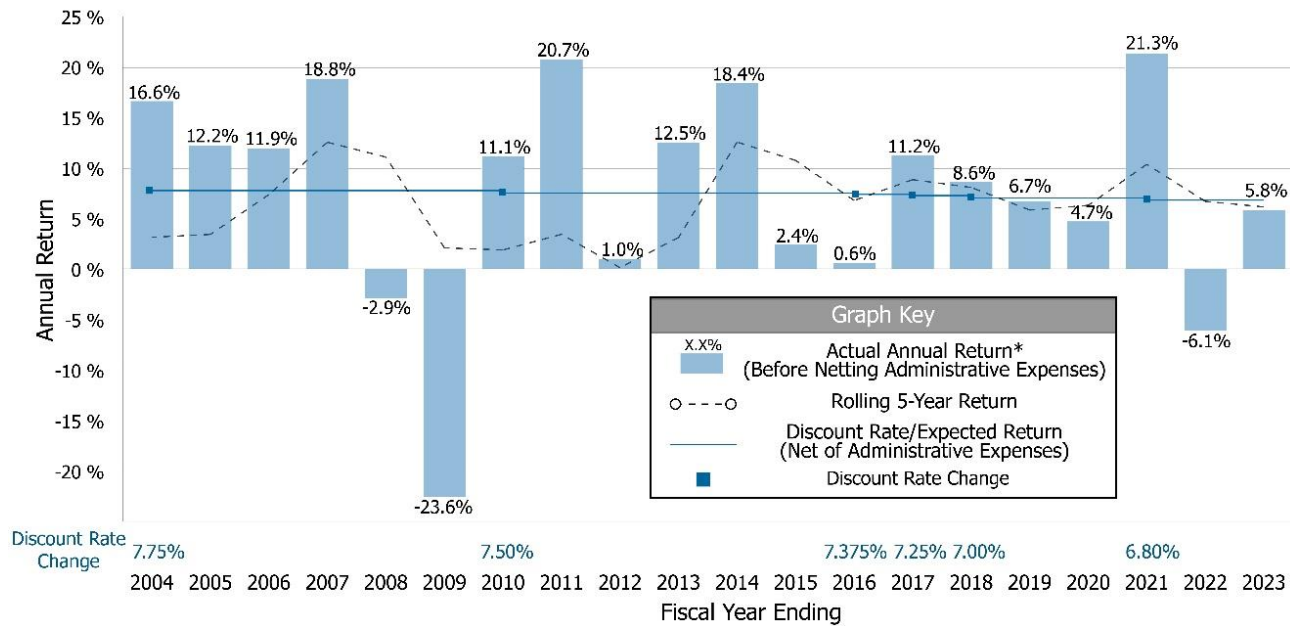
Asset Class	Actual Allocation June 30, 2023	Policy Target Allocation effective 7/1/2022
Public Equity Capitalization Weighted	33.1%	30.0%
Public Equity Factor Weighted	12.0%	12.0%
Treasuries	5.1%	5.0%
Mortgage-backed Securities	5.1%	5.0%
Investment Grade Corporates	6.6%	10.0%
High Yield Bonds	4.5%	5.0%
Emerging Market Sovereign Bonds	5.1%	5.0%
Private Equity	12.9%	13.0%
Real Assets	15.2%	15.0%
Private Debt	2.2%	5.0%
Strategic Financing	(1.8%)	(5.0%)
Total Fund	100.0%	100.0%

For more information see the [Trust Level Review as of June 30, 2023](#) which is available on the CalPERS website.

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 (2004 - 2023)



The table below shows annualized investment returns of the PERF for various time periods ending on June 30, 2023 (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	5.8%	6.1%	7.1%	7.0%	7.5%
Volatility	-	9.5%	7.8%	8.4%	8.8%

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Liabilities and Contributions

Key Results — State Miscellaneous

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

Participant Information

	June 30, 2022	June 30, 2023
Members Included in the Valuation		
Active Members	180,483	184,297
Transferred Members from State Miscellaneous	25,022	25,775
Separated Members	75,327	78,846
Receiving Payments	209,673	213,206
Total	490,505	502,124
Average Entry Age of Active Members	34.9	34.9
Average Age for Active Members	46.4	46.2
Average Age of Retired Members	72.8	72.9
Average Pay	\$80,668	\$83,791
Covered Payroll in Fiscal Year Ending on Valuation Date	\$14,559,287,539	\$15,442,515,914
Projected Payroll for Contribution Rate	\$15,386,022,123	\$16,319,403,738

Funded Status

	June 30, 2022	June 30, 2023
Present Value of Benefits	\$160,019,539,583	\$166,745,206,539
Accrued Liability	136,885,121,928	142,014,028,700
Market Value of Assets	95,468,628,933	101,088,491,055
Unfunded Liability/(Surplus)	41,416,492,995	40,925,537,645
Funded Ratio	69.7%	71.2%

Employer Contribution

	June 30, 2022	June 30, 2023
Contribution Required in Dollars		
Total Normal Cost	\$2,703,324,087	\$2,857,527,595
Employee Contribution	1,149,335,853	1,222,323,340
Employer Normal Costs	1,553,988,234	1,635,204,255
Amortization of Unfunded Liability	3,195,798,232	3,487,729,362
Total	\$4,749,786,466	\$5,122,933,617
Contribution Required (Percent of Payroll)		
Total Normal Cost	17.57%	17.51%
Offset due to Employee Contribution	7.47%	7.49%
Employer Normal Costs	10.10%	10.02%
Amortization of Unfunded Liability	20.77%	21.37%
Total	30.87%	31.39%

Liabilities and Contributions

Key Results — State Industrial

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

Participant Information

	June 30, 2022	June 30, 2023
Members Included in the Valuation		
Active Members	11,329	11,609
Transferred Members from State Industrial	7,858	7,996
Separated Members	4,386	4,482
Receiving Payments	17,356	18,014
Total	40,929	42,101
Average Entry Age of Active Members	35.3	35.3
Average Age for Active Members	44.9	44.6
Average Age of Retired Members	69.4	69.6
Average Pay	\$70,390	\$72,026
Covered Payroll in Fiscal Year Ending on Valuation Date	\$797,449,866	\$836,154,689
Projected Payroll for Contribution Rate	\$842,732,259	\$883,634,897

Funded Status

	June 30, 2022	June 30, 2023
Present Value of Benefits	\$7,297,827,645	\$7,673,707,488
Accrued Liability	5,916,656,618	6,219,461,196
Market Value of Assets	4,573,697,146	4,908,182,724
Unfunded Liability/(Surplus)	1,342,959,472	1,311,278,472
Funded Ratio	77.3%	78.9%

Employer Contribution

	June 30, 2022	June 30, 2023
Contribution Required in Dollars		
Total Normal Cost	\$158,855,031	\$165,504,816
Employee Contribution	73,149,160	76,434,419
Employer Normal Costs	85,705,871	89,070,397
Amortization of Unfunded Liability	78,946,308	89,205,690
Total	\$164,652,179	\$178,276,087
Contribution Required (Percent of Payroll)		
Total Normal Cost	18.85%	18.73%
Offset due to Employee Contribution	8.68%	8.65%
Employer Normal Costs	10.17%	10.08%
Amortization of Unfunded Liability	9.37%	10.10%
Total	19.54%	20.18%

Liabilities and Contributions

Key Results — State Safety

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

Participant Information

	June 30, 2022	June 30, 2023
Members Included in the Valuation		
Active Members	27,211	26,371
Transferred Members from State Safety	5,765	6,112
Separated Members	10,300	10,790
Receiving Payments	30,202	31,293
Total	73,478	74,566
Average Entry Age of Active Members	37.8	37.6
Average Age for Active Members	46.7	46.8
Average Age of Retired Members	69.7	70.0
Average Pay	\$86,749	\$91,963
Covered Payroll in Fiscal Year Ending on Valuation Date	\$2,360,540,355	\$2,425,146,020
Projected Payroll for Contribution Rate	\$2,494,581,279	\$2,562,855,512

Funded Status

	June 30, 2022	June 30, 2023
Present Value of Benefits	\$22,080,656,948	\$23,123,400,603
Accrued Liability	17,527,672,227	18,524,055,315
Market Value of Assets	13,828,233,253	14,875,485,155
Unfunded Liability/(Surplus)	3,699,438,974	3,648,570,160
Funded Ratio	78.9%	80.3%

Employer Contribution

	June 30, 2022	June 30, 2023
Contribution Required in Dollars		
Total Normal Cost	\$586,974,975	\$593,044,765
Employee Contribution	272,408,276	280,632,679
Employer Normal Costs	314,566,699	312,412,086
Amortization of Unfunded Liability	222,672,791	252,098,004
Total	\$537,239,490	\$564,510,090
Contribution Required (Percent of Payroll)		
Total Normal Cost	23.53%	23.14%
Offset due to Employee Contribution	10.92%	10.95%
Employer Normal Costs	12.61%	12.19%
Amortization of Unfunded Liability	8.93%	9.84%
Total	21.54%	22.03%

Liabilities and Contributions

Key Results — State Peace Officers and Firefighters

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

Participant Information

	June 30, 2022	June 30, 2023
Members Included in the Valuation		
Active Members	41,366	41,482
Transferred Members from State POFF	5,516	5,690
Separated Members	8,785	9,268
Receiving Payments	47,598	49,558
Total	103,265	105,998
Average Entry Age of Active Members	29.2	29.1
Average Age for Active Members	40.7	40.3
Average Age of Retired Members	65.3	65.6
Average Pay	\$96,535	\$97,894
Covered Payroll in Fiscal Year Ending on Valuation Date	\$3,993,247,438	\$4,060,818,964
Projected Payroll for Contribution Rate	\$4,220,000,000	\$4,291,408,508

Funded Status

	June 30, 2022	June 30, 2023
Present Value of Benefits	\$72,418,825,378	\$75,354,872,872
Accrued Liability	61,229,068,218	63,916,044,325
Market Value of Assets	42,535,707,168	46,091,266,637
Unfunded Liability/(Surplus)	18,693,361,050	17,824,777,688
Funded Ratio	69.5%	72.1%

Employer Contribution

	June 30, 2022	June 30, 2023
Contribution Required in Dollars		
Total Normal Cost	\$1,308,200,000	\$1,316,174,989
Employee Contribution	500,492,000	509,390,190
Employer Normal Costs	807,708,000	806,784,799
Amortization of Unfunded Liability	1,144,385,631	1,256,933,899
Total	\$1,952,093,631	\$2,063,718,698
Contribution Required (Percent of Payroll)		
Total Normal Cost	31.00%	30.67%
Offset due to Employee Contribution	11.86%	11.87%
Employer Normal Costs	19.14%	18.80%
Amortization of Unfunded Liability	27.12%	29.29%
Total	46.26%	48.09%

Liabilities and Contributions

Key Results — California Highway Patrol

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

Participant Information

	June 30, 2022	June 30, 2023
Members Included in the Valuation		
Active Members	6,643	6,458
Transferred Members from CHP	250	246
Separated Members	604	641
Receiving Payments	9,951	10,252
Total	17,448	17,597
Average Entry Age of Active Members	27.4	27.5
Average Age for Active Members	41.4	41.2
Average Age of Retired Members	68.9	68.8
Average Pay	\$137,580	\$143,919
Covered Payroll in Fiscal Year Ending on Valuation Date	\$913,946,760	\$929,426,071
Projected Payroll for Contribution Rate	\$965,844,313	\$982,202,601

Funded Status

	June 30, 2022	June 30, 2023
Present Value of Benefits	\$19,312,990,782	\$20,171,102,237
Accrued Liability	16,644,422,636	17,455,908,560
Market Value of Assets	11,013,319,634	11,683,147,992
Unfunded Liability/(Surplus)	5,631,103,002	5,772,760,568
Funded Ratio	66.2%	66.9%

Employer Contribution

	June 30, 2022	June 30, 2023
Contribution Required in Dollars		
Total Normal Cost	\$314,285,739	\$315,483,475
Employee Contribution	121,020,292	123,462,867
Employer Normal Costs	193,265,447	192,020,608
Amortization of Unfunded Liability	460,535,467	494,457,579
Total	\$653,800,914	\$686,478,187
Contribution Required (Percent of Payroll)		
Total Normal Cost	32.54%	32.12%
Offset due to Employee Contribution	12.53%	12.57%
Employer Normal Costs	20.01%	19.55%
Amortization of Unfunded Liability	47.68%	50.34%
Total	67.69%	69.89%

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	\$80,068,132,208	\$4,288,932,083	\$12,366,269,605	\$32,888,602,721	\$8,818,134,913
b) Retired	86,677,074,331	3,384,775,405	10,757,130,998	42,466,270,151	11,352,967,324
c) Total	\$166,745,206,539	\$7,673,707,488	\$23,123,400,603	\$75,354,872,872	\$20,171,102,237
2) Present Value of Future Employee Contributions	\$11,470,617,138	\$735,447,189	\$2,329,122,114	\$4,819,466,568	\$1,155,764,005
3) Present Value of Future Employer Normal Costs	13,260,560,701	718,799,103	2,270,223,174	6,619,361,979	1,559,429,672
4) Accrued Liability [(1c) – (2) – (3)]	142,014,028,700	6,219,461,196	18,524,055,315	63,916,044,325	17,455,908,560
5) Market Value of Assets	\$101,088,491,055	\$4,908,182,724	\$14,875,485,155	\$46,091,266,637	\$11,683,147,992
6) Unfunded Accrued Liability/(Surplus) [(4) – (5)]	\$40,925,537,645	\$1,311,278,472	\$3,648,570,160	\$17,824,777,688	\$5,772,760,568
7) Funded Ratio [(5) ÷ (4)]	71.2%	78.9%	80.3%	72.1%	66.9%

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	\$1,635,204,255	\$89,070,397	\$312,412,086	\$806,784,799	\$192,020,608
Payment on the Unfunded Accrued Liability	3,487,729,362	89,205,690	252,098,004	1,256,933,899	494,457,579
Total Employer Contribution Amount	\$5,122,933,617	\$178,276,087	\$564,510,090	\$2,063,718,698	\$686,478,187
Projected Payroll	\$16,319,403,738	\$883,634,897	\$2,562,855,512	\$4,291,408,508	\$982,202,601
Employer Contribution (as a percent of payroll)					
Normal Cost	10.02%	10.08%	12.19%	18.80%	19.55%
Payment on the Unfunded Accrued Liability	21.37%	10.10%	9.84%	29.29%	50.34%
Total Employer Contribution Rate	31.39%	20.18%	22.03%	48.09%	69.89%

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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, 2023).
- The required employer contributions determined by the valuation are for the fiscal year beginning one year after the valuation date (fiscal year 2024-25).

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 — State Miscellaneous

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2023	Expected Payment in 2023-24	Balance on 6/30/2024	Scheduled Payment for Fiscal Year 2024-25	Payment as Percentage of Payroll
(Gain)/Loss	6/30/00	20	316,968,629	22,249,679	315,528,768	22,872,670	0.14%
(Gain)/Loss Prior to 2009	6/30/00	9	8,476,922,207	1,033,994,467	7,984,780,791	1,062,946,312	6.51%
Payment (Gain)/Loss	6/30/00	20	370,579,169	26,012,882	368,895,777	26,741,243	0.16%
Assumption Change	6/30/03	0	7,822,650	8,084,246	0	0	0.00%
Benefit Change (SB 1801)	6/30/03	0	(342,495)	(353,948)	0	0	0.00%
Actuarial Equivalent Reduction Benefits	6/30/04	0	51,029,703	52,736,180	0	0	0.00%
New Rate Stabilization Policies	6/30/04	0	(36,789,556)	(38,019,830)	0	0	0.00%
Reclass of BU 7 Members	6/30/05	0	(21,720,303)	(22,446,648)	0	0	0.00%
(Gain)/Loss	6/30/09	16	1,109,826,372	89,980,717	1,092,304,816	92,500,178	0.57%
(Gain)/Loss	6/30/10	17	(43,604,940)	(3,396,092)	(43,060,416)	(3,491,183)	(0.02%)
(Gain)/Loss	6/30/11	18	23,242,407	1,744,076	23,020,491	1,792,910	0.01%
Assumption Change	6/30/11	8	458,738,573	240,454,427	241,437,367	35,511,068	0.22%
Assumption Change	6/30/13	10	4,396,674,672	536,856,812	4,140,838,787	551,888,803	3.38%
(Gain)/Loss	6/30/14	21	4,809,236,414	349,065,538	4,775,525,902	358,839,373	2.20%
(Gain)/Loss	6/30/15	22	4,097,673,252	287,978,562	4,078,706,222	296,041,961	1.81%
(Gain)/Loss	6/30/16	23	4,196,242,679	286,163,235	4,185,854,403	294,175,806	1.80%
(Gain)/Loss	6/30/17	24	(3,101,600,448)	(205,645,838)	(3,099,986,468)	(211,403,921)	(1.30%)
(Gain)/Loss	6/30/18	25	206,750,953	13,351,687	207,011,839	13,725,534	0.08%
Assumption Change	6/30/18	15	3,463,694,180	324,505,909	3,363,867,720	333,592,075	2.04%
Method Change	6/30/18	15	1,098,960,993	102,959,245	1,067,288,050	105,842,103	0.65%
Investment (Gain)/Loss	6/30/19	16	553,248,884	44,094,731	545,300,512	55,118,414	0.34%
Non-Investment (Gain)/Loss	6/30/19	16	516,187,372	50,453,324	499,147,587	50,453,324	0.31%
Investment (Gain)/Loss	6/30/20	17	2,403,906,894	144,538,586	2,418,000,483	192,718,115	1.18%
Non-Investment (Gain)/Loss	6/30/20	17	316,660,907	30,023,168	307,166,680	30,023,168	0.18%
Assumption Change	6/30/21	18	350,698,735	32,342,395	341,122,297	32,342,395	0.20%
Net Investment (Gain)	6/30/21	18	(11,705,642,156)	(481,186,547)	(12,004,347,986)	(721,779,820)	(4.42%)
Non-Investment (Gain)/Loss	6/30/21	18	(770,979,249)	(71,101,811)	(749,926,322)	(71,101,811)	(0.44%)
Investment (Gain)/Loss	6/30/22	19	15,965,132,395	343,165,639	16,696,120,007	686,331,277	4.21%
Non-Investment (Gain)/Loss	6/30/22	19	1,963,666,632	176,579,883	1,914,711,098	176,579,884	1.08%
Investment (Gain)/Loss	6/30/23	20	734,816,209	0	784,783,711	16,868,686	0.10%
Non-Investment (Gain)/Loss	6/30/23	20	717,535,911	110,944,763	651,673,502	58,600,798	0.36%
Total			40,925,537,645	3,486,129,437	40,105,765,618	3,487,729,362	21.37%

Liabilities and Contributions

Schedule of Amortization Bases — State Industrial

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2023	Expected Payment in 2023-24	Balance on 6/30/2024	Scheduled Payment for Fiscal Year 2024-25	Payment as Percentage of Payroll
(Gain)/Loss	6/30/00	20	97,848,287	6,868,481	97,403,802	7,060,798	0.80%
Payment (Gain)/Loss	6/30/00	20	(1,477,616)	(103,722)	(1,470,903)	(106,626)	(0.01%)
Actuarial Equivalent Reduction Benefits	6/30/04	1	1,683,756	886,635	881,967	911,461	0.10%
New Rate Stabilization Policies	6/30/04	1	(1,683,756)	(886,635)	(881,967)	(911,461)	(0.10%)
(Gain)/Loss	6/30/09	16	38,379,880	3,111,702	37,773,952	3,198,830	0.36%
(Gain)/Loss	6/30/10	17	5,327,744	414,942	5,261,213	426,560	0.05%
(Gain)/Loss	6/30/11	18	(7,274,824)	(545,892)	(7,205,365)	(561,177)	(0.06%)
Assumption Change	6/30/13	10	106,252,979	25,523,720	87,100,927	11,608,765	1.31%
(Gain)/Loss	6/30/14	21	150,434,039	10,918,852	149,379,566	11,224,579	1.27%
(Gain)/Loss	6/30/15	22	172,273,690	12,107,146	171,476,282	12,446,146	1.41%
(Gain)/Loss	6/30/16	23	263,333,905	17,958,085	262,681,992	18,460,911	2.09%
(Gain)/Loss	6/30/17	24	(177,696,039)	(11,781,805)	(177,603,571)	(12,111,695)	(1.37%)
Assumption Change	6/30/17	14	11,263,466	1,116,989	10,875,040	1,148,265	0.13%
(Gain)/Loss	6/30/18	25	6,827,094	440,884	6,835,709	453,229	0.05%
Assumption Change	6/30/18	15	154,479,312	14,472,828	150,027,093	14,878,067	1.68%
Method Change	6/30/18	15	53,849,208	5,045,014	52,297,231	5,186,275	0.59%
Investment (Gain)/Loss	6/30/19	16	25,012,606	1,993,541	24,653,256	2,491,926	0.28%
Non-Investment (Gain)/Loss	6/30/19	16	12,500,240	1,221,802	12,087,596	1,221,802	0.14%
Investment (Gain)/Loss	6/30/20	17	109,989,539	6,613,290	110,634,384	8,817,719	1.00%
Non-Investment (Gain)/Loss	6/30/20	17	(2,025,005)	(191,994)	(1,964,291)	(191,994)	(0.02%)
Assumption Change	6/30/21	18	(8,049,458)	(742,343)	(7,829,654)	(742,343)	(0.08%)
Net Investment (Gain)	6/30/21	18	(552,663,924)	(22,718,484)	(566,766,861)	(34,077,726)	(3.86%)
Non-Investment (Gain)/Loss	6/30/21	18	(53,635,517)	(4,946,414)	(52,170,906)	(4,946,414)	(0.56%)
Investment (Gain)/Loss	6/30/22	19	762,285,529	16,385,094	797,187,919	32,770,189	3.71%
Non-Investment (Gain)/Loss	6/30/22	19	92,681,735	8,334,271	90,371,117	8,334,271	0.94%
Investment (Gain)/Loss	6/30/23	20	33,842,228	0	36,143,500	776,893	0.09%
Non-Investment (Gain)/Loss	6/30/23	20	17,519,374	2,626,602	15,996,254	1,438,440	0.16%
Total			1,311,278,472	94,122,589	1,303,175,282	89,205,690	10.10%

Liabilities and Contributions

Schedule of Amortization Bases — State Safety

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2023	Expected Payment in 2023-24	Balance on 6/30/2024	Scheduled Payment for Fiscal Year 2024-25	Payment as Percentage of Payroll
(Gain)/Loss	6/30/00	20	845,166,778	59,326,658	841,327,527	60,987,804	2.38%
Payment (Gain)/Loss	6/30/00	20	(43,804,767)	(3,074,885)	(43,605,779)	(3,160,981)	(0.12%)
Assumption Change	6/30/03	0	(455,760)	(471,001)	0	0	0.00%
New Rate Stabilization Policies	6/30/04	1	(1,899,648)	(1,000,320)	(995,053)	(1,028,328)	(0.04%)
(Gain)/Loss	6/30/09	16	144,441,236	11,710,774	142,160,848	12,038,676	0.47%
(Gain)/Loss	6/30/10	17	(109,643,741)	(8,539,406)	(108,274,544)	(8,778,509)	(0.34%)
(Gain)/Loss	6/30/11	18	(10,116,360)	(759,117)	(10,019,770)	(780,372)	(0.03%)
Assumption Change	6/30/13	10	411,306,167	80,388,525	356,198,200	47,473,908	1.85%
(Gain)/Loss	6/30/14	21	189,323,593	13,741,546	187,996,522	14,126,309	0.55%
(Gain)/Loss	6/30/15	22	474,759,460	33,365,410	472,561,925	34,299,641	1.34%
(Gain)/Loss	6/30/16	23	482,602,540	32,911,134	481,407,802	33,832,645	1.32%
(Gain)/Loss	6/30/17	24	(540,201,183)	(35,817,033)	(539,920,078)	(36,819,910)	(1.44%)
Assumption Change	6/30/17	14	194,400,969	19,278,589	187,696,953	19,818,389	0.77%
(Gain)/Loss	6/30/18	25	(102,748,778)	(6,635,372)	(102,878,430)	(6,821,163)	(0.27%)
Assumption Change	6/30/18	15	450,824,751	42,236,782	437,831,618	43,419,412	1.69%
Method Change	6/30/18	15	163,044,071	15,275,241	158,345,010	15,702,948	0.61%
Investment (Gain)/Loss	6/30/19	16	72,864,363	5,807,394	71,817,541	7,259,243	0.28%
Non-Investment (Gain)/Loss	6/30/19	16	(40,042,726)	(3,913,867)	(38,720,881)	(3,913,867)	(0.15%)
Investment (Gain)/Loss	6/30/20	17	328,319,100	19,740,689	330,243,964	26,320,919	1.03%
Non-Investment (Gain)/Loss	6/30/20	17	(98,980,260)	(9,384,490)	(96,012,602)	(9,384,489)	(0.37%)
Assumption Change	6/30/21	18	(20,223,714)	(1,865,086)	(19,671,470)	(1,865,086)	(0.07%)
Net Investment (Gain)	6/30/21	18	(1,693,154,556)	(69,600,897)	(1,736,360,655)	(104,401,345)	(4.07%)
Non-Investment (Gain)/Loss	6/30/21	18	(149,424,775)	(13,780,361)	(145,344,472)	(13,780,361)	(0.54%)
Investment (Gain)/Loss	6/30/22	19	2,303,751,732	49,518,439	2,409,232,472	99,036,878	3.86%
Non-Investment (Gain)/Loss	6/30/22	19	271,111,957	24,379,351	264,352,953	24,379,351	0.95%
Investment (Gain)/Loss	6/30/23	20	98,446,160	0	105,140,499	2,259,963	0.09%
Non-Investment (Gain)/Loss	6/30/23	20	28,903,551	9,679,479	20,865,823	1,876,329	0.07%
Total			3,648,570,160	262,518,176	3,625,375,923	252,098,004	9.84%

Liabilities and Contributions

Schedule of Amortization Bases — State Peace Officers and Firefighters

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2023	Expected Payment in 2023-24	Balance on 6/30/2024	Scheduled Payment for Fiscal Year 2024-25	Payment as Percentage of Payroll
(Gain)/Loss	6/30/00	20	4,695,207,420	329,581,062	4,673,878,990	338,809,332	7.90%
Payment (Gain)/Loss	6/30/00	20	(2,599,824)	(182,495)	(2,588,014)	(187,605)	0.00%
Assumption Change	6/30/03	0	7,100,081	7,337,514	0	0	0.00%
Benefit Change (SB 183)	6/30/04	0	3,439,394	3,554,410	0	0	0.00%
New Rate Stabilization Policies	6/30/04	0	(10,539,475)	(10,891,924)	0	0	0.00%
(Gain)/Loss	6/30/09	16	359,836,011	29,174,205	354,155,044	29,991,083	0.70%
(Gain)/Loss	6/30/10	17	43,262,093	3,369,390	42,721,850	3,463,733	0.08%
(Gain)/Loss	6/30/11	18	295,430,558	22,168,669	292,609,828	22,789,391	0.53%
Assumption Change	6/30/13	10	885,387,033	264,237,474	672,519,550	89,633,050	2.09%
(Gain)/Loss	6/30/14	21	1,646,291,243	119,491,638	1,634,751,507	122,837,404	2.86%
(Gain)/Loss	6/30/15	22	1,640,848,144	115,316,439	1,633,253,099	118,545,300	2.76%
(Gain)/Loss	6/30/16	23	1,924,280,238	131,226,504	1,919,516,464	134,900,846	3.14%
(Gain)/Loss	6/30/17	24	(1,011,978,731)	(67,097,364)	(1,011,452,128)	(68,976,090)	(1.61%)
Assumption Change	6/30/17	14	156,262,924	15,496,469	150,874,119	15,930,371	0.37%
(Gain)/Loss	6/30/18	25	(214,610,902)	(13,859,271)	(214,881,706)	(14,247,331)	(0.33%)
Assumption Change	6/30/18	15	1,693,724,593	158,681,342	1,644,910,084	163,124,419	3.80%
Method Change	6/30/18	15	479,264,545	44,901,244	465,451,754	46,158,479	1.08%
Investment (Gain)/Loss	6/30/19	16	216,259,845	17,236,221	213,152,899	21,545,276	0.50%
Non-Investment (Gain)/Loss	6/30/19	16	57,131,540	5,584,166	55,245,579	5,584,166	0.13%
Investment (Gain)/Loss	6/30/20	17	999,811,788	60,115,216	1,005,673,469	80,153,621	1.87%
Non-Investment (Gain)/Loss	6/30/20	17	234,787,249	22,260,585	227,747,784	22,260,585	0.52%
Assumption Change	6/30/21	18	566,181,084	52,214,765	550,720,526	52,214,765	1.22%
Net Investment (Gain)	6/30/21	18	(5,104,983,279)	(209,851,732)	(5,235,252,789)	(314,777,597)	(7.34%)
Non-Investment (Gain)/Loss	6/30/21	18	(736,961,936)	(67,964,641)	(716,837,911)	(67,964,641)	(1.58%)
Investment (Gain)/Loss	6/30/22	19	7,139,354,085	153,458,233	7,466,240,155	306,916,466	7.15%
Non-Investment (Gain)/Loss	6/30/22	19	1,278,359,512	114,954,631	1,246,489,147	114,954,631	2.68%
Investment (Gain)/Loss	6/30/23	20	310,516,401	0	331,631,516	7,128,318	0.17%
Non-Investment (Gain)/Loss	6/30/23	20	273,716,054	1,520,629	290,757,266	26,145,927	0.61%
Total			17,824,777,688	1,302,033,379	17,691,288,082	1,256,933,899	29.29%

Liabilities and Contributions

Schedule of Amortization Bases — California Highway Patrol

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2023	Expected Payment in 2023-24	Balance on 6/30/2024	Scheduled Payment for Fiscal Year 2024-25	Payment as Percentage of Payroll
(Gain)/Loss	6/30/00	20	219,971,086	15,440,916	218,971,846	15,873,262	1.62%
(Gain)/Loss Prior to 2009	6/30/00	14	1,460,566,450	129,679,810	1,425,868,555	133,310,844	13.57%
Payment (Gain)/Loss	6/30/00	20	(21,186,498)	(1,487,191)	(21,090,256)	(1,528,832)	(0.16%)
Assumption Change	6/30/03	0	8,086,205	8,356,615	0	0	0.00%
Benefit Change (SB 1801)	6/30/03	0	1,281,086	1,323,927	0	0	0.00%
New Rate Stabilization Policies	6/30/04	1	(4,791,587)	(2,523,161)	(2,509,877)	(2,593,809)	(0.26%)
Benefit Change (SB 439)	6/30/05	2	61,432,053	21,974,886	42,899,688	22,590,182	2.30%
Benefit Change (AB 2936)	6/30/08	5	(123,613,670)	(23,373,500)	(107,864,270)	(24,027,959)	(2.45%)
(Gain)/Loss	6/30/09	16	291,322,373	23,619,367	286,723,076	24,280,709	2.47%
Assumption Change	6/30/09	6	113,530,878	18,740,065	101,884,229	19,264,787	1.96%
(Gain)/Loss	6/30/10	17	98,382,483	7,662,343	97,153,914	7,876,889	0.80%
(Gain)/Loss	6/30/11	18	(44,045,313)	(3,305,095)	(43,624,774)	(3,397,637)	(0.35%)
Assumption Change	6/30/11	8	145,984,270	19,433,651	135,827,671	19,977,793	2.03%
Assumption Change	6/30/13	10	718,322,263	87,710,879	676,524,171	90,166,784	9.18%
(Gain)/Loss	6/30/14	21	475,642,004	34,523,200	472,307,975	35,489,850	3.61%
(Gain)/Loss	6/30/15	22	505,723,943	76,398,710	461,159,623	33,472,035	3.41%
(Gain)/Loss	6/30/17	24	(244,197,275)	(16,191,045)	(244,070,202)	(16,644,395)	(1.69%)
(Gain)/Loss	6/30/18	25	(80,164,339)	(5,176,901)	(80,265,493)	(5,321,854)	(0.54%)
Assumption Change	6/30/18	15	465,253,956	43,588,622	451,844,962	44,809,104	4.56%
Method Change	6/30/18	15	114,420,042	10,719,763	111,122,364	11,019,916	1.12%
Investment (Gain)/Loss	6/30/19	16	58,052,052	4,626,832	57,218,034	5,783,540	0.59%
Non-Investment (Gain)/Loss	6/30/19	16	82,403,373	8,054,293	79,683,167	8,054,292	0.82%
Investment (Gain)/Loss	6/30/20	17	261,539,295	15,725,451	263,072,644	20,967,268	2.13%
Non-Investment (Gain)/Loss	6/30/20	17	78,436,644	7,436,714	76,084,932	7,436,714	0.76%
Assumption Change	6/30/21	18	255,941,776	23,603,649	248,952,842	23,603,649	2.40%
Net Investment (Gain)	6/30/21	18	(1,277,891,138)	(52,530,567)	(1,310,500,501)	(78,795,851)	(8.02%)
Non-Investment (Gain)/Loss	6/30/21	18	(115,559,971)	(10,657,256)	(112,404,405)	(10,657,256)	(1.09%)
Investment (Gain)/Loss	6/30/22	19	1,836,166,626	39,467,840	1,920,238,278	78,935,680	8.04%
Non-Investment (Gain)/Loss	6/30/22	19	186,497,915	16,770,555	181,848,397	16,770,556	1.71%
Investment (Gain)/Loss	6/30/23	20	80,758,849	0	86,250,451	1,853,927	0.19%
Non-Investment (Gain)/Loss	6/30/23	20	164,494,737	(964,017)	176,676,634	15,887,391	1.62%
Total			5,772,760,568	498,649,355	5,649,983,675	494,457,579	50.34%

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, 2022	\$41,416,492,995	\$1,342,959,472	\$3,699,438,974
b) Expected Payment on Unfunded Accrued Liability During 2022-23	4,605,613,348	168,721,649	415,873,220
c) Interest through June 30, 2023 $[(.068 \times (1a) - ((1.068)^{1/2} - 1) \times (1b)]$	2,662,305,878	85,679,047	237,654,695
d) Expected Unfunded Liability as of June 30, 2023 After All Changes $[(1a) - (1b) + (1c)]$	\$39,473,185,525	\$1,259,916,870	\$3,521,220,449
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 $[(1d) + (1e) + (1f) + (1g)]$	\$39,473,185,525	\$1,259,916,870	\$3,521,220,449
i) Actual Unfunded Accrued Liability as of June 30, 2023	40,925,537,645	1,311,278,472	3,648,570,160
j) Total (Gain)/Loss for 2022-23 [(1i) - (1h)]	\$1,452,352,120	\$51,361,602	\$127,349,711
2) Contribution (Gain)/Loss for the Year			
a) Expected Contributions for 2022-23	\$7,196,568,573	\$320,909,440	\$981,907,465
b) Interest on Expected Contributions for 2022-23	279,726,040	13,121,474	37,850,864
c) Actual Contributions for 2022-23	7,384,963,577	325,490,016	1,049,033,986
d) Interest on Actual Contributions for 2022-23	286,026,130	13,274,652	40,095,632
e) Expected Contributions with Interest for 2022-23 $[(2a) + (2b)]$	7,476,294,613	334,030,914	1,019,758,329
f) Actual Contributions with Interest for 2022-23 $[(2c) + (2d)]$	7,670,989,707	338,764,668	1,089,129,618
g) Contribution (Gain)/Loss for 2022-23 [(2e) - (2f)]	(\$194,695,094)	(\$4,733,754)	(\$69,371,289)
3) Investment (Gain)/Loss for the Year			
a) Market Value of Assets as of June 30, 2022	\$95,468,628,933	\$4,573,697,146	\$13,828,233,253
b) Receivables as of June 30, 2022	(159,066,785)	(10,833,475)	(9,491,893)
c) Receivables as of June 30, 2023	140,796,723	9,855,207	8,436,119
d) Contributions Received During 2022-23	7,384,963,577	325,490,017	1,049,033,987
e) Benefits and Refunds Paid During 2022-23	(7,569,641,578)	(273,391,766)	(856,902,130)
f) Transfers, SCP Payments and Interest, and Miscellaneous Adjustments During 2022-23	42,271,720	2,710,262	3,393,976
g) Expected Return at 6.8% per year	6,515,354,675	314,497,561	951,228,002
h) Expected Assets as of June 30, 2023 $[(3a) + (3b) + (3c) + (3d) + (3e) + (3f) + (3g)]$	101,823,307,264	4,942,024,952	14,973,931,315
i) Actual Market Value of Assets as of June 30, 2023	101,088,491,055	4,908,182,724	14,875,485,155
j) Investment (Gain)/Loss for 2022-23 [(3h) - (3i)]	\$734,816,209	\$33,842,228	\$98,446,160
4) Liability (Gain)/Loss for the Year			
a) Total (Gain)/Loss for 2022-23 (1i)	\$1,452,352,120	\$51,361,602	\$127,349,711
b) Contribution (Gain)/Loss for 2022-23 (2c)	(194,695,094)	(4,733,754)	(69,371,289)
c) Investment (Gain)/Loss for 2022-23 (3j)	734,816,209	33,842,228	98,446,160
d) Liability (Gain)/Loss for 2022-23 [(4a) - (4b) - (4c)]	\$912,231,005	\$22,253,128	\$98,274,840

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, 2022	\$18,693,361,050	\$5,631,103,002
b) Expected Payment on Unfunded Accrued Liability During 2022-23	2,635,820,287	446,270,167
c) Interest through June 30, 2023 $[(.068 \times (1a) - ((1.068)^{1/2} - 1) \times (1b)]$	1,183,004,470	367,991,347
d) Expected Unfunded Liability as of June 30, 2023 After All Changes $[(1a) - (1b) + (1c)]$	\$17,240,545,233	\$5,552,824,182
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 $[(1d) + (1e) + (1f) + (1g)]$	\$17,240,545,233	\$5,552,824,182
i) Actual Unfunded Accrued Liability as of June 30, 2023	17,824,777,688	5,772,760,568
j) Total (Gain)/Loss for 2022-23 [(1i) - (1h)]	\$584,232,455	\$219,936,386
2) Contribution (Gain)/Loss for the Year		
a) Expected Contributions for 2022-23	\$3,870,443,414	\$777,005,630
b) Interest on Expected Contributions for 2022-23	168,641,011	25,454,539
c) Actual Contributions for 2022-23	3,853,731,353	794,572,319
d) Interest on Actual Contributions for 2022-23	168,082,145	26,041,984
e) Expected Contributions with Interest for 2022-23 $[(2a) + (2b)]$	4,039,084,425	802,460,169
f) Actual Contributions with Interest for 2022-23 $[(2c) + (2d)]$	4,021,813,498	820,614,303
g) Contribution (Gain)/Loss for 2022-23 [(2e) - (2f)]	\$17,270,927	(\$18,154,134)
3) Investment (Gain)/Loss for the Year		
a) Market Value of Assets as of June 30, 2022	\$42,535,707,168	\$11,013,319,634
b) Receivables as of June 30, 2022	(45,125,775)	(6,828,602)
c) Receivables as of June 30, 2023	39,680,857	6,221,026
d) Contributions Received During 2022-23	3,853,731,353	794,572,319
e) Benefits and Refunds Paid During 2022-23	(2,956,623,926)	(794,792,719)
f) Transfers, SCP Payments and Interest, and Miscellaneous Adjustments During 2022-23	15,331,030	3,396,766
g) Expected Return at 6.8% per year	2,959,082,332	748,018,417
h) Expected Assets as of June 30, 2023 $[(3a) + (3b) + (3c) + (3d) + (3e) + (3f) + (3g)]$	46,401,783,038	11,763,906,841
i) Actual Market Value of Assets as of June 30, 2023	46,091,266,637	11,683,147,992
j) Investment (Gain)/Loss for 2022-23 [(3h) - (3i)]	\$310,516,401	\$80,758,849
4) Liability (Gain)/Loss for the Year		
a) Total (Gain)/Loss for 2022-23 (1i)	\$584,232,455	\$219,936,386
b) Contribution (Gain)/Loss for 2022-23 (2c)	17,270,927	(18,154,134)
c) Investment (Gain)/Loss for 2022-23 (3j)	310,516,401	80,758,849
d) Liability (Gain)/Loss for 2022-23 [(4a) - (4b) - (4c)]	\$256,445,127	\$157,331,671

Liabilities and Contributions

Reconciliation of Employer Contribution Rates

Change in Normal Cost Rate from 2023-24 to 2024-25

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2023-2024 Normal Cost Rate	10.10%	10.17%	12.61%	19.14%	20.01%
Effect of Changes in Demographic Results	(0.05%)	(0.06%)	(0.42%)	(0.34%)	(0.46%)
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	(0.03%)	(0.03%)	0.00%	0.00%	0.00%
2024-2025 Normal Cost Rate	10.02%	10.08%	12.19%	18.80%	19.55%

Change in Unfunded Accrued Liability Amortization Rate from 2023-24 to 2024-25

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2023-2024 Rate to Amortize the UAL	20.77%	9.37%	8.93%	27.12%	47.68%
Effect of Elimination of Amortization Bases	0.00%	0.00%	0.02%	0.00%	(1.00%)
Effect of Progression of Amortization Bases	0.98%	0.88%	0.88%	1.58%	1.82%
Effect of Amortizing Prior Year's Bases over a (Larger)/Smaller than Expected Payroll	(0.67%)	(0.20%)	0.01%	0.31%	0.53%
Effect of Investment (Gain)/Loss	0.10%	0.09%	0.09%	0.17%	0.19%
Effect of Non-Investment (Gain)/Loss	0.36%	0.16%	0.07%	0.61%	1.62%
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	(0.17%)	(0.20%)	(0.16%)	(0.50%)	(0.50%)
2024-2025 Rate to Amortize the UAL	21.37%	10.10%	9.84%	29.29%	50.34%

Change in Total Rate from 2023-24 to 2024-25

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2023-2024 Employer Rate	30.87%	19.54%	21.54%	46.26%	67.69%
Effect of Elimination of Amortization Bases	0.00%	0.00%	0.02%	0.00%	(1.00%)
Effect of Progression of Amortization Bases and Change in Payroll	0.31%	0.68%	0.89%	1.89%	2.35%
Effect of (Gain)/Loss and Changes in Demographic Results	0.41%	0.19%	(0.26%)	0.44%	1.35%
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	(0.03%)	(0.03%)	0.00%	0.00%	0.00%
Effect of Supplemental Pension Payments	(0.17%)	(0.20%)	(0.16%)	(0.50%)	(0.50%)
2024-2025 Employer Rate	31.39%	20.18%	22.03%	48.09%	69.89%

Liabilities and Contributions

Reconciliation of Employer Contribution Amounts

Change in Normal Cost Contribution from 2023-24 to 2024-25

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2023-2024 Normal Cost Contribution	\$1,553,988,234	\$85,705,871	\$314,566,699	\$807,708,000	\$193,265,447
Effect of Change in Payroll	94,271,543	4,159,798	8,609,381	13,667,588	3,273,293
Effect of Changes in Demographic Results	(8,159,701)	(530,182)	(10,763,994)	(14,590,789)	(4,518,132)
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	(4,895,821)	(265,090)	0	0	0
2024-2025 Normal Cost Contribution	\$1,635,204,255	\$89,070,397	\$312,412,086	\$806,784,799	\$192,020,608

Change in Unfunded Accrued Liability Amortization Contribution from 2023-24 to 2024-25

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2023-2024 Amortization of the UAL	\$3,195,798,232	\$78,946,308	\$222,672,791	\$1,144,385,631	\$460,535,467
Effect of Elimination of Amortization Bases	0	0	471,001	0	(9,680,542)
Effect of Progression of Amortization Bases	243,728,467	9,772,598	28,972,864	100,778,418	30,755,089
Effect of Amortizing Prior Year's Bases over a (Larger)/Smaller than Expected Payroll	0	0	0	0	0
Effect of Investment (Gain)/Loss	16,868,686	776,893	2,259,963	7,128,318	1,853,927
Effect of Non-Investment (Gain)/Loss	58,600,798	1,438,440	1,876,329	26,145,927	15,887,391
Effect of Risk Mitigation	0	0	0	0	0
Effect of Assumption Change	0	0	0	0	0
Effect of Supplemental Pension Payments	(27,266,821)	(1,728,549)	(4,154,944)	(21,504,395)	(4,893,753)
2024-2025 Amortization of the UAL	\$3,487,729,362	\$89,205,690	\$252,098,004	\$1,256,933,899	\$494,457,579

Change in Total Contribution from 2023-24 to 2024-25

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2023-2024 Employer Contribution ¹	\$4,749,786,466	\$164,652,179	\$537,239,490	\$1,952,093,631	\$653,800,914
Effect of Elimination of Amortization Bases	0	0	471,001	0	(9,680,542)
Effect of Change in Payroll and Progression of Amortization Bases	338,000,010	13,932,396	37,582,245	114,446,006	34,028,382
Effect of (Gain)/Loss and Changes in Demographic Results	67,309,783	1,685,151	(6,627,702)	18,683,456	13,223,186
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	(4,895,821)	(265,090)	0	0	0
Effect of Supplemental Pension Payments	(27,266,821)	(1,728,549)	(4,154,944)	(21,504,395)	(4,893,753)
2024-2025 Employer Contribution	\$5,122,933,617	\$178,276,087	\$564,510,090	\$2,063,718,698	\$686,478,187

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
2024-25	31.39%	31.49%	31.39%	31.49%	20.18%	21.06%
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%

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
2024-25	22.03%	23.21%	48.09%	49.74%	69.89%	71.21%
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%

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 Funding Progress — State Miscellaneous

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

(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
6/30/23	\$142,014	\$101,088	71.2%	\$40,926	\$16,319	250.8%
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%

Liabilities and Contributions

History of Funding Progress — State Industrial

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

(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
6/30/23	\$6,219	\$4,908	78.9%	\$1,311	\$884	148.4%
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%)

Liabilities and Contributions

History of Funding Progress — State Safety

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

(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
6/30/23	\$18,524	\$14,875	80.3%	\$3,649	\$2,563	142.4%
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%)

Liabilities and Contributions

History of Funding Progress — State Peace Officers and Firefighters

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

(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
6/30/23	\$63,916	\$46,091	72.1%	\$17,825	\$4,291	415.4%
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%)

Liabilities and Contributions

History of Funding Progress — California Highway Patrol

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

(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
6/30/23	\$17,456	\$11,683	66.9%	\$5,773	\$982	587.7%
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%

Liabilities and Contributions

Normal Cost by Group

The table below displays normal cost broken out by benefit group for FY 2024-25. 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	16.3%	6% - 11%	\$0 - \$513	7.9%	8.4%
E	State Miscellaneous - 2nd Tier 2% @ 62 ⁴	12.4%	3.75%	\$0	3.8%	8.6%
P	State Industrial - 2% @ 62	16.9%	6% - 11%	\$317 - \$513	8.6%	8.3%
R	State Industrial - 2nd Tier 2% @ 62 ⁴	13.0%	3.75%	\$0	3.8%	9.2%
A	State Safety - 2% @ 57	20.9%	11% - 11.5%	\$0 - \$317	10.9%	10.0%
	State POFF - 2.5% @ 57	26.7%	13% - 15%	\$0 - \$863	11.7%	15.0%
	State POFF - 2.7% @ 57	26.9%	13%	\$863	10.8%	16.1%
	CHP - 2.7% @ 57	24.8%	13.5%	\$863	12.4%	12.4%
C	State Miscellaneous - 2% @ 60 & 3 Year FAC	18.0%	5% - 10%	\$317 - \$513	7.1%	10.9%
L	State Miscellaneous - 2% @ 55 ¹	18.8%	5% - 11%	\$317 - \$513	7.2%	11.6%
A	State Miscellaneous - 2nd Tier 2% @ 55 ⁴	14.6%	3.75%	\$0	3.8%	10.8%
S	State Industrial - 2% @ 60 & 3 Year FAC	19.1%	9%-11%	\$317 - \$513	8.9%	10.2%
S	State Industrial - 2% @ 55 ¹	20.7%	5% - 11%	\$317 - \$513	8.8%	11.9%
I	State Industrial - 2nd Tier 2% @ 55 ⁴	16.1%	3.75%	\$0	3.8%	12.3%
C	State Safety - 2% @ 55 ¹	22.0%	6% - 11.5%	\$0 - \$317	11.0%	11.0%
	State Safety - 2.5% @ 60 & 3 Year FAC	24.3%	11% - 11.5%	\$317	10.9%	13.4%
	State Safety - 2.5% @ 55 ¹	26.0%	11% - 11.5%	\$0 - \$317	11.0%	15.0%
	State POFF - 2.5% @ 55 & 3 Year FAC	30.0%	8% - 15%	\$238 - \$863	12.3%	17.7%
	State POFF - 3% @ 55 ¹	34.2%	8% - 13%	\$238 - \$863	11.3%	22.9%
	State POFF - 3% @ 50 ¹	33.9%	8% - 15%	\$238 - \$863	12.0%	21.9%
	CHP - 3% @ 55 & 3 Year FAC	33.3%	13.5%	\$863	12.5%	20.8%
	CHP - 3% @ 50 ¹	35.6%	13.5%	\$863	12.6%	23.0%
B	State Miscellaneous	17.51%	3.75% - 11%	\$0 - \$513	7.49%	10.02%
L	State Industrial	18.73%	3.75% - 11%	\$0 - \$513	8.65%	10.08%
E	State Safety	23.14%	6% - 11.5%	\$0 - \$317	10.95%	12.19%
N	State POFF	30.67%	8% - 15%	\$0 - \$863	11.87%	18.80%
D	CHP	32.12%	13.5%	\$863	12.57%	19.55%
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, 2023 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, 2024, based on 50% of the total normal cost for each respective plan as of the June 30, 2023 valuation.

	Basis for Current Rate			Rates Effective July 1, 2024			
	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%	16.31%	0.10%	No	8.00%
State Safety – CSU, Legislature and Judicial	20.97%	6/30/2021	10.50%	20.92%	-0.05%	No	10.50%
State POFF – CSU, Legislature and Judicial	26.44%	6/30/2021	13.25%	26.54%	0.10%	No	13.25%

Liabilities and Contributions

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

Pursuant to Government Code section 20683, members of State Bargaining Units 2, 5 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, 2024, based on 50% of the total normal cost for each respective plan as of the June 30, 2023 valuation.

	Basis for Current Rate			Rates Effective July 1, 2024			
	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%	17.51%	-0.20%	No	8.50%
State Industrial ²	19.00%	6/30/2021	9.00%	18.73%	-0.27%	No	9.00%
State Safety	23.69%	6/30/2021	11.50%	23.14%	-0.55%	No	11.50%
BU 5							
State Miscellaneous ²	17.71%	6/30/2021	8.75%	17.51%	-0.20%	No	8.75%
California Highway Patrol	32.88%	6/30/2021	13.50%	32.12%	-0.76%	No	13.50%
BU 18							
State Miscellaneous ²	15.48%	6/30/2015	10.00%	17.51%	2.03%	No	10.00%
State Industrial ²	18.02%	6/30/2015	10.00%	18.73%	0.71%	No	10.00%
State Safety	22.91%	6/30/2020	11.50%	23.14%	0.23%	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% per year.
- 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, 2024.

	Rates Effective July 1, 2024				
	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)	9.50%	9.50%	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 – (R)	9.50%	9.50%	11.50%		
Bargaining Unit 16 – (S, M, C, E)	8.00%	9.00%	11.50%		
Bargaining Unit 18 ² – (R)	10.00%	10.00%	11.50%		
Bargaining Unit 18 – (S, M, C, E)	8.00%	9.00%	11.50%		
Bargaining Unit 19 – (R)	9.50%	9.50%	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	36.49%				
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 Apage 40 for more detail.
- (3) Member rates depend on the Total Normal Cost rate for PEPRA benefits. See page 39 Attachment 5 for more detail.

Risk Analysis

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Discount Rate Sensitivity

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

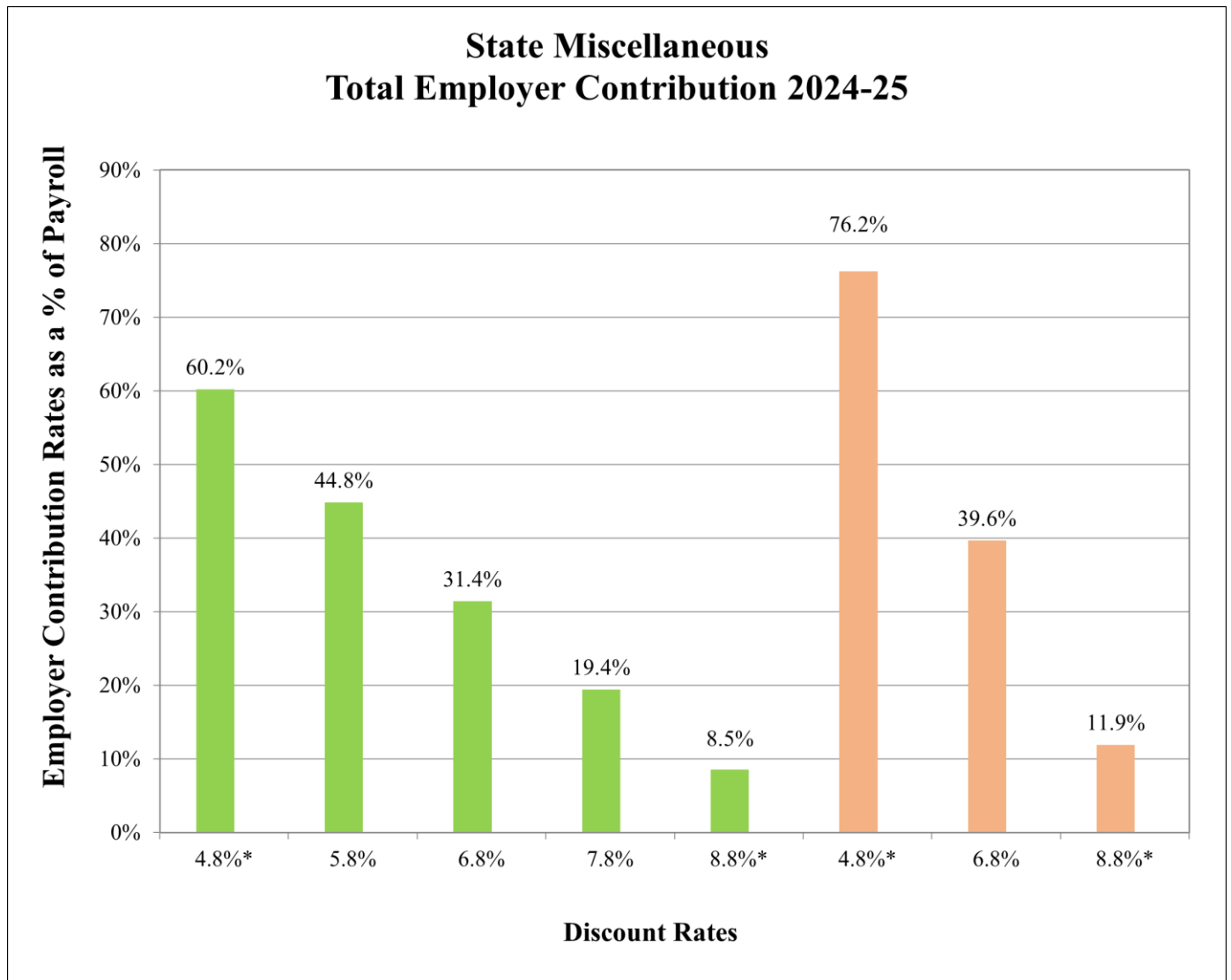
On the following pages, contribution rates and other key results are shown for the following discount rates:

- 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.

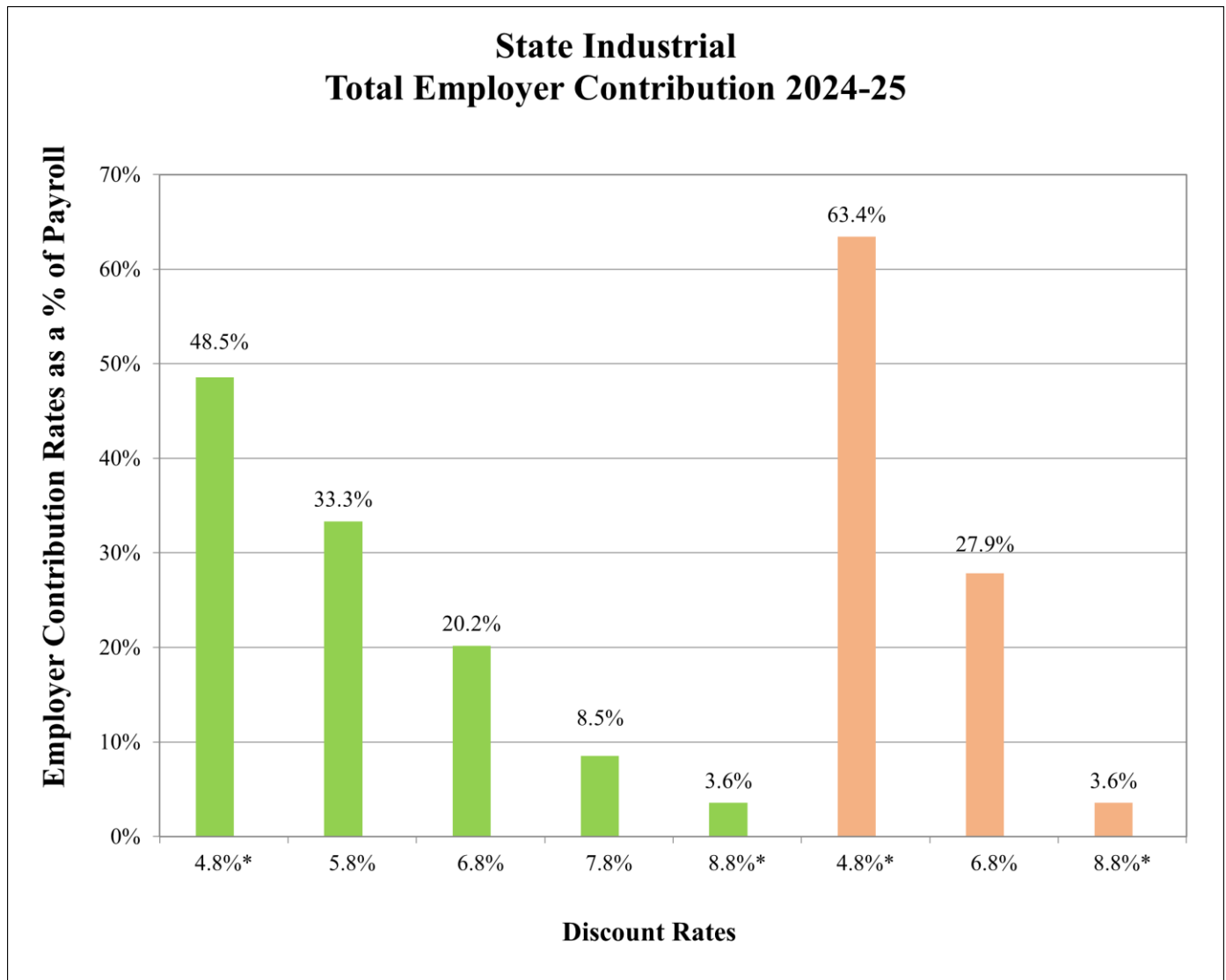
The results of the analysis are displayed in both graphical and tabular form. The reader may interpolate between the data points to estimate other data points of interest.

Discount Rate Sensitivity (continued)



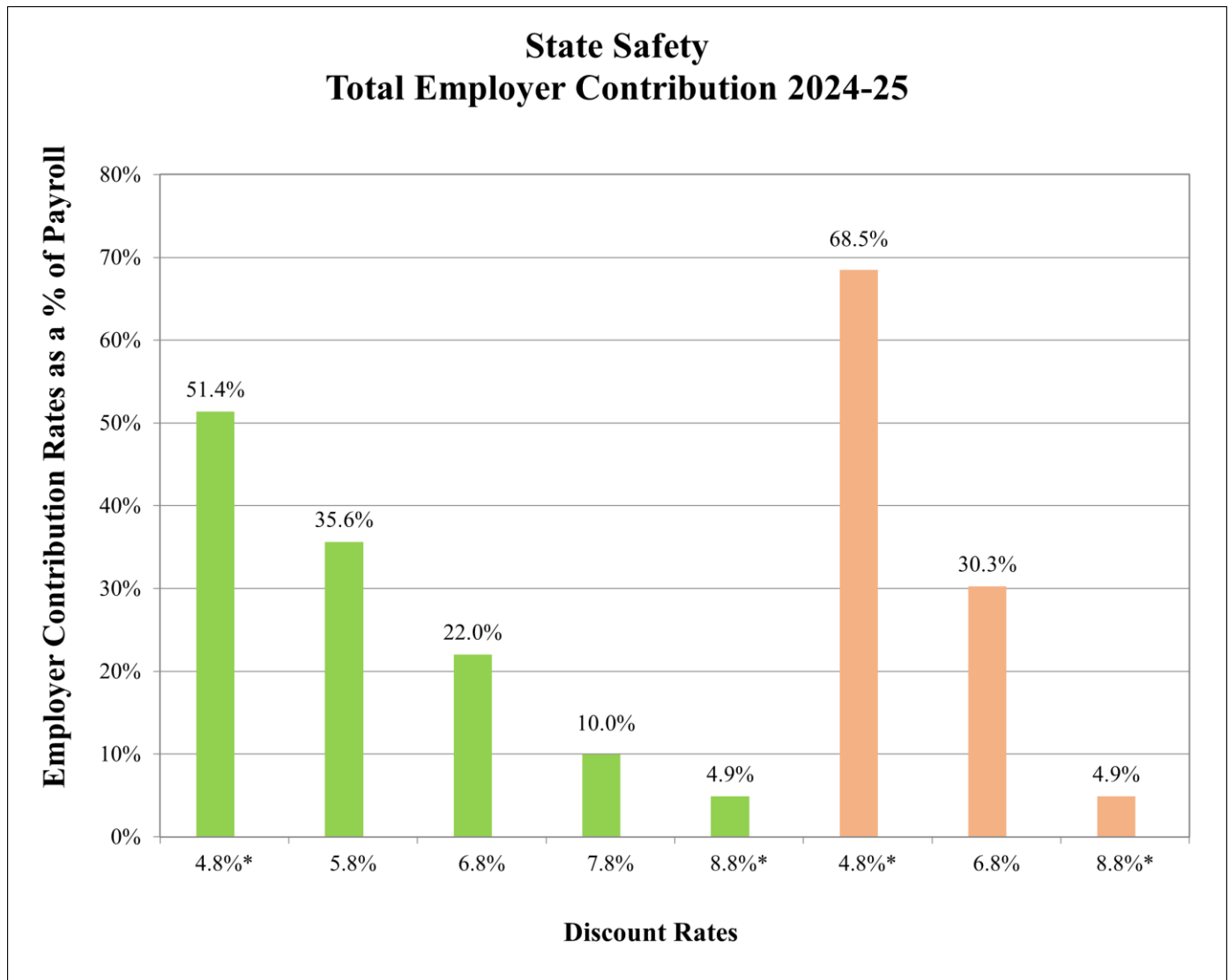
	Analysis of discount rate sensitivity based on current amortization method (varies from 8 to 25 years) or normal cost if in a surplus position
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (12 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity (continued)



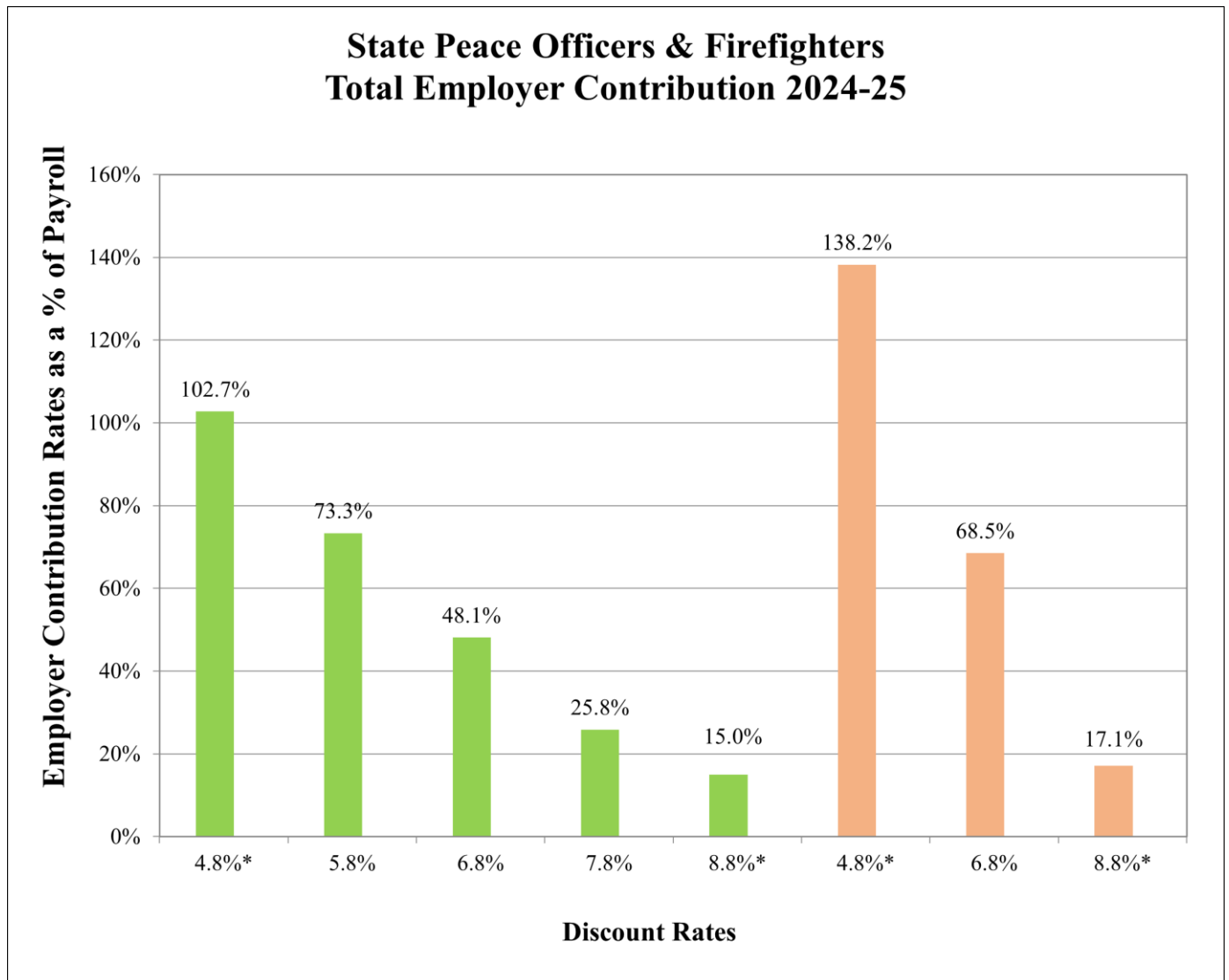
	Analysis of discount rate sensitivity based on current amortization method (varies from 1 to 25 years) or normal cost if in a surplus position
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (12 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity (continued)



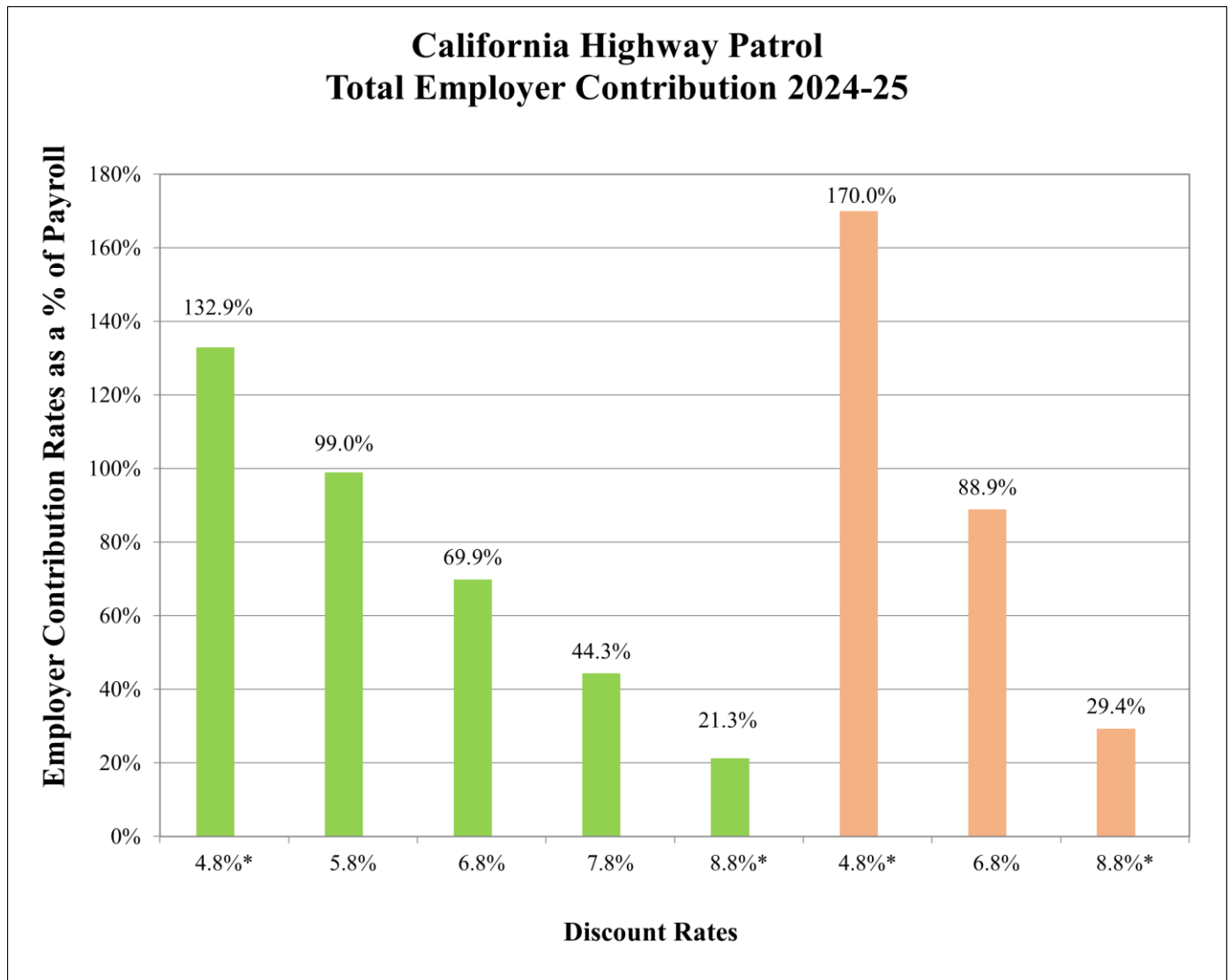
	Analysis of discount rate sensitivity based on current amortization method (varies from 1 to 25 years) or normal cost if in a surplus position
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (11 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity (continued)



	Analysis of discount rate sensitivity based on current amortization method (varies from 10 to 25 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 (continued)



	Analysis of discount rate sensitivity based on current amortization method (varies from 1 to 25 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 (continued)

State Miscellaneous

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

Sensitivity Analysis						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
5.8%	14.9%	30.0%	44.8%	159,757,779,372	58,669,288,317	63.3%
6.8% (current discount rate)	10.0%	21.4%	31.4%	142,014,028,700	40,925,537,645	71.2%
7.8%	6.4%	13.0%	19.4%	127,215,003,684	26,126,512,629	79.5%

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

Current Amortization Method						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	21.3%	38.9%	60.2%	181,207,111,952	80,118,620,897	55.8%
6.8% (current discount rate)	10.0%	21.4%	31.4%	142,014,028,700	40,925,537,645	71.2%
8.8%	3.6%	4.9%	8.5%	114,775,268,440	13,686,777,385	88.1%

Amortization of Unfunded Accrued Liability over EARSP (12 Years)						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	21.3%	54.9%	76.2%	181,207,111,952	80,118,620,897	55.8%
6.8% (current discount rate)	10.0%	29.6%	39.6%	142,014,028,700	40,925,537,645	71.2%
8.8%	3.6%	8.3%	11.9%	114,775,268,440	13,686,777,385	88.1%

- 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 (continued)

State Industrial

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

Sensitivity Analysis						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
5.8%	14.9%	18.4%	33.3%	7,088,465,701	2,180,282,977	69.2%
6.8% (current discount rate)	10.1%	10.1%	20.2%	6,219,461,196	1,311,278,472	78.9%
7.8%	6.4%	2.2%	8.5%	5,507,216,839	599,034,115	89.1%

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

Current Amortization Method						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	21.4%	27.2%	48.5%	8,159,938,810	3,251,756,086	60.1%
6.8% (current discount rate)	10.1%	10.1%	20.2%	6,219,461,196	1,311,278,472	78.9%
8.8%	3.6%	0.0%	3.6%	4,917,709,933	9,527,209	99.8%

Amortization of Unfunded Accrued Liability over EARSP (12 Years)						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	21.4%	42.1%	63.4%	8,159,938,810	3,251,756,086	60.1%
6.8% (current discount rate)	10.1%	17.8%	27.9%	6,219,461,196	1,311,278,472	78.9%
8.8%	3.6%	0.0%	3.6%	4,917,709,933	9,527,209	99.8%

- 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

Discount Rate Sensitivity (continued)

State Safety

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

Sensitivity Analysis						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
5.8%	17.5%	18.1%	35.6%	21,006,776,414	6,131,291,259	70.8%
6.8% (current discount rate)	12.2%	9.8%	22.0%	18,524,055,315	3,648,570,160	80.3%
7.8%	8.1%	1.9%	10.0%	16,479,120,523	1,603,635,368	90.3%

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

Current Amortization Method						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	24.6%	26.8%	51.4%	24,051,835,611	9,176,350,456	61.8%
6.8% (current discount rate)	12.2%	9.8%	22.0%	18,524,055,315	3,648,570,160	80.3%
8.8%	4.9%	0.0%	4.9%	14,778,917,228	(96,567,927)	100.7%

Amortization of Unfunded Accrued Liability over EARSP (11 Years)						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	24.6%	43.9%	68.5%	24,051,835,611	9,176,350,456	61.8%
6.8% (current discount rate)	12.2%	18.1%	30.3%	18,524,055,315	3,648,570,160	80.3%
8.8%	4.9%	0.0%	4.9%	14,778,917,228	(96,567,927)	100.7%

- 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 (continued)

State Peace Officers and Firefighters

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

Sensitivity Analysis						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
5.8%	27.4%	46.0%	73.3%	72,820,910,433	26,729,643,796	63.3%
6.8% (current discount rate)	18.8%	29.3%	48.1%	63,916,044,325	17,824,777,688	72.1%
7.8%	12.4%	13.5%	25.8%	56,641,726,931	10,550,460,294	81.4%

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

Current Amortization Method						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	39.0%	63.8%	102.7%	83,848,868,719	37,757,602,082	55.0%
6.8% (current discount rate)	18.8%	29.3%	48.1%	63,916,044,325	17,824,777,688	72.1%
8.8%	7.5%	7.5%	15.0%	50,634,417,736	4,543,151,099	91.0%

Amortization of Unfunded Accrued Liability over EARSP (12 Years)						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	39.0%	99.3%	138.2%	83,848,868,719	37,757,602,082	55.0%
6.8% (current discount rate)	18.8%	49.7%	68.5%	63,916,044,325	17,824,777,688	72.1%
8.8%	7.5%	9.6%	17.1%	50,634,417,736	4,543,151,099	91.0%

- 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 (continued)

California Highway Patrol

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

Sensitivity Analysis						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
5.8%	29.2%	69.8%	99.0%	19,909,652,941	8,226,504,949	58.7%
6.8% (current discount rate)	19.6%	50.3%	69.9%	17,455,908,560	5,772,760,568	66.9%
7.8%	12.4%	31.9%	44.3%	15,454,187,171	3,771,039,179	75.6%

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

Current Amortization Method						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	42.2%	90.7%	132.9%	22,953,485,901	11,270,337,909	50.9%
6.8% (current discount rate)	19.6%	50.3%	69.9%	17,455,908,560	5,772,760,568	66.9%
8.8%	7.0%	14.3%	21.3%	13,802,892,324	2,119,744,332	84.6%

Amortization of Unfunded Accrued Liability over EARSP (12 Years)						
As of June 30, 2023	Employer Normal Cost	Unfunded Liability Rate	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Status
4.8%	42.2%	127.8%	170.0%	22,953,485,901	11,270,337,909	50.9%
6.8% (current discount rate)	19.6%	69.3%	88.9%	17,455,908,560	5,772,760,568	66.9%
8.8%	7.0%	22.4%	29.4%	13,802,892,324	2,119,744,332	84.6%

- 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 post-retirement 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, 2023	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
10% lower mortality rates	\$145,363,174,741	\$101,088,491,055	\$44,274,683,686	69.5%	17.81%
Current mortality rates	142,014,028,700	101,088,491,055	40,925,537,645	71.2%	17.51%
10% higher mortality rates	138,951,079,114	101,088,491,055	37,862,588,059	72.8%	17.24%

State Industrial

As of June 30, 2023	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
10% lower mortality rates	\$6,348,489,851	\$4,908,182,724	\$1,440,307,127	77.3%	19.03%
Current mortality rates	6,219,461,196	4,908,182,724	1,311,278,472	78.9%	18.73%
10% higher mortality rates	6,100,903,561	4,908,182,724	1,192,720,837	80.5%	18.45%

State Safety

As of June 30, 2023	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
10% lower mortality rates	\$18,901,036,058	\$14,875,485,155	\$4,025,550,903	78.7%	23.48%
Current mortality rates	18,524,055,315	14,875,485,155	3,648,570,160	80.3%	23.14%
10% higher mortality rates	18,177,600,603	14,875,485,155	3,302,115,448	81.8%	22.83%

State Peace Officers & Firefighters

As of June 30, 2023	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
10% lower mortality rates	\$64,969,176,127	\$46,091,266,637	\$18,877,909,490	70.9%	31.01%
Current mortality rates	63,916,044,325	46,091,266,637	17,824,777,688	72.1%	30.67%
10% higher mortality rates	62,942,567,278	46,091,266,637	16,851,300,641	73.2%	30.34%

California Highway Patrol

As of June 30, 2023	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
10% lower mortality rates	\$17,740,783,536	\$11,683,147,992	\$6,057,635,544	65.9%	32.48%
Current mortality rates	17,455,908,560	11,683,147,992	5,772,760,568	66.9%	32.12%
10% higher mortality rates	17,192,849,409	11,683,147,992	5,509,701,417	68.0%	31.79%

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, 2023	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
-1% inflation rate	\$146,425,346,510	\$101,088,491,055	\$45,336,855,455	69.0%	18.40%
Current inflation rate	142,014,028,700	101,088,491,055	40,925,537,645	71.2%	17.51%
+1% inflation rate	130,864,612,934	101,088,491,055	29,776,121,879	77.2%	15.80%

State Industrial

As of June 30, 2023	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
-1% inflation rate	\$6,434,638,956	\$4,908,182,724	\$1,526,456,232	76.3%	19.69%
Current inflation rate	6,219,461,196	4,908,182,724	1,311,278,472	78.9%	18.73%
+1% inflation rate	5,700,885,905	4,908,182,724	792,703,181	86.1%	16.85%

State Safety

As of June 30, 2023	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
-1% inflation rate	\$19,166,146,972	\$14,875,485,155	\$4,290,661,817	77.6%	24.35%
Current inflation rate	18,524,055,315	14,875,485,155	3,648,570,160	80.3%	23.14%
+1% inflation rate	16,978,459,428	14,875,485,155	2,102,974,273	87.6%	20.80%

State Peace Officers & Firefighters

As of June 30, 2023	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
-1% inflation rate	\$66,173,067,482	\$46,091,266,637	\$20,081,800,845	69.7%	32.28%
Current inflation rate	63,916,044,325	46,091,266,637	17,824,777,688	72.1%	30.67%
+1% inflation rate	58,398,884,356	46,091,266,637	12,307,617,719	78.9%	27.43%

California Highway Patrol

As of June 30, 2023	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Status	Total Normal Cost
-1% inflation rate	\$18,077,893,432	\$11,683,147,992	\$6,394,745,440	64.6%	33.73%
Current inflation rate	17,455,908,560	11,683,147,992	5,772,760,568	66.9%	32.12%
+1% inflation rate	15,951,303,456	11,683,147,992	4,268,155,464	73.2%	28.75%

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, 2022			June 30, 2023		
	Retiree Accrued Liability	Total Accrued Liability	Ratio	Retiree Accrued Liability	Total Accrued Liability	Ratio
State Miscellaneous	\$83,022,168,367	\$136,885,121,928	60.7%	\$86,677,074,331	\$142,014,028,700	61.0%
State Industrial	\$3,169,813,182	\$5,916,656,618	53.6%	3,384,775,405	6,219,461,196	54.4%
State Safety	\$10,029,103,234	\$17,527,672,227	57.2%	10,757,130,998	18,524,055,315	58.1%
State Peace Officers & Firefighters	\$39,746,567,841	\$61,229,068,218	64.9%	42,466,270,151	63,916,044,325	66.4%
California Highway Patrol	\$10,533,289,011	\$16,644,422,636	63.3%	11,352,967,324	17,455,908,560	65.0%

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, 2022			June 30, 2023		
	Number of Actives	Number of Retirees	Support Ratio	Number of Actives	Number of Retirees	Support Ratio
State Miscellaneous	180,483	209,673	86.1%	184,297	213,206	86.4%
State Industrial	11,329	17,356	65.3%	11,609	18,014	64.4%
State Safety	27,211	30,202	90.1%	26,371	31,293	84.3%
State Peace Officers & Firefighters	41,366	47,598	86.9%	41,482	49,558	83.7%
California Highway Patrol	6,643	9,951	66.8%	6,458	10,252	63.0%

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

Risk Analysis

Maturity Measures (continued)

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	\$100,947,694,332	\$15,442,515,914	6.5	\$142,014,028,700	9.2
State Industrial	4,898,327,517	836,154,689	5.9	6,219,461,196	7.4
State Safety	14,867,049,035	2,425,146,020	6.1	18,524,055,315	7.6
State Peace Officers & Firefighters	46,051,585,780	4,060,818,964	11.3	63,916,044,325	15.7
California Highway Patrol	11,676,926,966	929,426,071	12.6	17,455,908,560	18.8

Risk Analysis

Maturity Measures History

State Miscellaneous

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/2019	59.9%	89.5%	6.5	9.3
06/30/2020	60.4%	88.4%	6.4	9.2
06/30/2021	60.7%	86.7%	7.6	9.5
06/30/2022	60.7%	86.1%	6.5	9.4
06/30/2023	61.0%	86.4%	6.5	9.2

State Industrials

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/2019	51.5%	76.9%	5.2	6.8
06/30/2020	52.2%	74.1%	5.3	6.8
06/30/2021	53.6%	68.7%	6.5	7.3
06/30/2022	53.6%	65.3%	5.7	7.4
06/30/2023	54.4%	64.4%	5.9	7.4

State Safety

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/2019	55.3%	107.8%	4.7	6.0
06/30/2020	56.0%	105.0%	5.0	6.2
06/30/2021	56.8%	97.5%	6.2	6.8
06/30/2022	57.2%	90.1%	5.9	7.4
06/30/2023	58.1%	84.3%	6.1	7.6

State Peace Officers & Firefighters

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/2019	62.6%	98.8%	9.7	14.1
06/30/2020	63.0%	96.0%	10.0	14.1
06/30/2021	64.9%	89.8%	12.4	15.5
06/30/2022	64.9%	86.9%	10.6	15.3
06/30/2023	66.4%	83.7%	11.3	15.7

California Highway Patrol

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/2019	61.3%	78.1%	10.0	15.5
06/30/2020	62.0%	73.8%	10.3	16.0
06/30/2021	62.6%	68.1%	13.4	17.8
06/30/2022	63.3%	66.8%	12.0	18.2
06/30/2023	65.0%	63.0%	12.6	18.8

Risk Analysis

Funded Status – Low-Default-Risk Basis

Actuarial Standard of Practice (ASOP) No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions, requires the disclosure of a low-default-risk obligation measure (LDRM) of benefit costs accrued as of the valuation date using a discount rate based on the yields of high quality fixed income securities with cash flows that replicate expected benefit payments. Conceptually, this measure represents the level at which financial markets would value the accrued plan costs, and would be approximately equal to the cost of a portfolio of low-default-risk bonds with similar financial characteristics to accrued plan costs

As permitted in ASOP No. 4, the Actuarial Office uses the Entry Age Actuarial Cost Method to calculate the LDRM. This methodology is in line with the measure of “benefit entitlements” calculated by the Bureau of Economic Analysis and used by the Federal Reserve to report the indebtedness due to pensions of plan sponsors and, conversely, the household wealth due to pensions of plan members.

As shown below, the discount rate used for the LDRM is 4.82%, which is the Standard FTSE Pension Liability Index¹ discount rate as of June 30, 2023, net of administrative expenses.

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
Discount Rate	4.82%	4.82%	4.82%	4.82%	4.82%
1) Accrued Liability ² – Low-Default-Risk Basis (LDRM)					
a) Active Members	\$69,536,153,137	\$2,897,615,558	\$9,004,536,485	\$28,849,517,402	\$8,311,880,643
b) Transferred Members	3,558,933,469	979,985,002	879,850,414	883,414,003	77,047,811
c) Separated Members	3,543,523,614	144,793,372	944,675,939	711,471,000	271,267,767
d) Members and Beneficiaries Receiving Payments	104,097,254,551	4,113,764,013	13,155,367,285	53,159,101,884	14,225,506,576
e) Total	\$180,735,864,771	\$8,136,157,945	\$23,984,430,123	\$83,603,504,289	\$22,885,702,797
2) Market Value of Assets (MVA)	101,088,491,055	4,908,182,724	14,875,485,155	46,091,266,637	11,683,147,992
3) Unfunded Accrued Liability – Low Default-Risk Basis [(1e)-(2)]	\$79,647,373,716	\$3,227,975,221	\$9,108,944,968	\$37,512,237,652	\$11,202,554,805
4) Unfunded Accrued Liability – Funding Policy Basis	40,925,537,645	1,311,278,472	3,648,570,160	17,824,777,688	5,772,760,568
5) Present Value of Unearned Investment Risk Premium [(3)-(4)]	\$38,721,836,071	\$1,916,696,749	\$5,460,374,808	\$19,687,459,964	\$5,429,794,237

The difference between the unfunded liabilities on a low-default-risk basis and on the funding policy basis represents the present value of the investment risk premium that must be earned in future years to keep future contributions for currently accrued plan costs at the levels anticipated by the funding policy.

Benefit security for members of the plan relies on a combination of the assets in the plan, the investment income generated from those assets, and the ability of the plan sponsor to make necessary future contributions. If future returns fall short of 6.8%, benefit security could be at risk without higher than currently anticipated future contributions.

The funded status on a low-default-risk basis is not appropriate for assessing the sufficiency of plan assets to cover the cost of settling the plan’s benefit obligations, nor is it appropriate for assessing the need for future contributions (see Funded Status – Funding Policy Basis).

¹ This index is based on a yield curve of hypothetical AA-rated zero coupon corporate bonds whose maturities range from 6 months to 30 years. The index represents the single discount rate that would produce the same present value as discounting a standardized set of liability cash flows for a fully open pension plan using the yield curve. The liability cash flows are reasonably consistent with the pattern of benefits expected to be paid from the entire Public Employees’ Retirement Fund for current and former plan members. A different index, hence a different discount rate, may be needed to measure the LDRM for a subset of the fund, such as a single rate plan or a group of retirees.

² If plan assets were invested entirely in the AA fixed income securities used to determine the discount rate of 4.82%, the CalPERS discount rate could, at various times, be below 4.5% or 5.25%, and some automatic annual retiree COLAs could be suspended (Gov. Code sections 21329 and 21335). Since there is currently no proposal to adopt an asset allocation entirely comprised of fixed income securities, the automatic COLAs have been fully valued in the measures above based on the assumptions used for plan funding. Removing future COLAs from the measurement would understate the statutory obligation.

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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 are 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 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	2.80%	2.80%	2.80%	2.80%	2.80%
- 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 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.

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 2023 of \$265,000.

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 2023 of \$330,000,

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

In 2021, CalPERS completed its most recent asset liability management study incorporating actuarial assumptions and strategic asset allocation. In November 2021, the board adopted changes to the asset allocation that increased the expected volatility of returns. The adopted asset allocation was expected to have a long-term blended return that continued to support a discount rate assumption of 6.8%. The board also approved several changes to the demographic assumptions that more closely aligned with actual experience.

For more details and additional rationale for the selection of the actuarial assumptions, please refer to the [2021 CalPERS Experience Study and Review of Actuarial Assumptions](#) that can be found on the CalPERS website under: Forms and Publications. Click on "View All" and search for Experience Study.

All actuarial assumptions (except the discount rates and price inflation assumption used for the accrued liability on a termination basis) represent an estimate of future experience rather than observations of the 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 entry age and duration of service. Merit rates in the table 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%

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)

Appendix A – Statement of Actuarial Methods and Assumptions

Demographic Assumptions

General Mortality

The mortality assumptions are based on mortality rates resulting from the most recent CalPERS Experience Study adopted by the CalPERS Board in November 2021. For purposes of the mortality rates, the rates incorporate generational mortality to capture on-going mortality improvement. Generational mortality explicitly assumes that members born more recently will live longer than the members born before them thereby capturing the mortality improvement seen in the past and expected continued improvement. For more details, please refer to the 2021 Experience Study report that can be found on the CalPERS website.

See Plan Specific Actuarial Assumptions for Pre-Retirement Mortality tables which vary by plan.

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 are for 2017 and are projected generationally using 80% of the Society of Actuaries' Scale MP-2020.

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

- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

Pre-Retirement Mortality and Disability

Rates vary by age and gender are displayed 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

The pre-retirement mortality rates above are from the 2017 base table. The base rates are then projected generationally using 80% of the Society of Actuaries' Scale MP-2020.

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

- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

Pre-Retirement Mortality and Disability

Rates vary by age and gender are displayed 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

The pre-retirement mortality rates above are from the 2017 base table. The base rates are then projected generationally using 80% of the Society of Actuaries' Scale MP-2020.

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

- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

Pre-Retirement Mortality and Disability

Rates vary by age and gender are displayed 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

The pre-retirement mortality rates above are from the 2017 base table. The base rates are then projected generationally using 80% of the Society of Actuaries' Scale MP-2020.

An industrial disability or death is job-related, while a non-industrial disability or death is not job-related.

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

- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

Pre-Retirement Mortality and Disability

Rates vary by age and gender are displayed 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

The pre-retirement mortality rates above are from the 2017 base table. The base rates are then projected generationally using 80% of the Society of Actuaries' Scale MP-2020.

An industrial disability or death is job-related, while a non-industrial disability or death is not job-related.

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

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

Appendix A – Statement of Actuarial Methods and Assumptions

Plan Specific Actuarial Assumptions (continued)

State Peace Officers and Firefighters (continued)

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

- After termination with vested benefits, a miscellaneous member is assumed to retire at age 59 and a safety member at age 54.

Pre-Retirement Mortality and Disability

Rates vary by age and gender are displayed 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

The pre-retirement mortality rates above are from the 2017 base table. The base rates are then projected generationally using 80% of the Society of Actuaries' Scale MP-2020.

An industrial disability or death is job-related, while a non-industrial disability or death is not job-related.

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

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.

- 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)

California Highway Patrol (continued)

Pre-Retirement Mortality and Disability

Rates vary by age and gender are displayed 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

The pre-retirement mortality rates above are from the 2017 base table. The base rates are then projected generationally for 15 years using 80% of the Society of Actuaries' Scale MP-2020.

An industrial disability or death is job-related, while a non-industrial disability or death is not job-related.

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.

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. PEPRAs 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 \$146,042 for 2023 and for those employees who do not participate in Social Security the cap for 2023 is \$175,250. 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 PEPRAs, 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. PEPRAs 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; unless they are disabled, 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*. If there is no eligible survivor then the option portion is 100% of the retirement allowance.

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 state 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 PEPRAs members and age 52 for Miscellaneous 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 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. 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. This benefit is only available to members who are not covered by Social Security.

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.

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%	N/A
53	0.650%	N/A
54	0.700%	N/A
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 \$146,042 for 2023 and for those employees who do not participate in Social Security the cap for 2023 is \$175,250. 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.

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; unless they are disabled 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*. If there is no eligible survivor then the option portion is 100% of the retirement allowance.

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 state 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. 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

Retirement and survivor allowances are adjusted each year in May for cost of living, 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 . This benefit is only available to members who are not covered by Social Security.

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.

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 \$146,042 for 2023 and for those employees who do not participate in Social Security the cap for 2023 is \$175,250. 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, 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, 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; unless they are disabled, 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*. If there is no eligible survivor then the option portion is 100% of the retirement allowance.

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 state 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. 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 . This benefit is only available to members who are not covered by Social Security.

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.

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).

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. PEPRAs 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%	N/A
53	0.650%	N/A
54	0.700%	N/A
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. 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 \$146,042 for 2023 and for those employees who do not participate in Social Security the cap for 2023 is \$175,250. 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).

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.

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.

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, 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; unless they are disabled, 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*. If there is no eligible survivor then the option portion is 100% of the retirement allowance.

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 state 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. 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

Retirement and survivor allowances are adjusted each year in May for cost of living, 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 . This benefit is only available to members who are not covered by Social Security.

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.

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 \$146,042 for 2023 and for those employees who do not participate in Social Security the cap for 2023 is \$175,250. 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, 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; unless they are disabled, 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*. If there is no eligible survivor then the option portion is 100% of the retirement allowance.

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 state 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. 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 6.00%-11.50%, 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 . This benefit is only available to members who are not covered by Social Security.

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.

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. 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 \$146,042 for 2023 and for those employees who do not participate in Social Security the cap for 2023 is \$175,250. 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, 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; unless they are disabled, 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*. If there is no eligible survivor then the option portion is 100% of the retirement allowance.

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 state 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. 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%-15%.

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 . This benefit is only available to members who are not covered by Social Security.

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.

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. 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 \$146,042 for 2023 and for those employees who do not participate in Social Security the cap for 2023 is \$175,250. 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, 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; unless they are disabled, 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. If there is no eligible survivor then the option portion is 100% of the retirement allowance.

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 state 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. 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%.

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. This benefit is only available to members who are not covered by Social Security.

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.

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.

Appendix C – Participant Data

Reconciliation of Participants

State Miscellaneous¹

	Active	Transfer	Separated	Receiving	Total
As of June 30, 2022	180,483	25,022	75,327	209,673	490,505
Retirement	(6,468)	(1,664)	(748)	8,880	-
Industrial Disabilities	(1)	(75)	-	76	-
Non-Industrial Disabilities	(157)	(44)	(25)	226	-
Deaths ²	(269)	(47)	(599)	(7,243)	(8,158)
New Survivors	n/a	n/a	n/a	1,720	1,720
Non-Vested Terminations ³	(5,061)	(370)	5,431	-	-
Vested Terminations	(2,197)	(482)	2,679	-	-
Refunds of Contributions	(863)	(89)	(1,674)	-	(2,626)
Transfer	(1,884)	3,020	(1,110)	(26)	-
Redeposits/Rehires	2,347	(497)	(1,772)	(78)	-
First Year in Status	18,172	312	860	29	19,373
Data Corrections ⁴	195	689	477	(51)	1,310
As of June 30, 2023	184,297	25,775	78,846	213,206	502,124

(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, 2022	11,329	7,858	4,386	17,356	40,929
Retirement	(400)	(456)	(70)	922	(4)
Industrial Disabilities	(2)	(20)	(3)	27	2
Non-Industrial Disabilities	(25)	(10)	(7)	44	2
Deaths ¹	(16)	(11)	(32)	(416)	(475)
New Survivors	n/a	n/a	n/a	104	104
Non-Vested Terminations ²	(225)	(50)	275	-	-
Vested Terminations	(131)	(106)	238	(1)	-
Refunds of Contributions	(55)	(15)	(120)	-	(190)
Transfer	(689)	862	(160)	(13)	-
Redeposits/Rehires	228	(130)	(91)	(7)	-
First Year in Status	1,625	84	132	56	1,897
Data Corrections ³	(30)	(10)	(66)	(58)	(164)
As of June 30, 2023	11,609	7,996	4,482	18,014	42,101

(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, 2022	27,211	5,765	10,300	30,202	73,478
Retirement	(969)	(238)	(125)	1,314	(18)
Industrial Disabilities	(172)	(14)	(26)	229	17
Non-Industrial Disabilities	(32)	(10)	(8)	51	1
Deaths ¹	(51)	(8)	(50)	(826)	(935)
New Survivors	n/a	n/a	n/a	240	240
Non-Vested Terminations ²	(736)	(70)	807	(1)	-
Vested Terminations	(525)	(108)	637	(4)	-
Refunds of Contributions	(232)	(14)	(342)	(1)	(589)
Transfer	(642)	850	(202)	(6)	-
Redeposits/Rehires	498	(121)	(370)	(7)	-
First Year in Status	2,106	91	263	115	2,575
Data Corrections ³	(85)	(11)	(94)	(13)	(203)
As of June 30, 2023	26,371	6,112	10,790	31,293	74,566

(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, 2022	41,366	5,516	8,785	47,598	103,265
Retirement	(1,633)	(193)	(116)	1,893	(49)
Industrial Disabilities	(371)	(23)	(22)	467	51
Non-Industrial Disabilities	(17)	(1)	(2)	18	(2)
Deaths ¹	(36)	(2)	(24)	(762)	(824)
New Survivors	n/a	n/a	n/a	324	324
Non-Vested Terminations ²	(702)	(69)	771	-	-
Vested Terminations	(308)	(75)	384	(1)	-
Refunds of Contributions	(112)	(11)	(183)	-	(306)
Transfer	(321)	561	(233)	(7)	-
Redeposits/Rehires	335	(74)	(251)	(10)	-
First Year in Status	3,380	71	223	96	3,770
Data Corrections ³	(99)	(10)	(64)	(58)	(231)
As of June 30, 2023	41,482	5,690	9,268	49,558	105,998

(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, 2022	6,643	250	604	9,951	17,448
Retirement	(278)	(20)	(34)	327	(5)
Industrial Disabilities	(121)	(1)	(4)	131	5
Non-Industrial Disabilities	(2)	-	-	2	-
Deaths ¹	(5)	-	(4)	(296)	(305)
New Survivors	n/a	n/a	n/a	128	128
Non-Vested Terminations ²	(15)	-	15	-	-
Vested Terminations	(68)	(6)	74	-	-
Refunds of Contributions	(11)	-	(9)	-	(20)
Transfer	(11)	25	(13)	(1)	-
Redeposits/Rehires	15	(2)	(11)	(2)	-
First Year in Status	311	-	28	18	357
Data Corrections ³	-	-	(5)	(6)	(11)
As of June 30, 2023	6,458	246	641	10,252	17,597

(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

Distribution of Active Members by Age and Years of Service

State Miscellaneous – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	3,228	17	0	0	0	0	3,245	\$158,358,136
25 - 29	11,504	1,529	4	0	0	0	13,037	772,563,512
30 - 34	13,070	7,395	750	10	1	0	21,226	1,471,573,412
35 - 39	10,481	9,163	4,111	927	71	2	24,755	1,971,615,664
40 - 44	8,172	7,627	4,705	3,553	1,146	68	25,271	2,169,160,230
45 - 49	5,976	5,601	3,758	3,905	3,563	885	23,688	2,134,401,378
50 - 54	4,801	4,640	3,423	4,081	4,800	3,786	25,531	2,368,881,332
55 - 59	3,461	3,653	2,795	3,113	3,973	5,297	22,292	2,077,548,101
60 - 64	2,126	2,827	2,255	2,294	2,790	3,800	16,092	1,484,375,274
65 and over	1,203	1,764	1,422	1,414	1,415	1,942	9,160	834,038,871
Total	64,022	44,216	23,223	19,297	17,759	15,780	184,297	\$15,442,515,914

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, 2023

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+	
15 - 24	\$48,753	\$57,934	\$0	\$0	\$0	\$0	\$48,801
25 - 29	57,525	72,288	65,725	0	0	0	59,259
30 - 34	63,975	77,107	85,792	80,246	74,820	0	69,329
35 - 39	70,158	83,090	92,136	95,341	106,248	123,319	79,645
40 - 44	71,293	86,133	96,434	99,106	101,005	117,921	85,836
45 - 49	71,206	85,754	96,214	101,631	103,623	114,029	90,105
50 - 54	69,405	83,870	93,297	99,748	104,795	110,161	92,785
55 - 59	68,538	81,411	89,186	96,787	102,239	110,662	93,197
60 - 64	67,924	79,068	86,445	92,451	102,678	111,303	92,243
65 and over	62,273	77,715	86,513	92,761	103,251	114,186	91,052
Average	\$65,423	\$82,040	\$92,376	\$97,932	\$103,292	\$111,352	\$83,791

Appendix C – Participant Data

Active Members (continued)

Distribution of Active Members by Age and Years of Service

State Industrial – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	327	0	0	0	0	0	327	\$13,520,448
25 - 29	839	87	0	0	0	0	926	44,647,492
30 - 34	976	471	33	1	0	0	1,481	87,073,765
35 - 39	708	604	291	87	1	0	1,691	122,213,802
40 - 44	556	464	299	271	58	1	1,649	123,039,917
45 - 49	422	375	292	261	127	47	1,524	124,679,898
50 - 54	363	357	265	279	177	177	1,618	131,044,022
55 - 59	235	282	225	241	142	141	1,266	101,401,148
60 - 64	125	200	140	157	72	95	789	61,417,444
65 and over	48	82	72	70	30	36	338	27,116,749
Total	4,599	2,922	1,617	1,367	607	497	11,609	\$836,154,689

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, 2023

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+	
15 - 24	\$41,347	\$0	\$0	\$0	\$0	\$0	\$41,347
25 - 29	47,422	55,863	0	0	0	0	48,215
30 - 34	54,374	66,687	76,147	82,685	0	0	58,794
35 - 39	63,496	77,051	79,786	85,115	96,572	0	72,273
40 - 44	65,347	77,051	81,700	80,049	82,422	53,168	74,615
45 - 49	72,852	86,581	85,929	82,509	83,120	91,201	81,811
50 - 54	74,407	83,263	83,551	81,557	79,948	86,231	80,991
55 - 59	70,533	85,017	84,401	78,921	81,092	80,326	80,096
60 - 64	73,483	84,171	78,040	75,309	70,857	79,442	77,842
65 and over	76,305	76,100	87,892	79,079	77,091	84,373	80,227
Average	\$59,761	\$77,961	\$82,644	\$80,358	\$79,924	\$83,527	\$72,026

Appendix C – Participant Data

Active Members (continued)

Distribution of Active Members by Age and Years of Service

State Safety – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	313	1	0	0	0	0	314	\$14,829,501
25 - 29	1,195	175	0	0	0	0	1,370	89,677,534
30 - 34	1,669	932	88	2	0	0	2,691	211,953,663
35 - 39	1,542	1,479	501	137	2	0	3,661	322,539,820
40 - 44	1,250	1,362	681	525	58	0	3,876	350,419,613
45 - 49	993	1,166	688	832	168	15	3,862	373,719,410
50 - 54	859	1,105	680	950	308	105	4,007	399,708,942
55 - 59	569	923	545	741	219	98	3,095	303,191,111
60 - 64	371	638	405	544	164	79	2,201	214,477,721
65 and over	127	355	271	349	116	76	1,294	144,628,701
Total	8,888	8,136	3,859	4,080	1,035	373	26,371	\$2,425,146,020

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, 2023

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+	
15 - 24	\$47,197	\$56,778	\$0	\$0	\$0	\$0	\$47,228
25 - 29	64,249	73,715	0	0	0	0	65,458
30 - 34	75,301	84,107	87,506	94,458	0	0	78,764
35 - 39	79,850	93,760	96,488	88,436	141,671	0	88,102
40 - 44	80,790	93,577	100,237	92,328	90,448	0	90,408
45 - 49	80,628	94,876	106,823	108,428	106,678	93,552	96,768
50 - 54	79,727	95,248	106,442	112,402	115,253	107,751	99,753
55 - 59	79,918	93,596	107,872	106,298	104,638	110,776	97,962
60 - 64	79,007	93,344	103,967	104,439	114,763	99,623	97,446
65 and over	93,839	97,016	117,785	124,332	121,620	116,461	111,769
Average	\$76,125	\$92,641	\$104,430	\$107,045	\$110,912	\$108,028	\$91,963

Appendix C – Participant Data

Active Members (continued)

Distribution of Active Members by Age and Years of Service

State Peace Officers and Firefighters – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	2,141	3	0	0	0	0	2,144	\$110,373,984
25 - 29	4,219	715	1	0	0	0	4,935	344,347,865
30 - 34	3,043	3,833	140	0	0	0	7,016	618,729,522
35 - 39	1,572	2,926	1,027	951	0	0	6,476	638,290,384
40 - 44	781	1,448	1,055	2,697	716	1	6,698	717,708,334
45 - 49	328	730	662	2,110	2,414	565	6,809	780,066,773
50 - 54	235	413	430	1,203	1,265	845	4,391	510,281,623
55 - 59	100	193	199	590	502	379	1,963	222,389,141
60 - 64	38	79	76	249	195	190	827	93,571,594
65 and over	9	25	27	50	54	58	223	25,059,741
Total	12,466	10,365	3,617	7,850	5,146	2,038	41,482	\$4,060,818,963

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, 2023

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+	
15 - 24	\$51,428	\$89,083	\$0	\$0	\$0	\$0	\$51,480
25 - 29	65,633	94,165	113,556	0	0	0	69,777
30 - 34	72,250	100,110	108,219	0	0	0	88,188
35 - 39	76,524	101,774	109,671	113,113	0	0	98,562
40 - 44	80,746	102,698	108,443	113,048	120,840	121,518	107,153
45 - 49	83,399	103,630	110,261	112,469	121,550	129,800	114,564
50 - 54	94,596	106,942	113,591	112,158	120,032	128,136	116,211
55 - 59	99,902	109,510	110,304	109,494	117,041	121,259	113,290
60 - 64	95,035	111,178	107,939	108,750	119,419	118,992	113,146
65 and over	79,664	104,852	121,650	107,019	114,077	119,410	112,376
Average	\$68,517	\$101,319	\$109,920	\$112,322	\$120,479	\$126,214	\$97,894

Appendix C – Participant Data

Active Members (continued)

Distribution of Active Members by Age and Years of Service

California Highway Patrol – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	98	0	0	0	0	0	98	\$9,700,919
25 - 29	456	139	0	0	0	0	595	70,710,868
30 - 34	344	500	26	0	0	0	870	113,848,609
35 - 39	175	387	394	251	0	0	1,207	167,668,203
40 - 44	30	183	403	511	205	0	1,332	196,121,880
45 - 49	0	27	190	360	636	201	1,414	219,264,826
50 - 54	0	0	46	127	373	255	801	128,329,369
55 - 59	0	0	0	17	48	76	141	23,781,397
60 - 64	0	0	0	0	0	0	0	0
65 and over	0	0	0	0	0	0	0	0
Total	1,103	1,236	1,059	1,266	1,262	532	6,458	\$929,426,071

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, 2023

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+	
15 - 24	\$98,989	\$0	\$0	\$0	\$0	\$0	\$98,989
25 - 29	112,600	139,317	0	0	0	0	118,842
30 - 34	117,273	139,521	144,083	0	0	0	130,860
35 - 39	116,928	139,915	143,562	145,399	0	0	138,913
40 - 44	127,289	139,243	143,494	148,795	160,777	0	147,239
45 - 49	0	137,466	143,412	146,989	158,375	172,448	155,067
50 - 54	0	0	145,382	148,274	157,032	173,483	160,211
55 - 59	0	0	0	151,925	161,997	176,616	168,662
60 - 64	0	0	0	0	0	0	0
65 and over	0	0	0	0	0	0	0
Average	\$113,934	\$139,535	\$143,601	\$147,598	\$158,506	\$173,540	\$143,919

Appendix C – Participant Data

Transferred and Separated Participants

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

State Miscellaneous – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	214	0	0	0	0	0	214	\$66,016
25 - 29	1,508	31	0	0	0	0	1,539	77,815
30 - 34	2,773	325	9	0	0	0	3,107	81,732
35 - 39	2,695	644	130	12	1	0	3,482	86,207
40 - 44	2,564	808	306	105	13	0	3,796	90,433
45 - 49	2,447	788	346	199	44	5	3,829	95,543
50 - 54	2,286	912	413	244	114	34	4,003	97,090
55 - 59	1,635	625	337	201	104	47	2,949	94,452
60 - 64	1,135	397	197	101	55	32	1,917	86,642
65 and over	607	172	94	42	13	11	939	85,569
Total	17,864	4,702	1,832	904	344	129	25,775	\$89,651

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

State Miscellaneous – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	824	0	0	0	0	0	824	\$38,390
25 - 29	5,039	113	1	0	0	0	5,153	41,708
30 - 34	8,321	935	25	0	0	0	9,281	45,864
35 - 39	8,899	1,595	279	21	1	0	10,795	50,032
40 - 44	9,407	1,996	555	125	19	2	12,104	51,427
45 - 49	7,789	1,906	685	275	93	9	10,757	54,268
50 - 54	6,696	1,933	815	327	143	46	9,960	55,778
55 - 59	5,324	1,543	666	193	88	34	7,848	52,911
60 - 64	4,562	949	487	163	48	30	6,239	48,327
65 and over	4,733	621	363	104	42	22	5,885	44,677
Total	61,594	11,591	3,876	1,208	434	143	78,846	\$50,145

Appendix C – Participant Data

Transferred and Separated Participants (continued)

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

State Industrial – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	31	0	0	0	0	0	31	\$42,197
25 - 29	321	17	0	0	0	0	338	52,088
30 - 34	642	93	2	0	0	0	737	63,272
35 - 39	878	192	55	5	0	0	1,130	76,253
40 - 44	862	269	76	15	5	0	1,227	85,567
45 - 49	823	243	107	44	9	1	1,227	91,638
50 - 54	936	313	127	49	30	15	1,470	92,177
55 - 59	701	190	112	30	22	8	1,063	88,799
60 - 64	365	113	47	15	6	1	547	85,788
65 and over	172	38	11	3	2	0	226	83,263
Total	5,731	1,468	537	161	74	25	7,996	\$83,139

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

State Industrial – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	53	0	0	0	0	0	53	\$37,031
25 - 29	255	9	0	0	0	0	264	39,583
30 - 34	453	44	3	0	0	0	500	42,778
35 - 39	453	92	18	2	0	0	565	48,126
40 - 44	441	85	35	9	0	0	570	50,624
45 - 49	387	85	27	19	13	2	533	48,326
50 - 54	477	103	37	16	2	7	642	47,533
55 - 59	381	84	30	12	5	1	513	43,792
60 - 64	312	52	14	2	1	1	382	40,449
65 and over	395	57	4	3	0	1	460	36,920
Total	3,607	611	168	63	21	12	4,482	\$44,851

Appendix C – Participant Data

Transferred and Separated Participants (continued)

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

State Safety – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	35	0	0	0	0	0	35	\$50,049
25 - 29	313	5	0	0	0	0	318	62,533
30 - 34	609	74	2	0	0	0	685	71,839
35 - 39	682	182	36	5	0	0	905	84,841
40 - 44	689	225	80	26	2	0	1,022	91,176
45 - 49	675	219	87	19	3	1	1,004	97,139
50 - 54	593	188	89	38	8	1	917	99,285
55 - 59	432	131	64	24	6	2	659	98,292
60 - 64	258	79	30	14	3	1	385	95,848
65 and over	124	35	15	5	3	0	182	97,850
Total	4,410	1,138	403	131	25	5	6,112	\$89,802

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

State Safety – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	92	0	0	0	0	0	92	\$41,977
25 - 29	563	10	0	0	0	0	573	48,750
30 - 34	1,044	133	7	0	0	0	1,184	58,362
35 - 39	1,183	267	41	2	0	0	1,493	68,008
40 - 44	1,258	294	78	19	2	0	1,651	71,195
45 - 49	1,093	310	100	28	8	1	1,540	80,527
50 - 54	1,093	261	110	32	10	0	1,506	81,036
55 - 59	817	160	41	15	4	0	1,037	77,366
60 - 64	715	103	29	10	2	3	862	76,091
65 and over	741	47	35	19	5	5	852	81,051
Total	8,599	1,585	441	125	31	9	10,790	\$72,373

Appendix C – Participant Data

Transferred and Separated Participants (continued)

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

State Peace Officers and Firefighters – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	122	0	0	0	0	0	122	\$56,991
25 - 29	509	12	0	0	0	0	521	73,217
30 - 34	802	98	3	0	0	0	903	90,005
35 - 39	828	140	31	0	0	0	999	98,115
40 - 44	865	140	49	15	1	0	1,070	111,007
45 - 49	727	111	49	17	11	0	915	120,580
50 - 54	567	108	25	10	3	2	715	121,175
55 - 59	229	48	10	1	1	1	290	107,615
60 - 64	82	25	6	1	0	0	114	100,946
65 and over	29	9	1	1	0	1	41	81,510
Total	4,760	691	174	45	16	4	5,690	\$103,022

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

State Peace Officers and Firefighters – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	375	0	0	0	0	0	375	\$45,285
25 - 29	1,020	18	0	0	0	0	1,038	48,404
30 - 34	1,130	127	5	0	0	0	1,262	52,236
35 - 39	1,051	191	51	8	0	0	1,301	53,818
40 - 44	1,163	205	108	56	7	0	1,539	54,302
45 - 49	950	210	108	85	43	3	1,399	57,905
50 - 54	823	137	39	12	9	3	1,023	46,314
55 - 59	569	73	26	3	2	1	674	41,054
60 - 64	350	42	9	5	0	0	406	38,153
65 and over	217	21	7	3	2	1	251	39,767
Total	7,648	1,024	353	172	63	8	9,268	\$50,525

Appendix C – Participant Data

Transferred and Separated Participants (continued)

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

California Highway Patrol – As of June 30, 2023

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	9	1	0	0	0	0	10	93,642
30 - 34	18	5	0	0	0	0	23	110,012
35 - 39	27	7	4	0	0	0	38	103,997
40 - 44	23	6	5	2	0	0	36	120,633
45 - 49	36	12	7	0	0	1	56	121,975
50 - 54	36	4	7	2	2	0	51	121,945
55 - 59	20	2	1	1	0	0	24	101,670
60 - 64	5	0	1	1	0	0	7	106,709
65 and over	1	0	0	0	0	0	1	115,716
Total	175	37	25	6	2	1	246	\$114,284

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

California Highway Patrol – As of June 30, 2023

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	8	0	0	0	0	0	8	\$71,190
25 - 29	22	1	0	0	0	0	23	81,453
30 - 34	47	19	1	0	0	0	67	94,795
35 - 39	40	31	21	1	0	0	93	101,858
40 - 44	36	33	28	14	5	0	116	111,053
45 - 49	54	54	39	23	15	6	191	111,474
50 - 54	51	16	9	1	3	9	89	95,392
55 - 59	24	7	0	0	0	2	33	74,245
60 - 64	8	5	2	0	0	0	15	57,183
65 and over	5	1	0	0	0	0	6	52,870
Total	295	167	100	39	23	17	641	\$100,711

Appendix C – Participant Data

Retired Members and Beneficiaries

Number of Retirees and Beneficiaries - by Age and Retirement Type

State Miscellaneous – As of June 30, 2023

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	1	0	8	6	256	271
30-34	0	6	13	0	2	164	185
35-39	0	28	14	0	3	255	300
40-44	0	83	35	8	3	322	451
45-49	1	179	64	27	8	377	656
50-54	1,528	506	122	90	4	550	2,800
55-59	9,176	969	276	150	12	833	11,416
60-64	22,573	1,751	472	284	20	1,579	26,679
65-69	35,846	2,187	513	341	10	2,566	41,463
70-74	38,130	2,085	432	373	8	3,810	44,838
75-79	29,172	1,496	300	297	6	4,528	35,799
80-84	17,509	872	168	221	6	4,565	23,341
85 and Over	16,014	605	101	264	6	8,017	25,007
Total	169,949	10,768	2,510	2,063	94	27,822	213,206

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, 2023

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$2,797	\$0	\$87,174	\$171,681	\$2,410,518	\$2,672,170
30-34	0	65,146	2,365	0	191	1,833,521	1,901,223
35-39	0	318,761	5,615	0	28,487	2,792,338	3,145,201
40-44	0	1,110,991	41,905	191,754	134,404	3,573,065	5,052,119
45-49	20,712	2,844,992	59,481	756,037	121,857	5,631,354	9,434,433
50-54	20,711,884	8,771,367	437,400	2,237,369	2,478	9,229,179	41,389,677
55-59	307,677,419	16,756,939	1,416,428	4,133,226	88,524	14,486,467	344,559,003
60-64	892,061,640	31,759,431	2,693,081	8,066,605	330,383	32,499,746	967,410,885
65-69	1,433,161,288	41,137,506	2,740,566	10,563,923	53,788	61,071,947	1,548,729,018
70-74	1,497,140,040	39,345,443	2,305,772	11,687,989	186,121	104,111,964	1,654,777,329
75-79	1,160,609,249	28,248,582	1,709,554	9,034,341	2,407	136,867,491	1,336,471,624
80-84	701,321,683	17,661,848	1,118,596	7,193,819	31,593	148,832,074	876,159,613
85 and Over	599,801,768	10,354,296	497,142	8,313,250	11,768	264,109,319	883,087,543
Total	\$6,612,505,683	\$198,378,099	\$13,027,905	\$62,265,487	\$1,163,680	\$787,448,983	\$7,674,789,837

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

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

State Miscellaneous – As of June 30, 2023

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	41,939	1,047	346	353	23	9,457	53,165
5 - 9	36,930	1,585	314	336	7	6,674	45,846
10 - 14	34,740	1,542	288	339	10	4,446	41,365
15 - 19	25,488	1,451	338	308	9	3,030	30,624
20 - 24	16,264	1,936	440	260	10	1,945	20,855
25 - 29	8,076	1,668	312	184	11	1,176	11,427
30 and over	6,512	1,539	472	283	24	1,094	9,924
Total	169,949	10,768	2,510	2,063	94	27,822	213,206

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, 2023

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$1,733,895,340	\$18,481,858	\$1,624,653	\$11,231,302	\$531,602	\$293,316,831	\$2,059,081,586
5 - 9	1,423,824,059	28,125,915	1,830,016	9,631,374	135,790	197,449,818	1,660,996,972
10 - 14	1,418,133,376	28,425,558	2,157,807	10,333,215	142,200	123,480,233	1,582,672,389
15 - 19	989,182,559	28,606,984	2,497,388	9,335,492	163,242	79,470,124	1,109,255,788
20 - 24	639,500,073	37,986,230	2,551,125	8,253,715	105,874	48,211,442	736,608,459
25 - 29	243,921,959	32,456,402	1,405,143	5,660,815	66,280	26,022,745	309,533,343
30 and over	164,048,317	24,295,152	961,774	7,819,574	18,693	19,497,790	216,641,300
Total	\$6,612,505,683	\$198,378,099	\$13,027,905	\$62,265,487	\$1,163,680	\$787,448,983	\$7,674,789,837

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

Number of Retirees and Beneficiaries - by Age and Retirement Type

State Industrial – As of June 30, 2023

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	18	18
30-34	0	1	2	0	0	14	17
35-39	0	7	4	0	1	24	36
40-44	0	14	10	0	0	29	53
45-49	0	44	16	4	0	31	95
50-54	268	103	42	8	0	38	459
55-59	1,398	203	81	14	1	73	1,770
60-64	2,641	264	112	21	1	112	3,151
65-69	3,399	290	117	24	1	172	4,003
70-74	3,013	248	99	16	1	227	3,604
75-79	2,059	168	58	14	1	232	2,532
80-84	921	78	26	14	1	203	1,243
85 and Over	672	44	19	7	3	288	1,033
Total	14,371	1,464	586	122	10	1,461	18,014

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, 2023

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	\$86,848	\$86,848
30-34	0	6,656	426	0	0	94,571	101,652
35-39	0	62,600	1,023	0	2,028	110,127	175,778
40-44	0	140,702	28,415	0	0	162,203	331,320
45-49	0	436,274	167,312	70,260	0	254,765	928,610
50-54	2,282,278	1,035,484	252,625	48,916	0	519,722	4,139,025
55-59	22,955,023	2,667,550	666,002	149,237	6,548	486,119	26,930,478
60-64	46,813,827	2,834,309	676,416	188,796	1,313	819,685	51,334,346
65-69	54,891,123	3,381,247	943,616	286,725	503	1,721,979	61,225,191
70-74	48,259,408	2,586,297	747,542	147,558	77	2,538,171	54,279,054
75-79	34,504,963	1,881,158	505,286	181,138	23,025	2,869,828	39,965,397
80-84	16,258,579	921,907	206,631	296,836	1,724	2,469,211	20,154,888
85 and Over	12,279,167	610,697	133,872	278,804	94,172	5,221,612	18,618,324
Total	\$238,244,368	\$16,564,880	\$4,329,165	\$1,648,270	\$129,389	\$17,354,840	\$278,270,911

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

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

State Industrial – As of June 30, 2023

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	4,224	197	98	27	1	542	5,089
5 - 9	3,410	296	101	29	2	380	4,218
10 - 14	3,268	269	94	20	1	216	3,868
15 - 19	1,871	190	94	17	1	159	2,332
20 - 24	1,005	276	95	14	0	77	1,467
25 - 29	386	134	54	8	0	55	637
30 and over	207	102	50	7	5	32	403
Total	14,371	1,464	586	122	10	1,461	18,014

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, 2023

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$78,004,790	\$2,734,668	\$757,539	\$280,000	\$2,028	\$7,157,652	\$88,936,677
5 - 9	54,536,604	3,274,557	704,707	392,532	7,050	4,469,281	63,384,732
10 - 14	53,549,160	2,985,601	888,427	383,862	77	2,226,129	60,033,255
15 - 19	29,242,915	2,173,937	874,395	290,580	1,313	1,943,283	34,526,423
20 - 24	15,783,155	3,084,520	585,090	169,309	0	880,647	20,502,721
25 - 29	4,287,137	1,340,725	234,878	51,907	0	406,037	6,320,685
30 and over	2,840,607	970,872	284,129	80,079	118,921	271,809	4,566,418
Total	\$238,244,368	\$16,564,880	\$4,329,165	\$1,648,270	\$129,389	\$17,354,840	\$278,270,911

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

Number of Retirees and Beneficiaries - by Age and Retirement Type

State Safety – As of June 30, 2023

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	2	2	0	46	50
30-34	0	0	16	0	0	16	32
35-39	0	6	69	2	1	29	107
40-44	0	16	104	1	3	41	165
45-49	0	34	184	5	1	49	273
50-54	393	54	322	13	4	78	864
55-59	1,797	111	475	36	5	135	2,559
60-64	3,584	140	745	49	12	274	4,804
65-69	5,163	171	916	63	16	465	6,794
70-74	4,897	172	878	80	14	624	6,665
75-79	3,328	109	622	34	12	660	4,765
80-84	1,549	48	290	21	7	544	2,459
85 and Over	864	16	161	23	16	676	1,756
Total	21,575	877	4,784	329	91	3,637	31,293

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, 2023

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$70,708	\$9,269	\$0	\$339,146	\$419,123
30-34	0	0	454,947	0	0	127,597	582,544
35-39	0	59,540	2,334,509	119,054	52,439	383,550	2,949,092
40-44	0	235,272	3,474,115	20,672	94,989	460,390	4,285,439
45-49	0	690,021	6,404,070	187,870	61,913	652,546	7,996,420
50-54	6,299,664	717,142	11,928,623	525,563	143,339	1,053,343	20,667,673
55-59	53,228,939	1,605,201	16,615,897	1,018,626	210,971	2,173,989	74,853,623
60-64	103,243,819	2,422,893	25,107,016	1,261,021	641,806	5,082,209	137,758,764
65-69	149,263,285	2,722,860	31,066,638	1,303,701	463,141	9,678,316	194,497,940
70-74	139,269,141	2,685,099	28,842,127	1,586,140	521,051	12,925,638	185,829,197
75-79	92,266,093	1,781,251	19,272,199	664,430	374,153	14,043,901	128,402,027
80-84	40,097,469	1,006,208	9,683,572	459,168	231,195	10,722,845	62,200,458
85 and Over	19,867,716	263,164	5,328,589	519,944	601,560	13,161,111	39,742,083
Total	\$603,536,125	\$14,188,651	\$160,583,011	\$7,675,459	\$3,396,557	\$70,804,582	\$860,184,385

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

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

State Safety – As of June 30, 2023

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	6,516	209	951	70	16	1,383	9,145
5 - 9	5,206	220	946	69	4	936	7,381
10 - 14	5,069	160	773	49	6	582	6,639
15 - 19	2,777	94	605	70	7	337	3,890
20 - 24	1,375	93	575	35	15	188	2,281
25 - 29	417	60	262	19	5	112	875
30 and over	215	41	672	17	38	99	1,082
Total	21,575	877	4,784	329	91	3,637	31,293

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, 2023

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$215,632,820	\$4,201,788	\$37,526,169	\$2,438,850	\$761,990	\$29,407,311	\$289,968,928
5 - 9	150,102,285	4,223,867	36,409,427	1,670,447	158,078	18,722,238	211,286,343
10 - 14	148,483,131	2,990,373	29,646,805	1,052,127	459,171	10,502,366	193,133,973
15 - 19	57,077,811	1,088,499	18,298,296	1,339,514	262,435	6,022,082	84,088,638
20 - 24	23,546,591	896,458	15,725,295	536,730	431,658	2,897,439	44,034,170
25 - 29	5,352,328	533,820	6,590,728	316,143	199,792	1,535,115	14,527,927
30 and over	3,341,159	253,846	16,386,290	321,648	1,123,432	1,718,031	23,144,406
Total	\$603,536,125	\$14,188,651	\$160,583,011	\$7,675,459	\$3,396,557	\$70,804,582	\$860,184,385

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

Number of Retirees and Beneficiaries - by Age and Retirement Type

State Peace Officers and Firefighters – As of June 30, 2023

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	5	1	11	55	72
30-34	0	1	51	0	1	34	87
35-39	0	5	124	3	8	38	178
40-44	0	21	367	3	14	55	460
45-49	0	24	642	11	21	60	758
50-54	3,503	58	1,297	35	21	126	5,040
55-59	5,904	72	1,860	44	36	227	8,143
60-64	7,216	115	2,180	54	30	431	10,026
65-69	6,074	102	1,767	43	23	657	8,666
70-74	4,894	81	1,415	54	22	828	7,294
75-79	3,214	51	884	29	20	762	4,960
80-84	1,489	12	350	15	9	593	2,468
85 and Over	726	10	140	10	5	515	1,406
Total	33,020	552	11,082	302	221	4,381	49,558

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, 2023

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$202,771	\$29,627	\$324,964	\$649,986	\$1,207,348
30-34	0	8,848	1,798,465	0	53,406	611,301	2,472,020
35-39	0	53,983	4,808,467	136,750	358,820	678,193	6,036,214
40-44	0	441,261	15,122,577	104,358	610,349	1,422,266	17,700,811
45-49	0	587,235	27,360,155	649,367	1,121,516	1,860,187	31,578,460
50-54	262,044,754	2,009,373	66,433,164	2,125,405	1,153,031	4,766,680	338,532,408
55-59	414,267,008	2,059,278	97,082,968	2,552,950	1,793,002	10,213,656	527,968,863
60-64	505,107,446	3,299,527	107,952,854	2,900,047	1,414,242	19,330,475	640,004,590
65-69	422,509,089	3,316,900	86,959,340	2,136,255	1,054,109	31,093,004	547,068,695
70-74	326,658,871	2,623,072	71,757,873	2,659,240	1,011,576	39,545,985	444,256,618
75-79	199,757,512	1,608,888	44,681,242	1,331,804	773,779	36,276,139	284,429,363
80-84	83,351,269	394,815	16,969,802	819,239	355,262	26,337,118	128,227,506
85 and Over	35,820,859	372,558	6,304,987	352,225	175,958	22,109,218	65,135,806
Total	\$2,249,516,808	\$16,775,739	\$547,434,664	\$15,797,266	\$10,200,014	\$194,894,210	\$3,034,618,701

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

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

State Peace Officers and Firefighters – As of June 30, 2023

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	9,109	95	1,952	66	60	1,734	13,016
5 - 9	7,359	95	2,011	52	22	1,112	10,651
10 - 14	8,104	111	1,548	46	22	698	10,529
15 - 19	4,753	72	1,485	59	50	431	6,850
20 - 24	2,337	97	1,848	39	26	205	4,552
25 - 29	843	58	1,104	27	16	125	2,173
30 and over	515	24	1,134	13	25	76	1,787
Total	33,020	552	11,082	302	221	4,381	49,558

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, 2023

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$627,931,767	\$4,043,330	\$114,766,058	\$3,941,641	\$2,815,548	\$82,954,279	\$836,452,624
5 - 9	486,452,540	3,111,775	106,224,256	2,864,492	1,100,815	51,852,579	651,606,458
10 - 14	582,755,237	3,634,721	83,400,583	2,552,149	1,261,004	29,651,996	703,255,691
15 - 19	340,515,881	2,120,479	78,793,542	3,099,513	2,453,845	16,617,126	443,600,386
20 - 24	143,539,010	2,285,558	80,113,557	1,565,984	1,127,444	7,375,673	236,007,225
25 - 29	41,415,108	1,197,951	44,443,804	1,268,842	608,316	4,178,634	93,112,656
30 and over	26,907,265	381,925	39,692,864	504,644	833,043	2,263,921	70,583,661
Total	\$2,249,516,808	\$16,775,739	\$547,434,664	\$15,797,266	\$10,200,014	\$194,894,210	\$3,034,618,701

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

Number of Retirees and Beneficiaries - by Age and Retirement Type

California Highway Patrol – As of June 30, 2023

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	9	17
30-34	0	0	6	0	1	2	9
35-39	0	0	36	0	7	6	49
40-44	0	4	52	0	8	7	71
45-49	0	1	108	0	10	9	128
50-54	744	2	239	3	16	19	1,023
55-59	989	3	333	4	19	43	1,391
60-64	1,014	4	407	5	20	81	1,531
65-69	830	6	420	6	7	135	1,404
70-74	463	4	391	8	8	206	1,080
75-79	493	3	610	5	13	346	1,470
80-84	363	5	488	4	12	350	1,222
85 and Over	195	1	288	2	14	357	857
Total	5,091	33	3,378	37	143	1,570	10,252

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, 2023

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$0	\$0	\$174,963	\$134,960	\$309,922
30-34	0	0	355,788	0	49,439	21,584	426,810
35-39	0	0	2,280,609	0	514,166	104,733	2,899,508
40-44	0	98,660	3,104,056	0	622,895	180,833	4,006,445
45-49	0	15,525	6,560,875	0	829,193	242,577	7,648,170
50-54	77,827,692	47,072	22,148,115	280,647	1,262,002	970,389	102,535,917
55-59	108,728,674	56,574	30,601,729	274,765	1,440,729	3,337,208	144,439,680
60-64	114,857,579	68,803	31,700,011	463,130	1,300,370	5,351,837	153,741,731
65-69	87,803,086	118,626	32,707,856	547,246	423,400	8,935,592	130,535,806
70-74	41,714,614	213,020	28,809,348	588,791	320,103	9,805,596	81,451,474
75-79	34,647,680	123,521	43,430,083	358,430	403,190	14,831,028	93,793,931
80-84	21,131,771	108,577	27,113,726	206,714	415,744	13,954,480	62,931,013
85 and Over	9,784,442	42,319	14,054,846	47,030	454,246	12,324,124	36,707,007
Total	\$496,495,539	\$892,697	\$242,867,042	\$2,766,753	\$8,210,441	\$70,194,941	\$821,427,414

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

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

California Highway Patrol – As of June 30, 2023

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	1,353	4	445	3	31	540	2,376
5 - 9	1,041	3	281	4	19	355	1,703
10 - 14	1,004	2	299	2	19	249	1,575
15 - 19	734	4	428	6	19	147	1,338
20 - 24	455	5	565	13	5	127	1,170
25 - 29	319	8	442	4	4	64	841
30 and over	185	7	918	5	46	88	1,249
Total	5,091	33	3,378	37	143	1,570	10,252

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, 2023

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$145,607,127	\$136,005	\$42,831,581	\$323,803	\$2,357,062	\$28,870,260	\$220,125,838
5 - 9	113,813,069	62,518	27,648,350	411,533	1,435,887	15,968,230	159,339,586
10 - 14	110,941,188	2,499	30,316,541	122,958	1,216,409	11,726,543	154,326,138
15 - 19	67,070,584	308,954	39,269,231	456,789	1,219,917	5,556,378	113,881,853
20 - 24	32,102,849	100,525	44,298,921	1,062,187	277,287	4,164,301	82,006,070
25 - 29	18,498,793	216,372	24,949,499	230,150	174,639	1,699,823	45,769,278
30 and over	8,461,929	65,824	33,552,920	159,333	1,529,240	2,209,406	45,978,651
Total	\$496,495,539	\$892,697	\$242,867,042	\$2,766,753	\$8,210,441	\$70,194,941	\$821,427,414

Appendix C – Participant Data

Retired Members and Beneficiaries (continued)

Number Counts and Benefits - by Year of Retirement – As of June 30, 2023

State Miscellaneous

Year Retired	Total Retirement	Total Benefits	Average Benefits
2023 ¹	3,489	\$117,086,268	\$33,559
2022	11,028	432,455,276	39,214
2021	10,403	385,179,242	37,026
2020	11,221	451,285,106	40,218
2019	10,387	402,093,847	38,711
2018	10,290	388,032,234	37,710
2017	9,671	368,194,068	38,072
2016	9,322	336,742,215	36,123
2015	9,239	332,536,851	35,993
2014	9,184	332,157,332	36,167
2013	7,940	271,604,659	34,207
2012	8,598	313,971,397	36,517
2011	8,470	305,062,258	36,017
2010	8,979	355,020,296	39,539
2009	7,674	317,770,260	41,409
2008	6,528	260,167,419	39,854
2007	6,143	227,915,139	37,102
2006	5,764	195,922,049	33,991
2005	6,394	232,534,187	36,368
2004	7,166	274,739,532	38,339
2003	4,967	172,536,620	34,737
2002	4,685	167,315,719	35,713
2001	4,607	180,883,867	39,263
2000	5,612	221,704,383	39,505
1999	2,293	55,502,398	24,205
1998	3,007	81,691,514	27,167
1997	2,821	76,779,366	27,217
1996	2,452	68,780,129	28,051
1995	2,051	59,054,124	28,793
1994 and Earlier	12,821	290,072,083	22,625
Total	213,206	\$7,674,789,838	\$35,997

State Industrial

Year Retired	Total Retirement	Total Benefits	Average Benefits
2023 ¹	333	\$5,843,717	\$17,549
2022	1,093	18,649,510	17,063
2021	983	16,751,718	17,041
2020	1,067	20,310,597	19,035
2019	1,015	17,016,818	16,765
2018	924	14,852,412	16,074
2017	871	13,766,981	15,806
2016	902	14,042,428	15,568
2015	877	13,120,660	14,961
2014	825	11,729,452	14,218
2013	734	10,446,244	14,232
2012	840	13,645,514	16,245
2011	751	11,146,966	14,843
2010	865	13,974,084	16,155
2009	716	11,024,932	15,398
2008	557	8,675,879	15,576
2007	449	6,804,914	15,156
2006	478	6,673,120	13,961
2005	464	7,312,106	15,759
2004	543	8,192,268	15,087
2003	357	4,498,887	12,602
2002	353	4,895,246	13,868
2001	319	4,928,795	15,451
2000	395	6,259,659	15,847
1999	141	1,447,889	10,269
1998	194	1,947,356	10,038
1997	163	1,746,899	10,717
1996	129	1,224,938	9,496
1995	127	1,325,433	10,436
1994 and Earlier	549	6,015,488	10,957
Total	18,014	\$278,270,910	\$15,447

¹ The numbers for 2023 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, 2023 (continued)

State Safety

Year Retired	Total Retirement	Total Benefits	Average Benefits
2023 ¹	695	\$21,100,695	\$30,361
2022	1,945	63,637,805	32,719
2021	1,851	58,074,498	31,375
2020	1,981	63,528,989	32,069
2019	1,651	50,682,808	30,698
2018	1,656	50,551,591	30,526
2017	1,493	44,622,544	29,888
2016	1,513	45,080,728	29,796
2015	1,465	41,614,747	28,406
2014	1,472	39,817,964	27,050
2013	1,339	37,384,685	27,920
2012	1,468	40,656,332	27,695
2011	1,355	38,829,442	28,656
2010	1,463	46,769,833	31,968
2009	1,198	34,404,511	28,718
2008	915	24,504,205	26,781
2007	841	19,705,093	23,431
2006	784	15,610,146	19,911
2005	814	17,167,601	21,090
2004	810	17,522,773	21,633
2003	592	11,808,228	19,946
2002	533	10,527,892	19,752
2001	524	10,665,177	20,353
2000	555	11,297,967	20,357
1999	270	4,755,068	17,611
1998	276	4,109,211	14,888
1997	225	4,020,860	17,870
1996	177	2,826,162	15,967
1995	141	2,158,918	15,311
1994 and Earlier	1,291	26,747,912	20,719
Total	31,293	\$860,184,385	\$27,488

State Peace Officers and Firefighters

Year Retired	Total Retirement	Total Benefits	Average Benefits
2023 ¹	867	\$53,268,260	\$61,440
2022	2,805	185,667,351	66,192
2021	2,484	149,469,899	60,173
2020	3,228	220,218,289	68,221
2019	2,184	132,437,276	60,640
2018	2,280	142,273,836	62,401
2017	2,131	131,051,917	61,498
2016	2,041	121,563,559	59,561
2015	2,246	141,796,063	63,133
2014	2,183	133,442,388	61,128
2013	2,089	125,474,473	60,064
2012	2,374	153,566,390	64,687
2011	2,078	130,868,715	62,978
2010	2,268	152,814,256	67,378
2009	2,014	146,740,308	72,860
2008	1,423	103,649,095	72,838
2007	1,594	116,671,558	73,194
2006	1,793	125,360,096	69,916
2005	1,106	65,885,327	59,571
2004	1,266	70,139,239	55,402
2003	1,021	54,678,401	53,554
2002	1,112	61,327,015	55,150
2001	990	52,571,500	53,103
2000	1,234	70,877,305	57,437
1999	487	18,151,349	37,272
1998	543	20,510,127	37,772
1997	523	21,880,176	41,836
1996	454	20,742,796	45,689
1995	388	17,255,999	44,474
1994 and Earlier	2,352	94,265,740	40,079
Total	49,558	\$3,034,618,703	\$61,234

¹ The numbers for 2023 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, 2023 (continued)

California Highway Patrol

Year Retired	Total Retirement	Total Benefits	Average Benefits
2023 ¹	179	\$14,805,653	\$82,713
2022	578	54,449,095	94,203
2021	476	41,758,720	87,728
2020	490	46,345,379	94,582
2019	429	40,946,938	95,447
2018	350	30,795,693	87,988
2017	392	39,591,052	100,998
2016	334	30,409,224	91,046
2015	380	36,402,926	95,797
2014	283	26,437,918	93,420
2013	287	25,701,835	89,553
2012	342	33,216,053	97,123
2011	347	34,075,678	98,201
2010	358	35,760,547	99,890
2009	328	33,745,821	102,884
2008	249	24,449,377	98,190
2007	255	22,393,103	87,816
2006	285	24,028,253	84,310
2005	313	27,562,030	88,058
2004	236	18,405,710	77,990
2003	174	11,714,088	67,322
2002	248	18,254,024	73,605
2001	255	20,210,797	79,258
2000	362	25,894,509	71,532
1999	129	6,834,744	52,983
1998	164	8,791,398	53,606
1997	181	9,745,819	53,844
1996	207	12,591,308	60,828
1995	164	8,950,406	54,576
1994 and Earlier	1,477	57,159,315	38,700
Total	10,252	\$821,427,413	\$80,124

¹ The numbers for 2023 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 2024-25

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 29, 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

California's Budget Act calls for the application of the July 27, 2023 Supplemental Pension Payment towards the FY 2024-25 required contributions. The table below shows the reduction in the rates for each plan.

Plan	Contribution Reduction for Supplemental Pension Payments Made on July 27, 2023
State Miscellaneous	(5.18%)
State Industrial	(5.54%)
State Safety	(4.29%)
State Peace Officers & Firefighters	(19.02%)
California Highway Patrol	0.00%

Appendix D – Supplemental Pension Payments and Budget Act for FY 2024-25

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 Made on July 27, 2023
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 2024-25

The table below shows the actuarially required contribution rates along with adjustments included in the annual Budget Act.

Plan	Actuarially Required Employer Contribution FY 2024-25	Contribution Reduction for Supplemental Pension Payments Made on July 27, 2023	Additional Statutory Contribution per GC \$20683.2	Budget Act Total Net Contribution FY 2024-25
State Miscellaneous	31.39%	(5.18%)	0.10%	26.31%
State Industrial	20.18%	(5.54%)	0.88%	15.52%
State Safety	22.03%	(4.29%)	1.18%	18.92%
State Peace Officers & Firefighters	48.09%	(19.02%)	1.65%	30.72%
California Highway Patrol	69.89%	0.00%	1.32%	71.21%

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 PEPR A): A classic member is a member who joined CalPERS prior to January 1, 2013, and who is not defined as a new member under PEPR A. (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 PEPPRA): 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.

PEPPRA: 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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