

State Actuarial Valuation

As of June 30, 2020



Required Contributions for Fiscal Year
July 1, 2021 through June 30, 2022



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Actuarial Certification



September 2021

To the best of our knowledge, this report is complete and accurate and contains sufficient information to fully and fairly disclose the actuarial funded condition of the State plans. This valuation is based on the member and financial data as of June 30, 2020 provided by the various CalPERS databases and the benefits under these plans with CalPERS as of the date this report was produced. In our opinion, this valuation has been performed in accordance with generally accepted actuarial principles and in accordance with standards of practice prescribed by the Actuarial Standards Board. The assumptions and methods are internally consistent and reasonable for these plans, as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.

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

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Highlights and Executive Summary

Introduction

This is the actuarial valuation report as of June 30, 2020 for the State plans. This actuarial valuation was used to set the fiscal year 2021-22 required employer contribution rates.

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

Purpose of Report

This actuarial valuation was performed by the CalPERS Actuarial Office using data as of June 30, 2020. The purpose of the report is to:

- Set forth the assets and accrued liabilities of the State plans as of June 30, 2020.
- Determine the required employer contribution rates of these plans for the fiscal year July 1, 2021 through June 30, 2022.
- Provide actuarial information as of June 30, 2020 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 use of this report for any other purpose may not be appropriate.

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; and changes in plan provisions or applicable law.

Assessment and Disclosure of Risk

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

- A “Sensitivity Analysis,” showing the impact on current valuation results using alternative discount rates of 6.0% and 8.0%.
- A “Sensitivity Analysis,” showing the impact on current valuation results assuming rates of mortality are 10% lower or 10% higher than our current mortality assumptions adopted in 2017.
- Plan maturity measures indicating how sensitive a plan may be to the risks noted above.

Highlights and Executive Summary

Required Employer Contribution Rates

The actuarially required employer contribution rates for fiscal year July 1, 2021 through June 30, 2022 are shown in the table below. For comparison purposes, the corresponding contribution rates for fiscal year July 1, 2020 through June 30, 2021 are also provided. The estimated contribution amounts that these rates are expected to generate are also shown.

Plan	Fiscal Year 2020-21		Fiscal Year 2021-22	
	Expected Employer Contribution	Required Employer Rate ^{1, 2}	Expected Employer Contribution	Required Employer Rate ^{1, 2}
State Miscellaneous	\$3,985,565,766	29.27%	\$4,160,143,107	29.12%
State Industrial	133,362,651	17.31%	132,980,339	16.46%
State Safety	479,527,293	18.77%	476,457,256	18.29%
State Peace Officers & Firefighters	1,318,007,092	34.45%	1,262,870,664	31.19%
California Highway Patrol	574,508,860	59.76%	600,841,189	61.46%
Total State	\$6,490,971,662		\$6,633,292,555	

¹ Includes supplanting payments under Government Code section 20825.1. For rates prior to these adjustments, see Appendix D for more information.

² Excludes additional contributions pursuant to Government Code section 20683.2. See "Additional Contributions" section on page 7 for more information about that requirement.

The estimated 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.

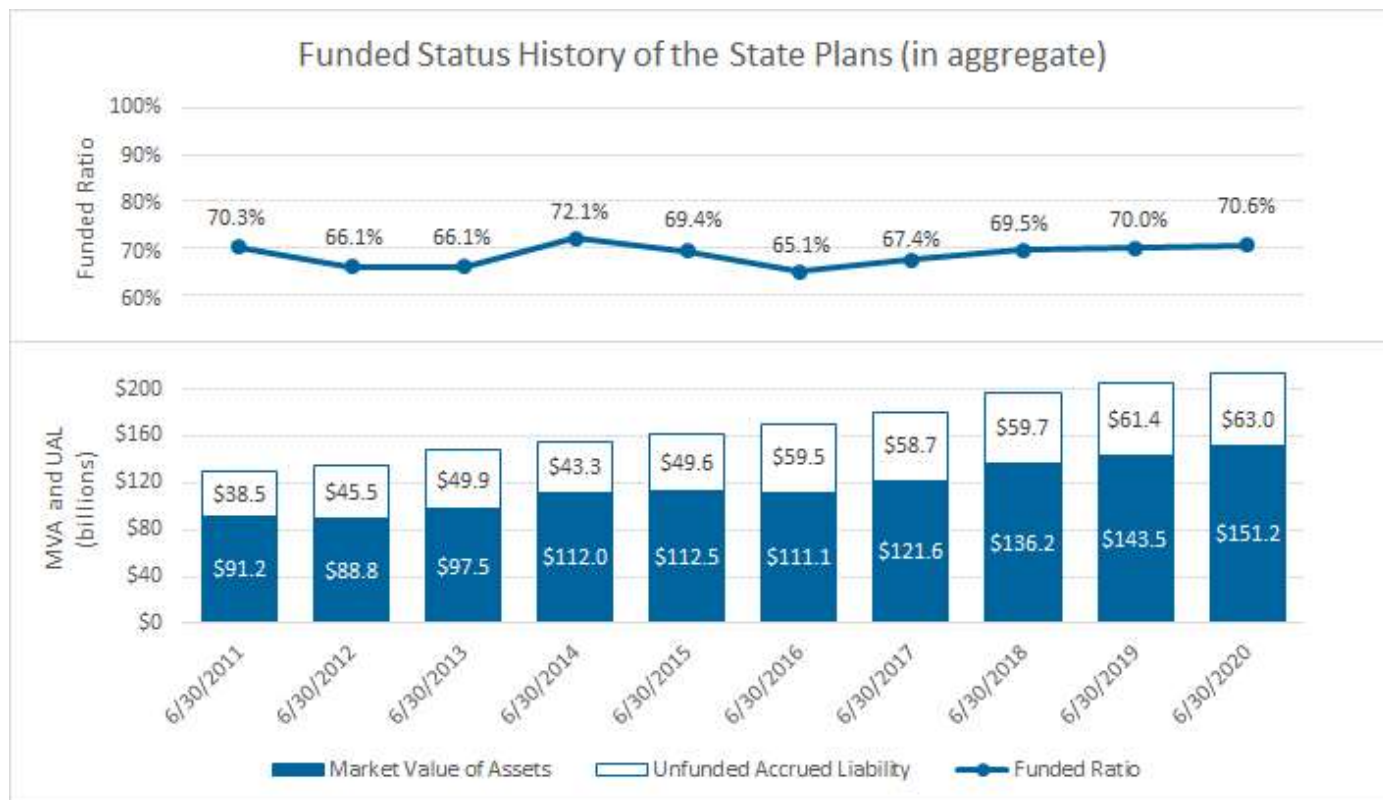
The payroll used to calculate the expected dollar contribution is payroll reported for the fiscal year ending on the valuation date projected forward two years using the annual payroll growth assumption in effect on the valuation date. For example, expected fiscal year 2021-22 contributions are based on fiscal year 2019-20 reported payroll increased by 2.75% per year for two years. Actual contribution amounts will be based on actual payroll during the associated fiscal year and will differ from the expected contributions shown in the table above. State Miscellaneous and State Industrial include both Tier 1 and Tier 2 benefit levels.

The supporting exhibits titled "Reconciliation of Employer Contribution Rates" and "Reconciliation of Employer Contributions" in the Liabilities and Employer Contributions section of this report explain the changes in required contribution rates and expected contribution amounts from fiscal year 2020-21 to fiscal year 2021-22.

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, 2019 to June 30, 2020 the funded ratio for the State plans in aggregate increased by 0.6%.



Unfunded Accrued Liability and Funded Ratio on June 30, 2020

Plan	Present Value of Benefits	Entry Age Actuarial Accrued Liability	Market Value of Assets	Unfunded Accrued Liability	Funded Ratio
State Miscellaneous	\$143,390,494,888	\$124,694,577,728	\$87,046,873,448	\$37,647,704,280	69.8%
State Industrial	6,399,770,897	5,226,527,840	4,083,794,798	1,142,733,042	78.1%
State Safety	19,760,856,662	15,352,141,590	12,249,799,444	3,102,342,146	79.8%
State Peace Officers & Firefighters	63,722,940,433	54,101,543,037	38,327,136,595	15,774,406,442	70.8%
California Highway Patrol	17,285,877,581	14,785,866,497	9,501,361,017	5,284,505,480	64.3%
Total for the State	\$250,559,940,461	\$214,160,656,692	\$151,208,965,302	\$62,951,691,390	70.6%

Funded Ratio History

Plan	June 30, 2016	June 30, 2017	June 30, 2018	June 30, 2019	June 30, 2020
State Miscellaneous	65.0%	67.5%	69.5%	69.8%	69.8%
State Industrial	73.0%	76.4%	76.9%	77.3%	78.1%
State Safety	73.4%	76.4%	77.6%	78.6%	79.8%
State Peace Officers & Firefighters	64.2%	65.9%	68.3%	69.0%	70.8%
California Highway Patrol	58.5%	60.2%	63.8%	64.5%	64.3%
Total for the State	65.1%	67.4%	69.5%	70.0%	70.6%

Highlights and Executive Summary

Changes Since the Prior Year's Valuation

Overall, the required contributions for the State plans increased by \$547 million between fiscal years 2020-21 and 2021-22, a 7.3% relative increase. This excludes the effect of the State contribution under Section 20825.1. The table below highlights major contributors to the change in required contributions.

Reason for Change	Change in Required Contribution (in millions)
Change due to normal progression of existing amortization bases	\$333.6
Change due to increase in overall payroll	118.0
Decrease in normal cost due to new demographics	(52.1)
Impact of change in member contribution rates	(17.7)
First installment of the 20-year amortization of the following sources of experience gains and losses:	
• Investment experience (reflects five-year ramp)	83.7
• Impact of greater than expected contributions received due to higher than expected payroll	(36.1)
• Demographic gains and losses	117.4
Total Change in Required Contributions	\$546.8
Decrease due to Section 20825.1 contribution	(1,404.5)
Total Change in Required Contributions (Includes Section 20825.1)	(\$857.7)

Key changes are discussed in detail below.

Supplanting Payments Under Government Code Section 20825.1

Senate Bill 90 (SB 90), approved by the Governor on June 27, 2019 and amended by Assembly Bill 84 (AB 84) / Senate Bill 111 (SB 111), established Government Code section 20825.1 and directed the State to contribute an additional \$2.5 billion to the State plans to pay down Unfunded Accrued Liability (UAL). The contribution was made on July 29, 2019.

According to direction provided by the Department of Finance, these amounts will be treated as payments toward the required UAL contributions over a period of three fiscal years with the employer contribution rate for each fiscal year reduced accordingly. The allocation among plans and fiscal years is as follows:

Plan	FY 2019-20	FY 2020-21	FY 2021-22	Total
State Miscellaneous	\$32,384,208	\$339,222,800	\$476,449,992	\$848,057,000
State Industrial	3,166,795	33,172,000	46,591,205	82,930,000
State Safety	7,042,595	73,770,800	103,613,605	184,427,000
State Peace Officers & Firefighters	52,872,296	553,834,400	777,879,304	1,384,586,000
California Highway Patrol	0	0	0	0
Total for the State	\$95,465,894	\$1,000,000,000	\$1,404,534,106	\$2,500,000,000

Assumptions and Methods

A change was made to the way in which liability is categorized for certain transferred records. For members who have both an active record and one or more transfer records due to past changes in employment within the State Plans, the total liability is now categorized as active. In prior valuations, the liability for these members was split between active and transferred. This change merely shifted a portion of liability from one status category to another — it had no significant effect on the total liability or contribution requirements of the plan.

No other changes were made 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.

Highlights and Executive Summary

Plan Experience

The return on plan assets for the year ending June 30, 2020 was approximately 4.7% reduced for administrative expenses. This was lower than the assumed return of 7.0%, leading to an investment experience loss that will be amortized over 20 years with a five-year ramp up.

Payroll across the State plans increased by 4.6% in total, compared with the payroll growth assumption of 2.75%. This led to a contribution increase of \$118.0 million. The payroll growth for the year ranges from a 1.7% increase for California Highway Patrol to a 5.8% increase for State Peace Officers & Firefighters.

The 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 plans is lower due to the enrollment of new hires into the lower benefit level. PEPRA membership ranges from a high of 47% of active members (41% by payroll) for State Safety to a low of 22% of active members (19% by payroll) for California Highway Patrol.

The plans in aggregate experienced a non-investment loss due to demographic sources offset by 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 2021-22.

Additional Contributions per Government Code Section 20683.2

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.

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 2021-22 to be paid by the State for each plan.

Plan	Actuarially Required Employer Contribution FY 2021-22	Additional Statutory Contribution per GC §20683.2	Total Contribution FY 2021-22
State Miscellaneous	29.12%	0.10%	29.22%
State Industrial	16.46%	0.88%	17.34%
State Safety	18.29%	1.18%	19.47%
State Peace Officers & Firefighters	31.19%	1.65%	32.84%
California Highway Patrol	61.46%	1.32%	62.78%

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.

The rates and information shown in the remainder of this report reflect the rates set by the board at its September 2021 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 2021 and board actions through September 2021.

Pursuant to Government Code section 20825.12, the State contributed an additional \$243 million to the California Highway Patrol plan in August 2020. Furthermore, contributions from the Motor Vehicle Account of \$25 million were made in August 2020 and August 2021.

Also, pursuant to Government Code section 20825.13, the State contributed an additional \$1.88 billion to the State plans excluding California Highway Patrol in July 2021.

As those payments were made after June 30, 2020, they will not be recognized in the market value of assets or funded status until future valuations. The unfunded accrued liability contribution rates determined in this valuation have not been adjusted to reflect the additional contributions.

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

Projected Future Contribution Rates

The State plans contribution rates for fiscal year 2022-23 will be based on the June 30, 2021 actuarial valuation. At the time of publication of this report, key actuarial assumptions to be used in that valuation, particularly the discount rate, are not yet known. The discount rate is a key driver of pension plan cost and therefore meaningful estimates of the contribution rate for fiscal year 2022-23 and future years will be unavailable until the final discount rate is known.

The discount rate is presently undergoing review as part of the periodic Asset Liability Management (ALM) study currently in progress. Other economic assumptions and demographic assumptions are also currently undergoing review as part of the CalPERS Experience Study conducted every four years. Revised assumptions resulting from these studies will be incorporated into the June 30, 2021 actuarial valuation.

The CalPERS Funding Risk Mitigation Policy has recently triggered an automatic decrease of 0.20% in the discount rate assumption due to the investment return in fiscal year 2020-21. However, the board may choose to further alter the discount rate as a result of the current ALM process.

It is currently anticipated that both economic and demographic assumptions will be finalized by the end of the 2021 calendar year.

Once assumptions are finalized, we will perform projections of employer contribution rates for the next five fiscal years reflecting both the new assumptions as well as actual fiscal year 2020-21 investment return (approximately 21.3% before reduction for administrative expenses). The projections will also reflect that, all other changes aside, the employer rates will increase in fiscal year 2022-23 due to the expiration of the State's supplanting payments under Government Code section 20825.1. See Appendix D for details on the supplanting payments. Results of the projections will be released in an addendum to this report.

Assets

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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, 2019 Including Receivables for Tier 1 Conversion and Service Buybacks	\$83,816,851,738	\$3,822,261,757	\$11,386,348,364	\$35,358,588,464	\$9,082,325,286
2) Receivables for Tier 1 Conversion and Service Buybacks as of June 30, 2019	215,739,167	12,409,713	14,272,163	65,775,675	10,279,309
3) Market Value of Assets as of June 30, 2019 [(1) - (2)]	\$83,601,112,571	\$3,809,852,044	\$11,372,076,201	\$35,292,812,789	\$9,072,045,977
4) Employer Contributions Received in 2019-20	5,008,536,956	244,772,701	747,440,924	3,220,739,648	559,585,119
5) Employee Contributions Received in 2019-20	958,708,924	61,932,883	265,144,641	449,242,664	100,508,361
6) Benefit Payments in 2019-20	(6,473,467,958)	(217,777,265)	(660,253,420)	(2,345,957,536)	(649,549,038)
7) Refunds in 2019-20	(40,448,265)	(3,135,068)	(17,108,915)	(13,982,913)	(2,282,744)
8) Transfers In/(Out)	(4,212,987)	(1,036,506)	3,906,896	734,548	637,490
9) SCP Payment and Interest	55,454,388	2,849,331	4,048,640	18,159,988	3,828,753
10) Miscellaneous Adjustments	0	0	0	0	0
11) Investment Return	3,804,214,092	176,803,230	530,590,749	1,672,197,080	414,571,615
12) Administrative Expense	(64,771,481)	(2,981,823)	(8,947,118)	(27,552,813)	(7,085,450)
13) Market Value of Assets as of June 30, 2020 [(3) + (4) + (5) + (6) + (7) + (8) + (9) + (10) + (11) + (12)]	\$86,845,126,240	\$4,071,279,528	\$12,236,898,599	\$38,266,393,455	\$9,492,260,084
14) Receivables for Tier 1 Conversion and Service Buybacks as of June 30, 2020	201,747,207	12,515,269	12,900,845	60,743,140	9,100,933
15) Market Value of Assets as of June 30, 2020 Including Receivables for Tier 1 Conversion and Service Buybacks	\$87,046,873,448	\$4,083,794,798	\$12,249,799,444	\$38,327,136,595	\$9,501,361,017

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. On December 19, 2017, the board adopted changes to the current asset allocation as shown in the Policy Target Allocation below, expressed as a percentage of total assets.

The asset allocation shown below reflect the values of the Public Employees' Retirement Fund (PERF) in its entirety as of June 30, 2020. The assets of the State plans are part of the PERF and are invested accordingly.

Asset Class	Actual Allocation	Policy Target Allocation
Public Equity	53.0%	50.0%
Private Equity	6.3%	8.0%
Global Fixed Income	28.3%	28.0%
Real Assets	11.3%	13.0%
Liquidity	0.9%	1.0%
Inflation Sensitive Assets	0.0%	0.0%
Trust Level ¹	0.2%	0.0%
Total Fund	100.0%	100.0%

¹ Trust Level includes Multi-Asset Class, Completion Overlay, Risk Mitigation, Absolute Return Strategies, Plan Level Transition, and other Total Fund level portfolios

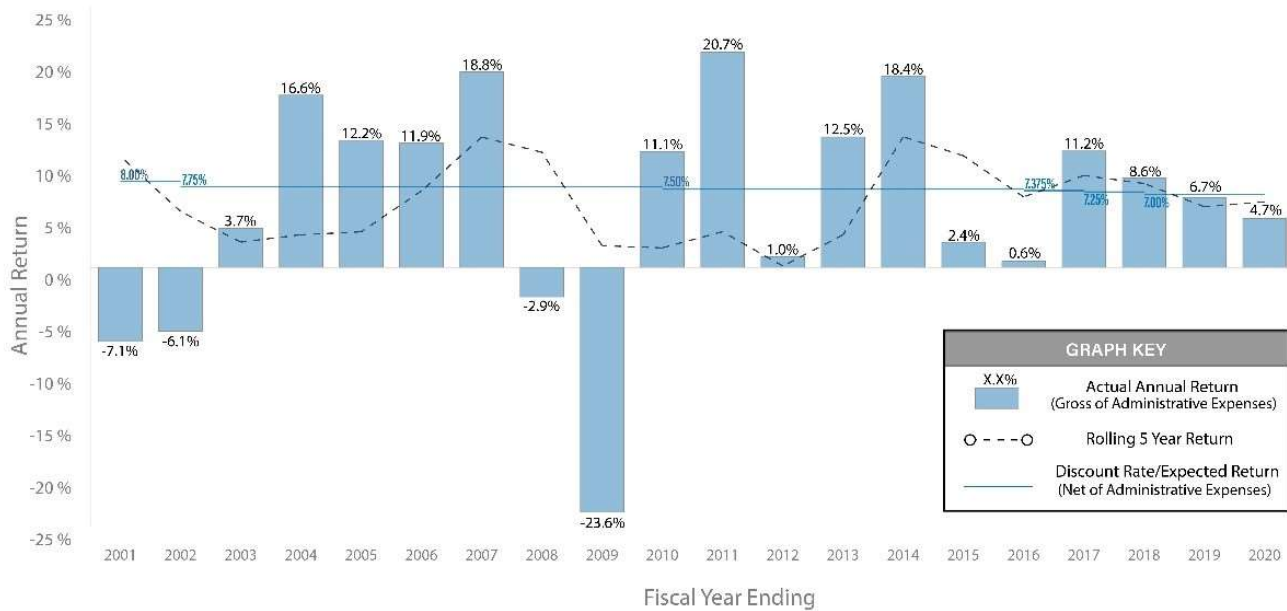
Strategic Asset Allocation Policy Targets



CalPERS History of Investment Returns

Following is a chart with the 20-year historical annual returns of the PERF for each fiscal year ending on June 30. Beginning in 2002, investment returns reported are net of investment expenses but without reduction for administrative expenses.

History of Investment Returns (2001 - 2020)



The table below shows annualized investment returns of the PERF for various time periods ending on June 30, 2020 (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 11.4% per year based on the most recent Asset Liability Management study. The volatility is a measure of the risk of the portfolio expressed in the standard deviation of the fund's total return distribution, expressed as a 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	4.7%	6.3%	8.5%	5.5%	8.0%
Volatility	—	7.3%	7.1%	8.6%	8.6%

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Liabilities and Employer Contributions

Key Results

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

State Miscellaneous

Participant Information

	June 30, 2019	June 30, 2020
Members Included in the Valuation		
Active Members	176,842	178,628
Transfers from State Miscellaneous	37,822	30,130
Vested Terminations ¹	63,003	64,394
Receiving Payments	197,691	202,078
Total	475,358	475,230
Average Entry Age of Active Members	34.9	34.9
Average Age for Active Members	46.9	46.7
Average Age of Retired Members	72.3	72.5
Average Pay	\$72,935	\$75,760
Covered Payroll in Fiscal Year Ending on Valuation Date	\$12,898,034,530	\$13,532,810,988
Projected Payroll for Contribution Rate	\$13,617,180,568	\$14,287,349,781

Funded Status

	June 30, 2019	June 30, 2020
Present Value of Benefits	\$137,912,712,583	\$143,390,494,888
Accrued Liability	120,101,465,581	124,694,577,728
Market Value of Assets	83,816,851,738	87,046,873,448
Unfunded Accrued Liability/(Surplus)	36,284,613,843	37,647,704,280
Funded Ratio	69.8%	69.8%

Employer Contribution

	June 30, 2019	June 30, 2020
Contribution Required in Dollars		
Total Normal Cost	\$2,263,175,410	\$2,354,555,244
Employee Contribution	953,202,640	1,017,259,304
Employer Normal Costs	1,309,972,770	1,337,295,940
Amortization of Unfunded Accrued Liability ²	3,014,815,796	2,819,989,697
Group Term Life Benefits	0	2,857,470
Total²	\$4,324,788,566	\$4,160,143,107
Section 20825.1 Contribution ²	(339,222,800)	-
Total (Includes State Contribution under Section 20825.1)²	\$3,985,565,766	\$4,160,143,107
Contribution Required (Percent of Payroll)		
Total Normal Cost	16.62%	16.48%
Employee Contribution	7.00%	7.12%
Employer Normal Costs	9.62%	9.36%
Amortization of Unfunded Accrued Liability ²	22.14%	19.74%
Group Term Life Benefits	0.00%	0.02%
Total²	31.76%	29.12%
Section 20825.1 Contribution ²	(2.49%)	-
Total (Includes State Contribution under Section 20825.1)²	29.27%	29.12%

¹ Includes non-vested terminated participants with employee contributions remaining in the plan.

² For the June 30, 2020 valuation, the effect of the supplanting payment associated with the State contribution under Section 20825.1 is incorporated in the Unfunded Accrued Liability Rate. See Appendix D for more information.

Liabilities and Employer Contributions

Key Results (continued)

State Industrial

Participant Information

	June 30, 2019	June 30, 2020
Members Included in the Valuation		
Active Members	11,795	11,899
Transfers from State Industrial	8,974	7,840
Vested Terminations ¹	3,730	3,705
Receiving Payments	15,345	16,050
Total	39,844	39,494
Average Entry Age of Active Members	35.7	35.6
Average Age for Active Members	45.1	45.0
Average Age of Retired Members	68.6	68.9
Average Pay	\$61,865	\$64,323
Covered Payroll in Fiscal Year Ending on Valuation Date	\$729,693,522	\$765,383,759
Projected Payroll for Contribution Rate	\$770,378,496	\$808,058,687

Funded Status

	June 30, 2019	June 30, 2020
Present Value of Benefits	\$6,067,437,245	\$6,399,770,897
Accrued Liability	4,945,680,604	5,226,527,840
Market Value of Assets	3,822,261,757	4,083,794,798
Unfunded Accrued Liability/(Surplus)	1,123,418,847	1,142,733,042
Funded Ratio	77.3%	78.1%

Employer Contribution

	June 30, 2019	June 30, 2020
Contribution Required in Dollars		
Total Normal Cost	\$139,669,621	\$145,369,758
Employee Contribution	62,169,545	65,937,589
Employer Normal Costs	77,500,076	79,432,169
Amortization of Unfunded Accrued Liability ²	89,034,575	53,548,170
Group Term Life Benefits	0	0
Total²	\$166,534,651	\$132,980,339
Section 20825.1 Contribution ²	(33,172,000)	-
Total (Includes State Contribution under Section 20825.1)²	\$133,362,651	\$132,980,339
Contribution Required (Percent of Payroll)		
Total Normal Cost	18.13%	17.99%
Employee Contribution	8.07%	8.16%
Employer Normal Costs	10.06%	9.83%
Amortization of Unfunded Accrued Liability ²	11.56%	6.63%
Group Term Life Benefits	0.00%	0.00%
Total²	21.62%	16.46%
Section 20825.1 Contribution ²	(4.31%)	-
Total (Includes State Contribution under Section 20825.1)²	17.31%	16.46%

¹ Includes non-vested terminated participants with employee contributions remaining in the plan.

² For the June 30, 2020 valuation, the effect of the supplanting payment associated with the State contribution under Section 20825.1 is incorporated in the Unfunded Accrued Liability Rate. See Appendix D for more information.

Liabilities and Employer Contributions

Key Results (continued)

State Safety

Participant Information

	June 30, 2019	June 30, 2020
Members Included in the Valuation		
Active Members	28,953	29,307
Transfers from State Safety	6,216	5,449
Vested Terminations ¹	7,706	8,095
Receiving Payments	26,866	27,905
Total	69,741	70,756
Average Entry Age of Active Members	38.4	38.2
Average Age for Active Members	46.7	46.5
Average Age of Retired Members	69.0	69.3
Average Pay	\$83,555	\$84,207
Covered Payroll in Fiscal Year Ending on Valuation Date	\$2,419,167,291	\$2,467,855,569
Projected Payroll for Contribution Rate	\$2,554,050,987	\$2,605,453,941

Funded Status

	June 30, 2019	June 30, 2020
Present Value of Benefits	\$18,788,878,108	\$19,760,856,662
Accrued Liability	14,482,873,130	15,352,141,590
Market Value of Assets	11,386,348,364	12,249,799,444
Unfunded Accrued Liability/(Surplus)	3,096,524,766	3,102,342,146
Funded Ratio	78.6%	79.8%

Employer Contribution

	June 30, 2019	June 30, 2020
Contribution Required in Dollars		
Total Normal Cost	\$584,877,677	\$596,909,498
Employee Contribution	269,707,784	275,657,027
Employer Normal Costs	315,169,893	321,252,471
Amortization of Unfunded Accrued Liability ²	238,128,200	154,683,694
Group Term Life Benefits	0	521,091
Total²	\$553,298,093	\$476,457,256
Section 20825.1 Contribution ²	(73,770,800)	-
Total (Includes State Contribution under Section 20825.1)²	\$479,527,293	\$476,457,256
Contribution Required (Percent of Payroll)		
Total Normal Cost	22.90%	22.91%
Employee Contribution	10.56%	10.58%
Employer Normal Costs	12.34%	12.33%
Amortization of Unfunded Accrued Liability ²	9.32%	5.94%
Group Term Life Benefits	0.00%	0.02%
Total²	21.66%	18.29%
Section 20825.1 Contribution ²	(2.89%)	-
Total (Includes State Contribution under Section 20825.1)²	18.77%	18.29%

¹ Includes non-vested terminated participants with employee contributions remaining in the plan.

² For the June 30, 2020 valuation, the effect of the supplanting payment associated with the State contribution under Section 20825.1 is incorporated in the Unfunded Accrued Liability Rate. See Appendix D for more information.

Liabilities and Employer Contributions

Key Results (continued)

State Peace Officers and Firefighters

Participant Information

	June 30, 2019	June 30, 2020
Members Included in the Valuation		
Active Members	41,144	41,787
Transfers from State POFF	6,289	5,322
Vested Terminations ¹	7,545	7,408
Receiving Payments	41,657	43,525
Total	96,635	98,042
Average Entry Age of Active Members	29.7	29.5
Average Age for Active Members	41.7	41.4
Average Age of Retired Members	64.4	64.8
Average Pay	\$88,060	\$91,766
Covered Payroll in Fiscal Year Ending on Valuation Date	\$3,623,159,227	\$3,834,616,755
Projected Payroll for Contribution Rate	\$3,825,172,999	\$4,048,420,605

Funded Status

	June 30, 2019	June 30, 2020
Present Value of Benefits	\$60,336,281,625	\$63,722,940,433
Accrued Liability	51,218,664,150	54,101,543,037
Market Value of Assets	35,358,588,464	38,327,136,595
Unfunded Accrued Liability/(Surplus)	15,860,075,686	15,774,406,442
Funded Ratio	69.0%	70.8%

Employer Contribution

	June 30, 2019	June 30, 2020
Contribution Required in Dollars		
Total Normal Cost	\$1,130,721,137	\$1,183,353,343
Employee Contribution	440,277,412	470,426,474
Employer Normal Costs	690,443,725	712,926,869
Amortization of Unfunded Accrued Liability ²	1,181,397,767	549,943,795
Group Term Life Benefits	0	0
Total²	\$1,871,841,492	\$1,262,870,664
Section 20825.1 Contribution ²	(553,834,400)	-
Total (Includes State Contribution under Section 20825.1)²	\$1,318,007,092	\$1,262,870,664
Contribution Required (Percent of Payroll)		
Total Normal Cost	29.56%	29.23%
Employee Contribution	11.51%	11.62%
Employer Normal Costs	18.05%	17.61%
Amortization of Unfunded Accrued Liability ²	30.88%	13.58%
Group Term Life Benefits	0.00%	0.00%
Total²	48.93%	31.19%
Section 20825.1 Contribution ²	(14.48%)	-
Total (Includes State Contribution under Section 20825.1)²	34.45%	31.19%

¹ Includes non-vested terminated participants with employee contributions remaining in the plan.

² For the June 30, 2020 valuation, the effect of the supplanting payment associated with the State contribution under Section 20825.1 is incorporated in the Unfunded Accrued Liability Rate. See Appendix D for more information.

Liabilities and Employer Contributions

Key Results (continued)

California Highway Patrol

Participant Information

	June 30, 2019	June 30, 2020
Members Included in the Valuation		
Active Members	7,267	7,027
Transfers from CHP	264	261
Vested Terminations ¹	482	532
Receiving Payments	9,301	9,519
Total	17,314	17,339
Average Entry Age of Active Members	27.6	27.6
Average Age for Active Members	40.9	41.2
Average Age of Retired Members	68.8	68.9
Average Pay	\$125,307	\$131,769
Covered Payroll in Fiscal Year Ending on Valuation Date	\$910,605,298	\$925,937,291
Projected Payroll for Contribution Rate	\$961,377,235	\$977,564,082

Funded Status

	June 30, 2019	June 30, 2020
Present Value of Benefits	\$16,622,228,745	\$17,285,877,581
Accrued Liability	14,087,273,224	14,785,866,497
Market Value of Assets	9,082,325,286	9,501,361,017
Unfunded Accrued Liability/(Surplus)	5,004,947,938	5,284,505,480
Funded Ratio	64.5%	64.3%

Employer Contribution

	June 30, 2019	June 30, 2020
Contribution Required in Dollars		
Total Normal Cost	\$284,279,248	\$286,035,250
Employee Contribution	101,617,574	113,006,408
Employer Normal Costs	182,661,674	173,028,842
Amortization of Unfunded Accrued Liability	391,558,773	427,323,565
Group Term Life Benefits	288,413	488,782
Total	\$574,508,860	\$600,841,189
Contribution Required (Percent of Payroll)		
Total Normal Cost	29.57%	29.26%
Employee Contribution	10.57%	11.56%
Employer Normal Costs	19.00%	17.70%
Amortization of Unfunded Accrued Liability	40.73%	43.71%
Group Term Life Benefits	0.03%	0.05%
Total	59.76%	61.46%

¹ Includes non-vested terminated participants with employee contributions remaining in the plan.

Liabilities and Employer 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	\$68,113,990,318	\$3,669,226,179	\$11,169,358,545	\$29,662,810,123	\$8,116,620,381
b) Retired	75,276,504,570	2,730,544,718	8,591,498,117	34,060,130,310	9,169,257,200
c) Total	\$143,390,494,888	\$6,399,770,897	\$19,760,856,662	\$63,722,940,433	\$17,285,877,581
2) Present Value of Future Employee Contributions	\$8,684,792,430	\$584,186,364	\$2,196,812,508	\$4,160,131,980	\$962,223,768
3) Present Value of Future Employer Normal Costs	10,011,124,730	589,056,693	2,211,902,564	5,461,265,416	1,537,787,316
4) Accrued Liability [(1c) – (2) – (3)]	124,694,577,728	5,226,527,840	15,352,141,590	54,101,543,037	14,785,866,497
5) Market Value of Assets	\$87,046,873,448	4,083,794,798	12,249,799,444	38,327,136,595	9,501,361,017
6) Unfunded Accrued Liability/(Surplus) [(4) – (5)]	\$37,647,704,280	\$1,142,733,042	\$3,102,342,146	\$15,774,406,442	\$5,284,505,480
7) Funded Ratio [(5) ÷ (4)]	69.8%	78.1%	79.8%	70.8%	64.3%

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	\$1,337,295,940	\$79,432,169	\$321,252,471	\$712,926,869	\$173,028,842
Payment on the Unfunded Accrued Liability	2,819,989,697	53,548,170	154,683,694	549,943,795	427,323,565
Payment for Term Life Benefits ¹	2,857,470	0	521,091	0	488,782
Total Employer Contribution Amount	\$4,160,143,107	\$132,980,339	\$476,457,256	\$1,262,870,664	\$600,841,189
Projected Payroll	\$14,287,349,781	\$808,058,687	\$2,605,453,941	\$4,048,420,605	\$977,564,082
Employer Contribution (as a percent of payroll)					
Normal Cost	9.36%	9.83%	12.33%	17.61%	17.70%
Payment on the Unfunded Accrued Liability	19.74%	6.63%	5.94%	13.58%	43.71%
Payment for Term Life Benefits ¹	0.02%	0.00%	0.02%	0.00%	0.05%
Total Employer Contribution Rate	29.12%	16.46%	18.29%	31.19%	61.46%

¹ Government Code §21600-21605

Liabilities and Employer Contributions

Schedule of Amortization Bases

The schedules below show the development of payments on the amortization bases used to determine employer contribution rates. Each row of each schedule gives a brief description of a base (or portion of the Unfunded Actuarial Liability), the date the base was established, the balance of the base on the valuation date, and the number of years remaining in the amortization period. The schedules also show the expected payment for the year immediately following the valuation date, the balance on the date a year after the valuation date, and the scheduled payment for fiscal year 2021-22. Please refer to Appendix A for an explanation of how amortization periods are determined.

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, 2020).
- The required employer contributions determined by the valuation are for the fiscal year beginning one year after the valuation date (fiscal year 2021-22).

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, plus any additional discretionary payments made during the 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. Expected dollar amounts are determined by multiplying the rate by the expected payroll for the applicable fiscal year, based on payroll as of the valuation date.

Liabilities and Employer Contributions

Schedule of Amortization Bases (continued)

State Miscellaneous

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2020	Expected Payment in 2020-21	Balance on 6/30/2021	Scheduled Payment for Fiscal Year 2021-2022	Payment as Percentage of Payroll
(Gain)/Loss	Various	23	317,847,349	20,997,259	318,376,930	21,574,684	0.15%
Payment (Gain)/Loss	Various	23	371,606,511	24,548,634	372,225,662	25,223,721	0.18%
(Gain)/Loss Prior to 2009	Various	12	9,628,673,284	965,927,197	9,303,517,552	992,490,195	6.95%
Assumption Change	6/30/2003	3	408,805,674	112,229,223	321,331,260	115,315,527	0.81%
Benefit Change (SB 1801)	6/30/2003	3	(1,193,248)	(327,582)	(937,922)	(336,590)	0.00%
Actuarial Equivalent Reduction Benefits	6/30/2004	4	148,172,591	33,187,956	124,214,784	34,100,624	0.24%
New Rate Stabilization Policies	6/30/2004	4	(106,824,132)	(23,926,656)	(89,551,896)	(24,584,639)	(0.17%)
Reclass of BU 7 Members	6/30/2005	5	(56,772,420)	(10,805,455)	(49,569,240)	(11,102,605)	(0.08%)
(Gain)/Loss	6/30/2009	19	1,143,895,725	84,619,582	1,136,437,250	86,946,621	0.61%
Assumption Change	6/30/2009	9	1,743,708,674	214,998,700	1,643,371,897	220,911,165	1.55%
(Gain)/Loss	6/30/2010	20	(44,585,993)	(3,196,610)	(44,400,413)	(3,284,517)	(0.02%)
(Gain)/Loss	6/30/2011	21	23,595,618	1,643,077	23,547,699	1,688,261	0.01%
Assumption Change	6/30/2011	11	1,546,309,382	164,958,779	1,483,916,351	169,495,146	1.19%
Assumption Change	6/30/2013	13	4,995,544,262	501,537,905	4,826,437,517	515,330,197	3.61%
(Gain)/Loss	6/30/2014	24	4,852,057,722	329,148,973	4,851,227,417	338,200,569	2.37%
(Gain)/Loss	6/30/2015	25	4,109,943,117	271,777,747	4,116,510,048	279,251,635	1.95%
(Gain)/Loss	6/30/2016	26	4,134,130,800	216,231,920	4,199,847,919	277,722,872	1.94%
(Gain)/Loss	6/30/2017	27	(2,967,975,404)	(116,637,454)	(3,055,082,962)	(159,793,312)	(1.12%)
Method Change	6/30/2018	18	1,059,486,959	38,634,632	1,093,687,072	59,545,626	0.42%
Assumption Change	6/30/2018	18	3,339,280,316	121,768,243	3,447,071,888	187,675,305	1.31%
(Gain)/Loss	6/30/2018	28	190,131,457	5,054,012	198,212,748	7,789,495	0.05%
Investment (Gain)/Loss	6/30/2019	19	512,405,661	11,203,226	536,685,350	22,406,452	0.16%
Non-Investment (Gain)/Loss	6/30/2019	19	561,542,522	51,242,488	547,844,857	51,242,488	0.36%
Investment (Gain)/Loss	6/30/2020	20	2,095,588,530	-	2,242,279,727	49,025,155	0.34%
Non-Investment (Gain)/Loss ¹	6/30/2020	20	(357,670,677)	(256,012,775)	(117,885,951)	(436,844,378)	(3.06%)
Total			\$37,647,704,280	\$2,758,803,021	\$37,429,315,544	\$2,819,989,697	19.74%

¹ Reflects the State contribution under Section 20825.1.

Liabilities and Employer Contributions

Schedule of Amortization Bases (continued)

State Industrial

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2020	Expected Payment in 2020-21	Balance on 6/30/2021	Scheduled Payment for Fiscal Year 2021-22	Payment as Percentage of Payroll
(Gain)/Loss	Various	23	98,119,549	6,481,859	98,283,030	6,660,110	0.82%
Payment (Gain)/Loss	Various	23	(1,481,713)	(97,883)	(1,484,182)	(100,575)	(0.01%)
Assumption Change	6/30/2003	3	43,790,953	12,021,909	34,420,760	12,352,511	1.53%
New Rate Stabilization Policies	6/30/2004	4	(3,667,229)	(821,392)	(3,074,281)	(843,981)	(0.10%)
Actuarial Equivalent Reduction Benefits	6/30/2004	4	6,661,035	1,491,950	5,584,022	1,532,979	0.19%
(Gain)/Loss	6/30/2009	19	39,558,062	2,926,304	39,300,134	3,006,777	0.37%
Assumption Change	6/30/2009	9	57,738,975	7,119,196	54,416,550	7,314,974	0.91%
(Gain)/Loss	6/30/2010	20	5,447,611	390,569	5,424,936	401,309	0.05%
(Gain)/Loss	6/30/2011	21	(7,385,378)	(514,279)	(7,370,380)	(528,422)	(0.07%)
Assumption Change	6/30/2011	11	56,778,392	6,057,064	54,487,404	6,223,633	0.77%
Assumption Change	6/30/2013	13	154,426,837	15,503,999	149,199,254	15,930,359	1.97%
(Gain)/Loss	6/30/2014	24	151,773,500	10,295,857	151,747,528	10,578,993	1.31%
(Gain)/Loss	6/30/2015	25	172,789,538	11,426,034	173,065,624	11,740,250	1.45%
(Gain)/Loss	6/30/2016	26	259,436,094	13,569,567	263,560,151	17,428,413	2.16%
Assumption Change	6/30/2017	17	11,533,959	627,965	11,691,764	860,312	0.11%
(Gain)/Loss	6/30/2017	27	(170,040,431)	(6,682,361)	(175,030,973)	(9,154,835)	(1.13%)
(Gain)/Loss	6/30/2018	28	6,278,305	166,888	6,545,156	257,216	0.03%
Assumption Change	6/30/2018	18	148,930,505	5,430,813	153,737,964	8,370,240	1.04%
Method Change	6/30/2018	18	51,914,976	1,893,101	53,590,785	2,917,742	0.36%
Investment (Gain)/Loss	6/30/2019	19	23,166,067	506,502	24,263,762	1,013,005	0.13%
Non-Investment (Gain)/Loss	6/30/2019	19	13,598,584	1,240,913	13,266,874	1,240,913	0.15%
Investment (Gain)/Loss	6/30/2020	20	95,882,590	-	102,594,371	2,243,121	0.28%
Non-Investment (Gain)/Loss ¹	6/30/2020	20	(72,517,739)	(30,194,053)	(46,361,009)	(45,896,874)	(5.68%)
Total			\$1,142,733,042	\$58,840,522	\$1,161,859,244	\$53,548,170	6.63%

¹ Reflects the State contribution under Section 20825.1.

Liabilities and Employer Contributions

Schedule of Amortization Bases (continued)

State Safety

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2020	Expected Payment in 2020-21	Balance on 6/30/2021	Scheduled Payment for Fiscal Year 2021-22	Payment as Percentage of Payroll
(Gain)/Loss	Various	23	847,509,801	55,987,200	848,921,877	57,526,848	2.21%
Payment (Gain)/Loss	Various	23	(43,926,205)	(2,901,801)	(43,999,393)	(2,981,601)	(0.11%)
Benefit Change (Arnett)	6/30/2002	2	40,328,629	14,472,657	28,181,000	14,870,655	0.57%
Assumption Change	6/30/2003	3	(1,587,863)	(435,915)	(1,248,099)	(447,903)	(0.02%)
New Rate Stabilization Policies	6/30/2004	4	(4,137,442)	(926,711)	(3,468,466)	(952,196)	(0.04%)
Assumption Change	6/30/2009	9	223,239,715	27,525,383	210,394,017	28,282,331	1.09%
(Gain)/Loss	6/30/2009	19	148,875,280	11,013,035	147,904,578	11,315,894	0.43%
(Gain)/Loss	6/30/2010	20	(112,110,577)	(8,037,811)	(111,643,941)	(8,258,850)	(0.32%)
(Gain)/Loss	6/30/2011	21	(10,270,096)	(715,156)	(10,249,240)	(734,823)	(0.03%)
Assumption Change	6/30/2011	11	155,740,506	16,614,246	149,456,432	17,071,137	0.66%
Assumption Change	6/30/2013	13	489,310,860	49,125,367	472,746,945	50,476,314	1.94%
(Gain)/Loss	6/30/2014	24	191,009,324	12,957,497	190,976,638	13,313,828	0.51%
(Gain)/Loss	6/30/2015	25	476,181,055	31,488,371	476,941,905	32,354,301	1.24%
(Gain)/Loss	6/30/2016	26	475,459,161	24,868,455	483,017,172	31,940,422	1.23%
(Gain)/Loss	6/30/2017	27	(516,927,907)	(20,314,574)	(532,099,302)	(27,830,966)	(1.07%)
Assumption Change	6/30/2017	17	199,069,495	10,838,308	201,793,127	14,848,483	0.57%
Assumption Change	6/30/2018	18	434,631,390	15,849,014	448,661,240	24,427,293	0.94%
Non-Investment (Gain)/Loss	6/30/2018	28	(94,489,406)	(2,511,686)	(98,505,556)	(3,871,136)	(0.15%)
Method Change	6/30/2018	18	157,187,623	5,731,912	162,261,621	8,834,309	0.34%
Non-Investment (Gain)/Loss	6/30/2019	19	(43,561,108)	(3,975,086)	(42,498,525)	(3,975,086)	(0.15%)
Investment (Gain)/Loss	6/30/2019	19	67,485,201	1,475,495	70,682,901	2,950,990	0.11%
Investment (Gain)/Loss	6/30/2020	20	286,209,812	-	306,244,499	6,695,723	0.26%
Non-Investment (Gain)/Loss ¹	6/30/2020	20	(262,885,102)	(75,823,319)	(202,854,808)	(111,172,273)	(4.27%)
Total			\$3,102,342,146	\$162,304,881	\$3,151,616,622	\$154,683,694	5.94%

¹ Reflects the State contribution under Section 20825.1.

Liabilities and Employer Contributions

Schedule of Amortization Bases (continued)

State Peace Officers and Firefighters

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2020	Expected Payment in 2020-21	Balance on 6/30/2021	Scheduled Payment for Fiscal Year 2021-22	Payment as Percentage of Payroll
Payment (Gain)/Loss	Various	23	(2,607,032)	(172,223)	(2,611,375)	(176,959)	0.00%
(Gain)/Loss	Various	23	4,708,223,757	311,029,162	4,716,068,353	319,582,464	7.89%
Assumption Change	6/30/2003	3	171,520,907	47,087,551	134,819,629	48,382,459	1.20%
Benefit Change (SB 183)	6/30/2004	4	9,986,809	2,236,863	8,372,057	2,298,377	0.06%
New Rate Stabilization Policies	6/30/2004	4	(30,602,985)	(6,854,510)	(25,654,834)	(7,043,009)	(0.17%)
Benefit Change (SB 65)	6/30/2006	6	193,957,447	32,261,185	174,163,239	33,148,367	0.82%
Assumption Change	6/30/2009	9	579,016,316	71,392,519	545,698,462	73,355,814	1.81%
(Gain)/Loss	6/30/2009	19	370,882,225	27,435,979	368,463,983	28,190,468	0.70%
(Gain)/Loss	6/30/2010	20	44,235,431	3,171,476	44,051,311	3,258,692	0.08%
Assumption Change	6/30/2011	11	655,631,260	69,942,105	629,176,772	71,865,512	1.78%
(Gain)/Loss	6/30/2011	21	299,920,181	20,884,889	299,311,097	21,459,223	0.53%
Assumption Change	6/30/2013	13	2,295,571,390	230,468,595	2,217,862,819	236,806,481	5.85%
(Gain)/Loss	6/30/2014	24	1,660,949,774	112,673,827	1,660,665,545	115,772,357	2.86%
(Gain)/Loss	6/30/2015	25	1,645,761,417	108,829,080	1,648,391,040	111,821,880	2.76%
(Gain)/Loss	6/30/2016	26	1,895,797,456	99,157,947	1,925,933,500	127,355,988	3.15%
Assumption Change	6/30/2017	17	160,015,567	8,712,023	162,204,870	11,935,472	0.29%
(Gain)/Loss	6/30/2017	27	(968,380,045)	(38,056,037)	(996,801,177)	(52,136,771)	(1.29%)
Non-Investment (Gain)/Loss	6/30/2018	28	(197,359,589)	(5,246,147)	(205,748,104)	(8,085,625)	(0.20%)
Assumption Change	6/30/2018	18	1,632,886,999	59,543,903	1,685,596,397	91,772,040	2.27%
Method Change	6/30/2018	18	462,049,643	16,848,832	476,964,551	25,968,263	0.64%
Non-Investment (Gain)/Loss	6/30/2019	19	62,151,442	5,671,511	60,635,386	5,671,511	0.14%
Investment (Gain)/Loss	6/30/2019	19	200,294,609	4,379,237	209,785,314	8,758,474	0.22%
Investment (Gain)/Loss	6/30/2020	20	871,578,729	-	932,589,240	20,390,111	0.50%
Non-Investment (Gain)/Loss ¹	6/30/2020	20	(947,075,266)	(505,536,721)	(490,439,284)	(740,407,794)	(18.29%)
Total			\$15,774,406,442	\$675,861,046	\$16,179,498,791	\$549,943,795	13.58%

¹ Reflects the State contribution under Section 20825.1.

Liabilities and Employer Contributions

Schedule of Amortization Bases (continued)

California Highway Patrol

Reason for Base	Date Established	Remaining Amortization Period	Balance on 6/30/2020	Expected Payment in 2020-21	Balance on 6/30/2021	Scheduled Payment for Fiscal Year 2021-22	Payment as Percentage of Payroll
Payment (Gain)/Loss	Various	23	(21,245,232)	(1,403,478)	(21,280,629)	(1,442,073)	(0.15%)
(Gain)/Loss Prior to 2009	Various	17	1,534,336,640	121,730,018	1,515,821,695	125,077,593	12.79%
(Gain)/Loss	Various	23	220,580,903	14,571,757	220,948,424	14,972,481	1.53%
Benefit Change (AB 2621)	6/30/2001	1	753,327	397,518	394,864	408,450	0.04%
Benefit Change (Arnett)	6/30/2002	2	749,325	268,909	523,616	276,304	0.03%
Assumption Change	6/30/2003	3	28,172,228	7,734,108	22,144,060	7,946,796	0.81%
Benefit Change (SB 1801)	6/30/2003	3	4,463,285	1,225,303	3,508,252	1,259,000	0.13%
New Rate Stabilization Policies	6/30/2004	4	(10,436,098)	(2,337,495)	(8,748,701)	(2,401,777)	(0.25%)
Benefit Change (SB 439)	6/30/2005	5	107,073,181	20,379,163	93,487,934	20,939,591	2.14%
Benefit Change (AB 2936)	6/30/2008	8	(161,764,235)	(21,745,246)	(150,594,274)	(22,343,240)	(2.29%)
Assumption Change	6/30/2009	9	141,548,118	17,452,836	133,403,132	17,932,789	1.83%
(Gain)/Loss	6/30/2009	19	300,265,363	22,212,103	298,307,560	22,822,936	2.33%
(Gain)/Loss	6/30/2010	20	100,595,955	7,212,265	100,177,247	7,410,603	0.76%
(Gain)/Loss	6/30/2011	21	(44,714,666)	(3,113,698)	(44,623,858)	(3,199,325)	(0.33%)
Assumption Change	6/30/2011	11	170,005,685	18,136,041	163,146,016	18,634,782	1.91%
Assumption Change	6/30/2013	13	816,164,699	81,940,528	788,536,287	84,193,892	8.61%
(Gain)/Loss	6/30/2014	24	479,877,109	32,553,417	479,794,990	33,448,636	3.42%
(Gain)/Loss	6/30/2015	25	556,424,353	36,794,611	557,313,416	37,806,462	3.87%
(Gain)/Loss	6/30/2016	26	362,463,014	18,958,296	368,224,811	24,349,561	2.49%
(Gain)/Loss	6/30/2017	27	(233,676,619)	(9,183,178)	(240,534,829)	(12,580,954)	(1.29%)
(Gain)/Loss	6/30/2018	28	(73,720,398)	(1,959,611)	(76,853,788)	(3,020,251)	(0.31%)
Method Change	6/30/2018	18	110,310,142	4,022,505	113,870,940	6,199,686	0.63%
Assumption Change	6/30/2018	18	448,542,306	16,356,281	463,021,199	25,209,119	2.58%
Non-Investment (Gain)/Loss	6/30/2019	19	89,643,801	8,180,273	87,457,127	8,180,274	0.84%
Investment (Gain)/Loss	6/30/2019	19	53,766,398	1,175,547	56,314,051	2,351,095	0.24%
Investment (Gain)/Loss	6/30/2020	20	227,994,997	-	243,954,647	5,333,819	0.55%
Non-Investment (Gain)/Loss	6/30/2020	20	76,331,899	(1,103,980)	82,817,098	7,557,316	0.77%
Total			\$5,284,505,480	\$390,454,793	\$5,250,531,287	\$427,323,565	43.71%

Liabilities and Employer 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. Deviations between expected and actual experience result 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, 2019	\$36,284,613,843	\$1,123,418,847	\$3,096,524,766
b) Expected Payment on Unfunded Accrued Liability During 2019-20	2,817,795,556	79,939,421	226,471,616
c) Interest through June 30, 2020 $[.07 \times (1a) - ((1.07)^{1/2} - 1) \times (1b)]$	2,442,968,140	75,888,765	208,964,286
d) Expected Unfunded Accrued Liability as of June 30, 2020 $[(1a) - (1b) + (1c)]$	\$35,909,786,427	\$1,119,368,191	\$3,079,017,436
e) Change Due to Method Change	0	0	0
f) Change Due to Assumption Change	0	0	0
g) Expected Unfunded Accrued Liability After All Other Changes $[(1d) + (1e) + (1f)]$	\$35,909,786,427	\$1,119,368,191	\$3,079,017,436
h) Actual Unfunded Accrued Liability as of June 30, 2020	37,647,704,280	1,142,733,042	3,102,342,146
i) Total (Gain)/Loss for 2019-20 $[(1h) - (1g)]$	\$1,737,917,853	\$23,364,851	\$23,324,710
2) Contribution (Gain)/Loss for the Year			
a) Expected Contributions for 2019-20 ¹	\$5,020,399,360	\$215,870,926	\$795,695,632
b) Interest on Expected Contributions for 2019-20	172,742,118	7,427,696	27,378,330
c) Actual Contributions for 2019-20 ¹	5,151,573,088	226,942,380	835,201,160
d) Interest on Actual Contributions for 2019-20	177,255,550	7,808,643	28,737,638
e) Expected Contributions with Interest for 2019-20 $[(2a) + (2b)]$	5,193,141,478	223,298,622	823,073,962
f) Actual Contributions with Interest for 2019-20 $[(2c) + (2d)]$	5,328,828,638	234,751,023	863,938,798
g) Contribution (Gain)/Loss for 2019-20 $[(2e) - (2f)]$	\$(135,687,160)	\$(11,452,401)	\$(40,864,836)
3) Investment (Gain)/Loss for the Year			
a) Market Value of Assets as of June 30, 2019	\$83,816,851,738	\$3,822,261,757	\$11,386,348,364
b) Receivables as of June 30, 2019	(215,739,166)	(12,409,713)	(14,272,163)
c) Receivables as of June 30, 2020	201,747,207	12,515,269	12,900,845
d) Contributions Received During 2019-20	5,967,245,880	306,705,585	1,012,585,565
e) Benefits and Refunds Paid During 2019-20	(6,513,916,222)	(220,912,332)	(677,362,335)
f) Transfers, SCP Payments and Interest, and Miscellaneous Adjustments During 2019-20	51,241,401	1,812,825	7,955,536
g) Expected Interest for 2019-20 $[0.07 \times (3a + 3b) + ((1.07)^{1/2} - 1) \times ((3d) + (3e) + (3f))]$	5,835,031,140	269,703,997	807,853,444
h) Expected Assets as of June 30, 2020 $[(3a) + (3b) + (3c) + (3d) + (3e) + (3f) + (3g)]$	89,142,461,977	4,179,677,387	12,536,009,256
i) Actual Market Value of Assets as of June 30, 2020	87,046,873,448	4,083,794,798	12,249,799,444
j) Investment (Gain)/Loss for 2019-20 $[(3h) - (3i)]$	\$2,095,588,530	\$95,882,590	\$286,209,812
4) Liability (Gain)/Loss for the Year			
a) Total (Gain)/Loss for 2019-20 (1i)	\$1,737,917,853	\$23,364,851	\$23,324,710
b) Contribution (Gain)/Loss for 2019-20 (2g)	(135,687,160)	(11,452,401)	(40,864,836)
c) Asset (Gain)/Loss for 2019-20 (3j)	2,095,588,530	95,882,590	286,209,812
d) Liability (Gain)/Loss for 2019-20 $[(4a) - (4b) - (4c)]$	\$(221,983,517)	\$(61,065,338)	\$(222,020,266)

¹ Excludes State contribution under Government Code Section 20825.1 made on July 29, 2019.

Liabilities and Employer 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, 2019	\$15,860,075,686	\$5,004,947,938
b) Expected Payment on Unfunded Accrued Liability During 2019-20	1,083,110,299	362,638,043
c) Interest through June 30, 2020 $[.07 \times (1a) - ((1.07)^{1/2} - 1) \times (1b)]$	1,072,937,592	337,868,689
d) Expected Unfunded Accrued Liability as of June 30, 2020 $[(1a) - (1b) + (1c)]$	\$15,849,902,979	\$4,980,178,584
e) Change Due to Method Change	0	0
f) Change Due to Assumption Change	0	0
g) Expected Unfunded Accrued Liability After All Other Changes $[(1d) + (1e) + (1f)]$	\$15,849,902,979	\$4,980,178,584
h) Actual Unfunded Accrued Liability as of June 30, 2020	15,774,406,442	5,284,505,480
i) Total (Gain)/Loss for 2019-20 $[(1h) - (1g)]$	\$(75,496,537)	\$304,326,896
2) Contribution (Gain)/Loss for the Year		
a) Expected Contributions for 2019-20 ¹	\$2,183,568,828	\$639,308,844
b) Interest on Expected Contributions for 2019-20	75,132,331	21,997,366
c) Actual Contributions for 2019-20 ¹	2,338,268,608	660,093,480
d) Interest on Actual Contributions for 2019-20	80,455,247	22,712,525
e) Expected Contributions with Interest for 2019-20 $[(2a) + (2b)]$	2,258,701,159	661,306,210
f) Actual Contributions with Interest for 2019-20 $[(2c) + (2d)]$	2,418,723,855	682,806,005
g) Contribution (Gain)/Loss for 2019-20 $[(2e) - (2f)]$	\$(160,022,696)	\$(21,499,795)
3) Investment (Gain)/Loss for the Year		
a) Market Value of Assets as of June 30, 2019	\$35,358,588,464	\$9,082,325,286
b) Receivables as of June 30, 2019	(65,775,675)	(10,279,309)
c) Receivables as of June 30, 2020	60,743,140	9,100,933
d) Contributions Received During 2019-20	3,669,982,312	660,093,480
e) Benefits and Refunds Paid During 2019-20	(2,359,940,449)	(651,831,782)
f) Transfers, SCP Payments and Interest, and Miscellaneous Adjustments During 2019-20	18,894,536	4,466,243
g) Expected Interest for 2019-20 $[0.07 \times (3a + 3b) + ((1.07)^{1/2} - 1) \times ((3d) + (3e) + (3f))]$	2,516,222,996	635,481,162
h) Expected Assets as of June 30, 2020 $[(3a) + (3b) + (3c) + (3d) + (3e) + (3f) + (3g)]$	39,198,715,324	9,729,356,014
i) Actual Market Value of Assets as of June 30, 2020	38,327,136,595	9,501,361,017
j) Investment (Gain)/Loss for 2019-20 $[(3h) - (3i)]$	\$871,578,729	\$227,994,997
4) Liability (Gain)/Loss for the Year		
a) Total (Gain)/Loss for 2019-20 (1i)	\$(75,496,537)	\$304,326,896
b) Contribution (Gain)/Loss for 2019-20 (2c)	(160,022,696)	(21,499,795)
c) Asset (Gain)/Loss for 2019-20 (3j)	871,578,729	227,994,997
d) Liability (Gain)/Loss for 2019-20 $[(4a) - (4b) - (4c)]$	\$(787,052,570)	\$97,831,694

¹ Excludes State contribution under Government Code Section 20825.1 made on July 29, 2019.

Liabilities and Employer Contributions

Group Term Life Insurance (GTLI) Contributions

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
1) GTLI Market Value of Assets as of June 30, 2019	\$5,707,184	\$1,011,588	\$1,305,715	\$3,002,891	\$101,681
2) Contributions Received for GTLI During Fiscal Year 2019-20	21,886	641	(1,812)	1,044	56,682
3) Benefits Paid for GTLI During Fiscal Year 2019-20	(3,181,057)	(98,985)	(631,484)	(927,794)	(249,945)
4) Investment Return During Fiscal Year 2019-20	241,546	40,495	69,340	118,716	(4,576)
5) GTLI Market Value of Assets as of June 30, 2020	\$2,789,560	\$953,739	\$741,760	\$2,194,857	\$(96,158)
6) Expected GTLI Benefit Payments for Fiscal Year 2020-21	3,344,654	206,865	738,334	1,027,022	244,768
7) Closed Group Projected Payroll for Fiscal Year 2020-21	13,087,182,819	746,774,883	2,381,158,488	3,767,587,051	916,314,165
8) Required GTLI Contribution Rate $[(1.5 \times (6) - (5), \text{ but not less than zero}) \div (7)]$	0.02%	0.00%	0.02%	0.00%	0.05%
9) Projected Payroll for Contributions	\$14,287,349,781	\$808,058,687	\$2,605,453,941	\$4,048,420,605	\$977,564,082
10) Required GTLI Contribution for Fiscal Year 2021-22 ¹ [(8) x (9)]	\$2,857,470	\$0	\$521,091	\$0	\$488,782

¹ The Required GTLI Contribution for Miscellaneous Tier 1 and Tier 2 is divided equally between the two groups as a percentage of payroll.

Liabilities and Employer Contributions

Reconciliation of Employer Contribution Rates

Change in Normal Cost Rate from 2020-21 to 2021-22

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2020-2021 Normal Cost Rate	9.62%	10.06%	12.34%	18.05%	19.00%
Effect of Changes in Demographic Results	(0.20%)	(0.23%)	(0.01%)	(0.44%)	(0.37%)
Effect of Change in Member Contribution Rates	(0.06%)	0.00%	0.00%	0.00%	(0.93%)
2021-2022 Normal Cost Rate	9.36%	9.83%	12.33%	17.61%	17.70%

Change in Unfunded Accrued Liability Amortization Rate from 2020-21 to 2021-22

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2020-2021 Rate to Amortize the UAL	22.14%	11.56%	9.32%	30.88%	40.73%
Effect of Progression of Amortization Bases and Change in Payroll	0.31%	0.47%	0.63%	0.48%	1.66%
Effect of Investment (Gain)/Loss	0.34%	0.28%	0.26%	0.50%	0.55%
Effect of Non-Investment (Gain)/Loss	0.28%	0.09%	(0.29%)	0.93%	0.77%
Effect of Section 20825.1 Contribution	(3.33%)	(5.77%)	(3.98%)	(19.21%)	0.00%
2021-2022 Rate to Amortize the UAL	19.74%	6.63%	5.94%	13.58%	43.71%

Change in Group Term Life Insurance Rate from 2020-21 to 2021-22

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2020-2021 Group Term Life Insurance Rate	0.00%	0.00%	0.00%	0.00%	0.03%
Effect of (Gain)/Loss and Other Changes	0.02%	0.00%	0.02%	0.00%	0.02%
2021-2022 Group Term Life Insurance Rate	0.02%	0.00%	0.02%	0.00%	0.05%

Change in Total Rate from 2020-21 to 2021-22

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2020-2021 Employer Rate	31.76%	21.62%	21.66%	48.93%	59.76%
Effect of Progression of Amortization Bases and Change in Payroll	0.31%	0.47%	0.63%	0.48%	1.66%
Effect of (Gain)/Loss	0.44%	0.14%	(0.02%)	0.99%	0.97%
Effect of Change in Member Contribution Rates	(0.06%)	0.00%	0.00%	0.00%	(0.93%)
Effect of Section 20825.1 Contribution	(3.33%)	(5.77%)	(3.98%)	(19.21%)	0.00%
2021-2022 Employer Rate	29.12%	16.46%	18.29%	31.19%	61.46%

Liabilities and Employer Contributions

Reconciliation of Employer Contributions

Change in Normal Cost Contribution from 2020-21 to 2021-22

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2020-2021 Normal Cost Contribution	\$1,309,972,770	\$77,500,076	\$315,169,892	\$690,443,725	\$182,661,674
Effect of Change in Payroll	64,470,278	3,790,627	6,343,125	40,296,193	3,075,501
Effect of Changes in Demographic Results	(28,574,698)	(1,858,534)	(260,546)	(17,813,049)	(3,616,987)
Effect of Change in Member Contribution Rates	(8,572,410)	0	0	0	(9,091,346)
2021-2022 Normal Cost Contribution	\$1,337,295,940	\$79,432,169	\$321,252,471	\$712,926,869	\$173,028,842

Change in Unfunded Accrued Liability Amortization Contribution from 2020-21 to 2021-22

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2020-2021 Amortization of the UAL	\$3,014,815,796	\$89,034,575	\$238,128,200	\$1,181,397,767	\$391,558,773
Effect of Progression of Amortization Bases	192,993,124	8,167,348	21,032,044	88,563,711	22,873,657
Effect of Investment (Gain)/Loss	49,025,155	2,243,121	6,695,723	20,390,111	5,333,819
Effect of Non-Investment (Gain)/Loss	39,605,614	694,331	(7,558,668)	37,471,510	7,557,316
Effect of Section 20825.1 Contribution	(476,449,992)	(46,591,205)	(103,613,605)	(777,879,304)	0
2021-2022 Amortization of the UAL	\$2,819,989,697	\$53,548,170	\$154,683,694	\$549,943,795	\$427,323,565

Change in Group Term Life Insurance Contribution from 2020-21 to 2021-22

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2020-2021 Group Term Life Insurance Contribution	\$0	\$0	\$0	\$0	\$288,413
Effect of (Gain)/Loss and Other Changes	2,857,470	0	521,091	0	200,369
2021-2022 Group Term Life Insurance Contribution	\$2,857,470	\$0	\$521,091	\$0	\$488,782

Change in Total Contribution from 2020-21 to 2021-22

	State Miscellaneous	State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
2020-2021 Employer Contribution	\$4,324,788,566	\$166,534,651	\$553,298,092	\$1,871,841,492	\$574,508,860
Effect of Change in Payroll and Progression of Amortization Bases	257,463,402	11,957,975	27,375,169	128,859,904	25,949,158
Effect of (Gain)/Loss	62,913,541	1,078,918	(602,400)	40,048,572	9,474,517
Effect of Change in Member Contribution Rates	(8,572,410)	0	0	0	(9,091,346)
Effect of Section 20825.1 Contribution	(476,449,992)	(46,591,205)	(103,613,605)	(777,879,304)	0
2021-2022 Employer Contribution	\$4,160,143,107	\$132,980,339	\$476,457,256	\$1,262,870,664	\$600,841,189

Liabilities and Employer 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.

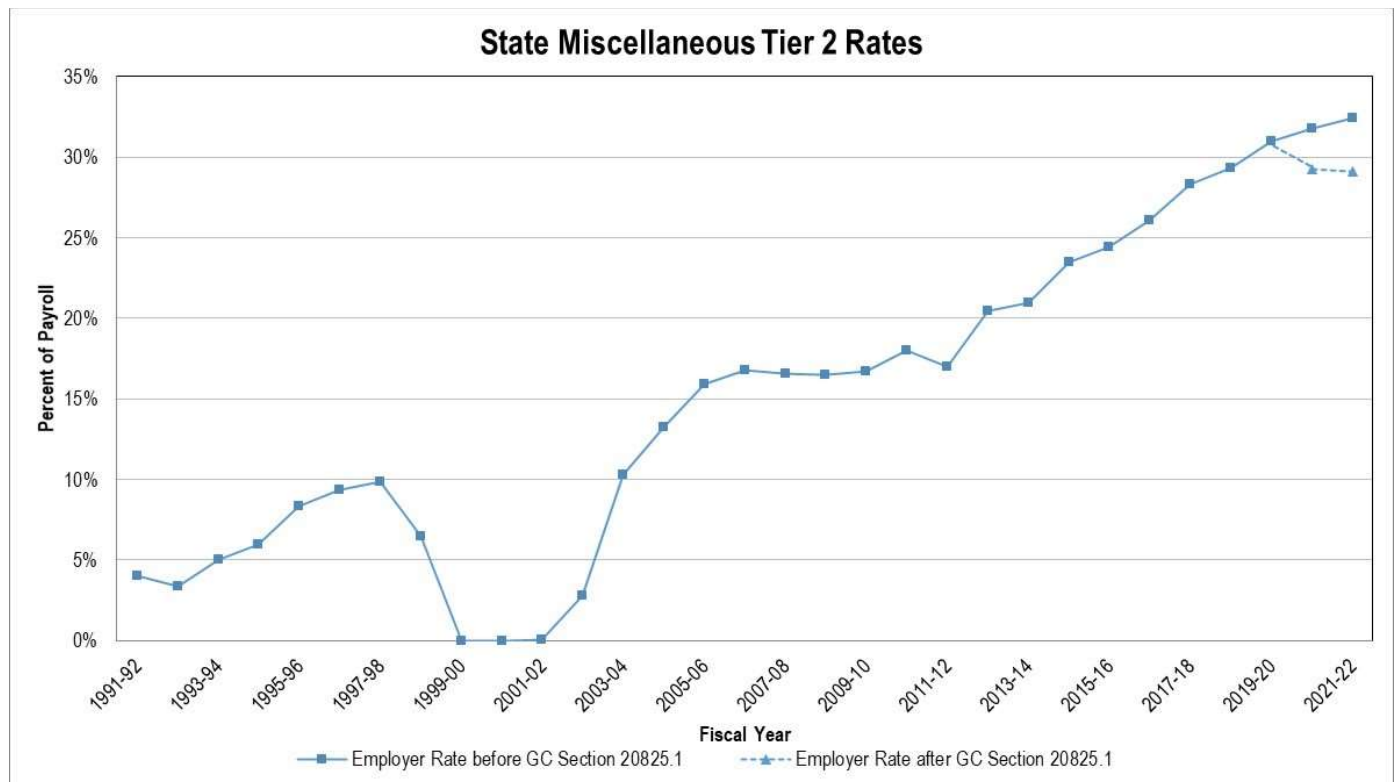
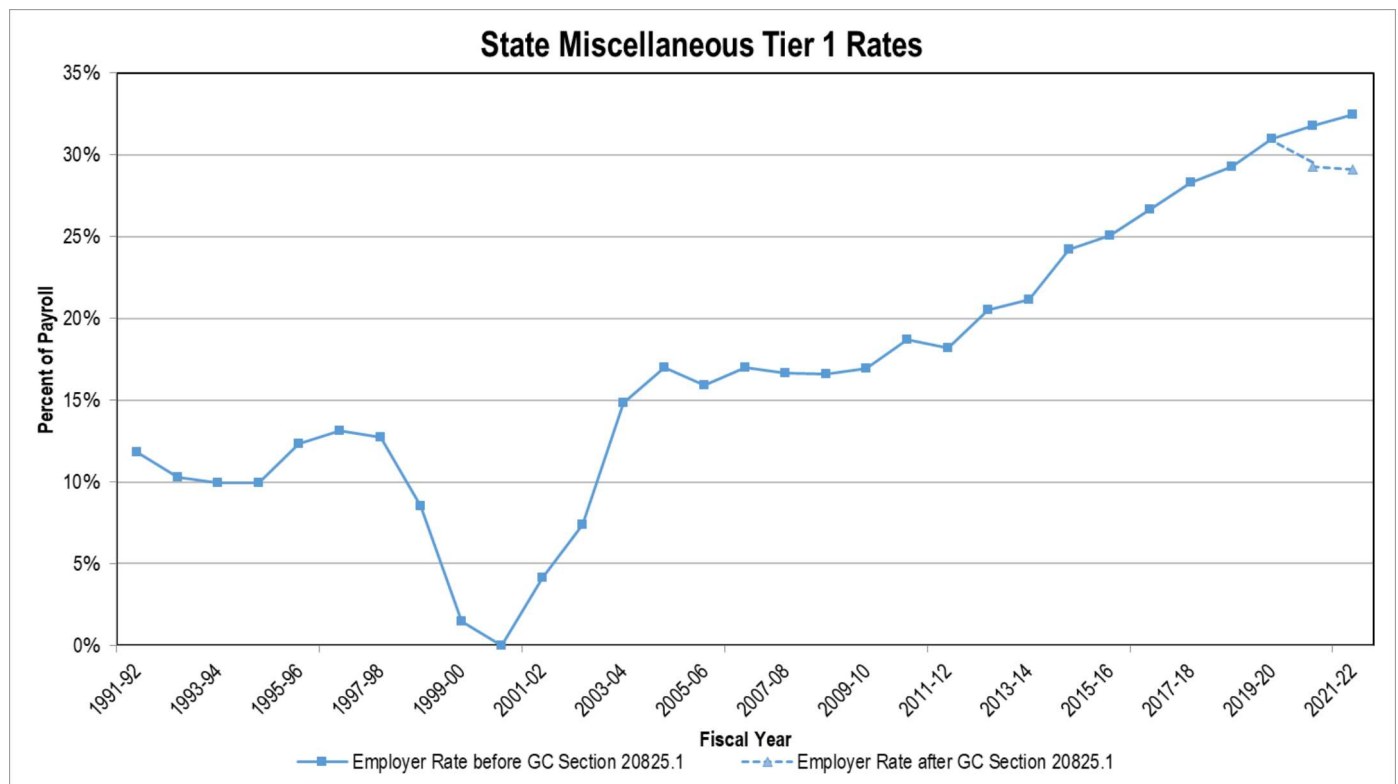
Fiscal Year	State Miscellaneous		State Industrial	State Safety	State Peace Officers and Firefighters	California Highway Patrol
	Tier 1	Tier 2				
2021-22 ¹	29.12%	29.12%	16.46%	18.29%	31.19%	61.46%
2020-21 ²	31.76%	31.76%	21.62%	21.66%	48.93%	59.76%
2019-20	30.977%	30.977%	20.823%	21.526%	47.198%	57.811%
2018-19	29.298%	29.298%	19.550%	20.352%	43.724%	53.805%
2017-18	28.325%	28.325%	19.527%	19.402%	42.598%	52.785%
2016-17	26.646%	26.095%	18.365%	18.753%	40.276%	48.719%
2015-16	25.068%	24.389%	17.775%	18.082%	37.338%	45.406%
2014-15	24.198%	23.510%	17.286%	18.156%	35.180%	42.175%
2013-14	21.121%	20.992%	15.682%	17.205%	30.495%	34.616%
2012-13	20.503%	20.457%	16.302%	17.503%	30.297%	33.728%
2011-12	18.175%	17.025%	14.934%	16.428%	27.415%	31.264%
2010-11	18.725%	18.032%	16.433%	18.187%	28.722%	31.291%
2009-10	16.917%	16.737%	17.251%	18.099%	25.848%	28.438%
2008-09	16.574%	16.470%	17.236%	18.411%	26.064%	32.149%
2007-08	16.633%	16.565%	17.345%	18.835%	25.552%	32.212%
2006-07	16.997%	16.778%	17.861%	19.294%	24.505%	31.463%
2005-06	15.942%	15.890%	17.147%	19.026%	23.563%	26.396%
2004-05	17.022%	13.216%	16.386%	20.773%	23.841%	33.434%
2003-04	14.843%	10.265%	11.099%	21.930%	20.325%	32.653%
2002-03	7.413%	2.813%	2.858%	17.055%	13.925%	23.076%
2001-02	4.166%	0.036%	0.350%	12.923%	9.638%	16.897%
2000-01	0.000%	0.000%	0.026%	6.808%	2.729%	13.711%
1999-00	1.491%	0.000%	0.026%	7.487%	0.000%	13.345%
1998-99	8.541%	6.437%	4.583%	9.440%	9.591%	13.541%
1997-98	12.721%	9.822%	9.048%	13.754%	15.270%	15.515%
1996-97	13.106%	9.345%	9.260%	14.656%	15.401%	15.851%
1995-96	12.350%	8.326%	8.981%	14.228%	14.350%	14.778%
1994-95	9.934%	5.947%	10.597%	13.927%	12.817%	15.552%
1993-94	9.939%	5.005%	11.765%	15.485%	15.202%	16.940%
1992-93	10.266%	3.391%	11.995%	15.698%	15.560%	17.074%

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

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

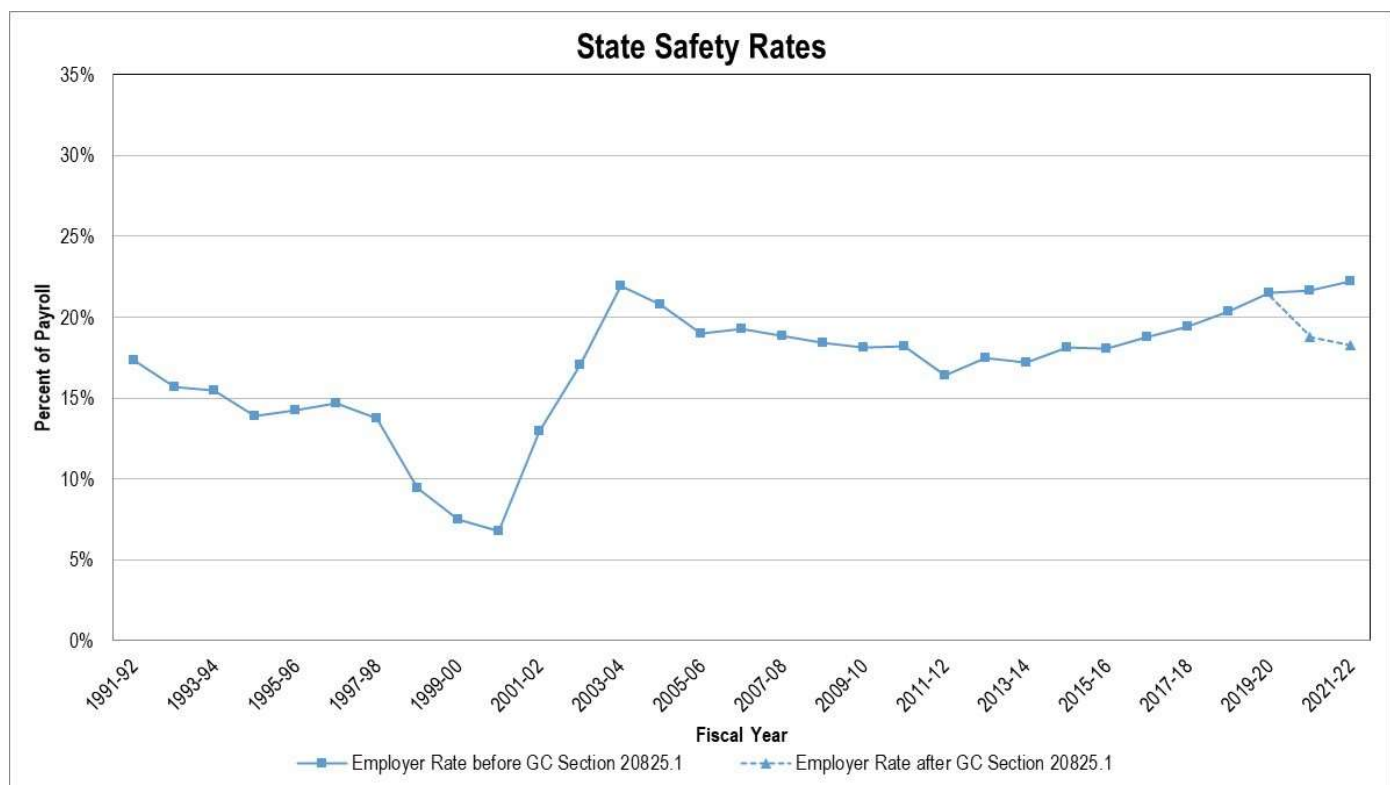
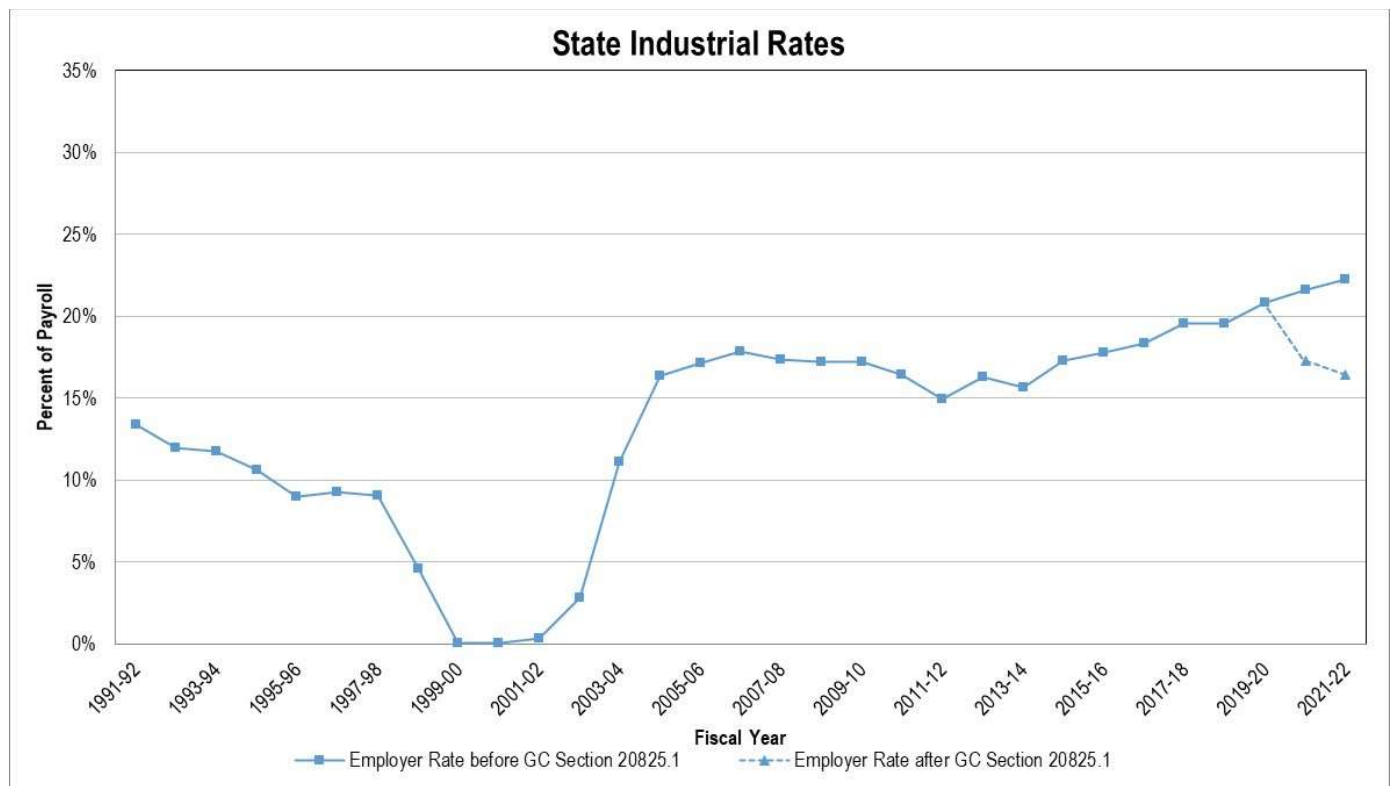
Liabilities and Employer Contributions

History of Employer Contribution Rates (continued)



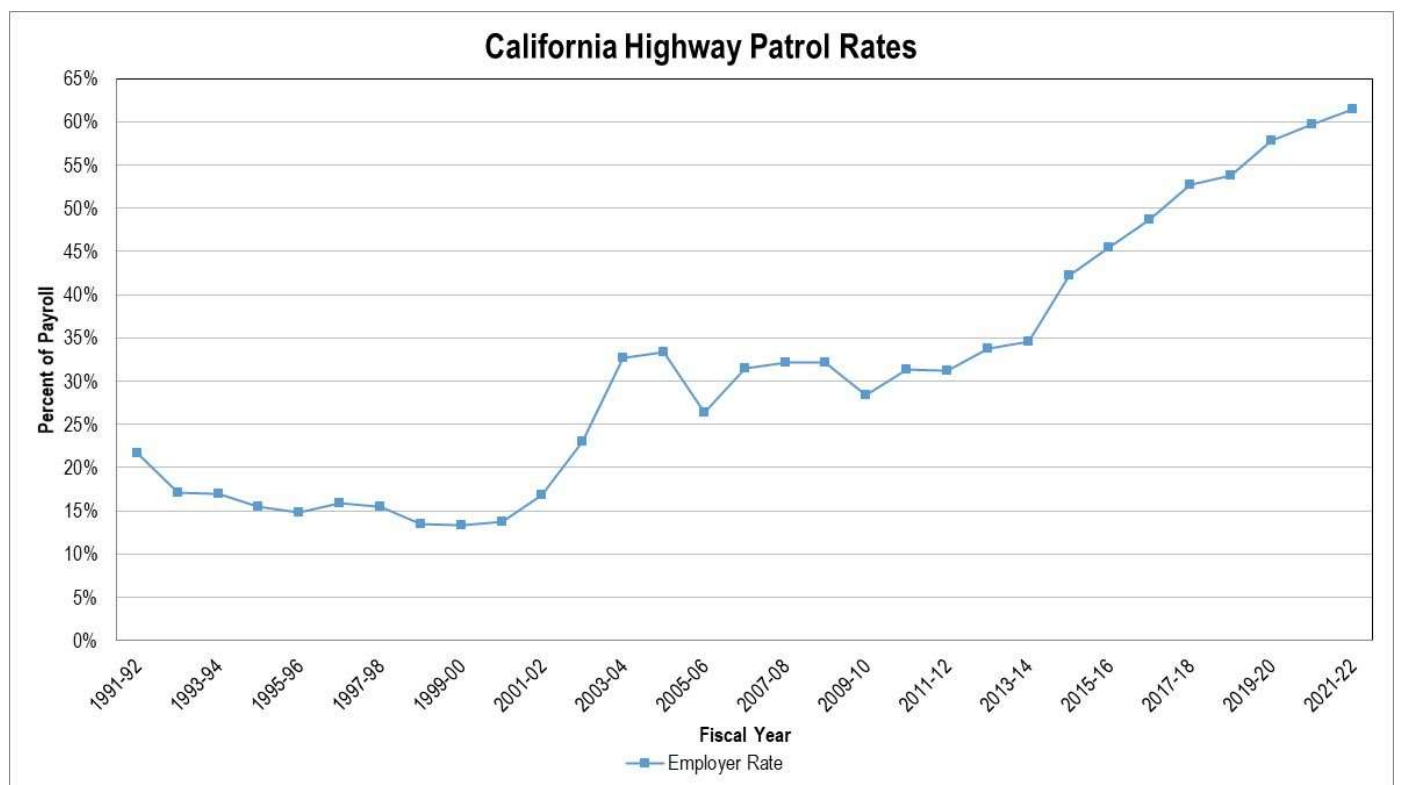
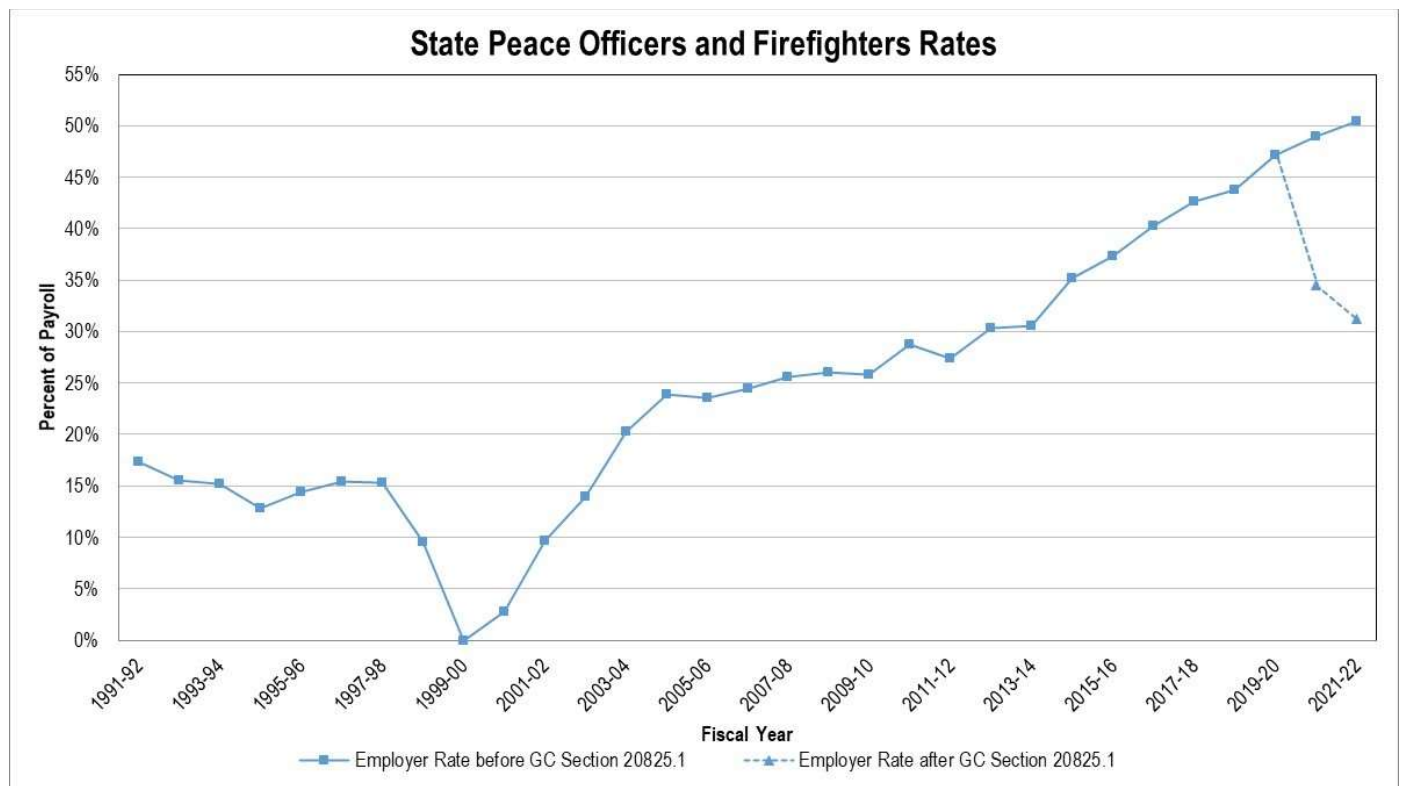
Liabilities and Employer Contributions

History of Employer Contribution Rates (continued)



Liabilities and Employer Contributions

History of Employer Contribution Rates (continued)



Liabilities and Employer Contributions

History of Funded Status and Funding Progress

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

State Miscellaneous (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets	Funded Ratio	Unfunded Accrued Liability/(Surplus)	Projected Payroll for Contribution	UAL/(Surplus) as a % of Payroll
6/30/20	\$124,695	\$87,047	69.8%	\$37,648	\$14,287	263.5%
6/30/19	120,101	83,817	69.8%	36,285	13,617	266.5%
6/30/18	115,469	80,223	69.5%	35,246	12,935	272.5%
6/30/17	106,956	72,204	67.5%	34,752	12,396	280.4%
6/30/16	102,444	66,608	65.0%	35,836	11,995	298.7%
6/30/15	97,831	68,080	69.6%	29,751	11,558	257.4%
6/30/14	94,442	68,359	72.4%	26,084	10,854	240.3%
6/30/13	90,277	60,029	66.5%	30,248	10,014	302.1%
6/30/12	83,524	55,371	66.3%	28,152	10,254	274.6%
6/30/11	81,271	57,452	70.7%	23,819	10,426	228.5%
6/30/10	76,980	48,646	63.2%	28,335	10,515	269.5%
6/30/09	74,763	44,094	59.0%	30,669	10,465	293.1%
6/30/08	69,648	59,979	86.1%	9,669	10,241	94.4%
6/30/07	65,342	64,442	98.6%	900	9,530	9.4%
6/30/06	61,299	55,051	89.8%	6,248	8,956	69.8%
6/30/05	58,267	50,231	86.2%	8,036	8,897	90.3%
6/30/04	54,701	45,460	83.1%	9,241	9,079	101.8%
6/30/03	51,559	39,324	76.3%	12,235	9,207	132.9%
6/30/02	48,118	39,530	82.2%	8,588	9,238	93.0%
6/30/01	45,261	43,933	97.1%	1,328	8,816	15.1%
6/30/00	42,386	49,208	116.1%	(6,822)	8,246	(82.7%)
6/30/99	35,771	46,176	129.1%	(10,405)	7,332	(141.9%)
6/30/98	34,169	42,011	122.9%	(7,842)	6,592	(119.0%)
6/30/97	32,557	35,959	110.4%	(3,401)	6,624	(51.4%)
6/30/96	31,742	30,452	95.9%	1,290	6,881	18.8%
6/30/95	29,960	27,088	90.4%	2,872	7,009	41.0%
6/30/94	27,821	24,278	87.3%	3,542	6,827	51.9%
6/30/93	26,162	24,715	94.5%	1,447	6,310	22.9%
6/30/92	24,887	22,979	92.3%	1,908	6,243	30.6%
6/30/91	23,153	22,441	96.9%	711	6,303	11.3%

Liabilities and Employer Contributions

History of Funded Status and Funding Progress (continued)

State Industrial (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets	Funded Ratio	Unfunded Accrued Liability/(Surplus)	Projected Payroll for Contribution	UAL/(Surplus) as a % of Payroll
6/30/20	\$5,227	\$4,084	78.1%	\$1,143	\$808	141.4%
6/30/19	4,946	3,822	77.3%	1,123	770	145.8%
6/30/18	4,670	3,590	76.9%	1,080	738	146.3%
6/30/17	4,210	3,215	76.4%	995	690	144.2%
6/30/16	3,970	2,898	73.0%	1,072	672	159.6%
6/30/15	3,669	2,885	78.6%	785	636	123.3%
6/30/14	3,458	2,825	81.7%	633	581	108.9%
6/30/13	3,236	2,418	74.7%	818	532	153.7%
6/30/12	2,968	2,168	73.0%	800	578	138.4%
6/30/11	2,832	2,180	77.0%	652	616	105.7%
6/30/10	2,614	1,785	68.3%	830	616	134.7%
6/30/09	2,467	1,556	63.1%	912	574	158.9%
6/30/08	2,235	2,034	91.0%	201	522	38.5%
6/30/07	2,044	2,119	103.7%	(76)	440	(17.2%)
6/30/06	1,870	1,776	95.0%	94	381	24.6%
6/30/05	1,754	1,586	90.4%	168	380	44.2%
6/30/04	1,602	1,415	88.3%	187	378	49.5%
6/30/03	1,462	1,201	82.1%	261	381	68.5%
6/30/02	1,295	1,200	92.7%	95	390	24.4%
6/30/01	1,196	1,325	110.8%	(129)	390	(33.1%)
6/30/00	1,079	1,463	135.6%	(384)	379	(101.3%)
6/30/99	880	1,360	154.5%	(480)	344	(139.5%)
6/30/98	790	1,226	155.2%	(436)	297	(147.1%)
6/30/97	741	1,042	140.7%	(302)	285	(106.0%)
6/30/96	721	861	119.4%	(140)	294	(47.7%)
6/30/95	659	751	113.9%	(91)	271	(33.7%)
6/30/94	619	665	107.5%	(46)	235	(19.7%)
6/30/93	597	668	111.8%	(71)	278	(25.4%)
6/30/92	540	610	113.0%	(70)	268	(26.2%)
6/30/91	492	579	117.6%	(87)	256	(33.8%)

Liabilities and Employer Contributions

History of Funded Status and Funding Progress (continued)

State Safety (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets	Funded Ratio	Unfunded Accrued Liability/(Surplus)	Projected Payroll for Contribution	UAL/(Surplus) as a % of Payroll
6/30/20	\$15,352	\$12,250	79.8%	\$3,102	\$2,605	119.1%
6/30/19	14,483	11,386	78.6%	3,097	2,554	121.2%
6/30/18	13,591	10,551	77.6%	3,039	2,445	124.3%
6/30/17	12,204	9,327	76.4%	2,877	2,293	125.5%
6/30/16	11,288	8,288	73.4%	3,000	2,245	133.6%
6/30/15	10,255	7,859	76.6%	2,396	2,135	112.2%
6/30/14	9,551	7,562	79.2%	1,990	2,038	97.6%
6/30/13	8,834	6,327	71.6%	2,507	1,881	133.3%
6/30/12	7,827	5,524	70.6%	2,303	1,899	121.3%
6/30/11	7,224	5,390	74.6%	1,835	1,984	92.5%
6/30/10	6,436	4,196	65.2%	2,239	2,004	111.7%
6/30/09	6,006	3,514	58.5%	2,492	2,048	121.7%
6/30/08	5,146	4,365	84.8%	781	1,914	40.8%
6/30/07	4,467	4,342	97.2%	126	1,530	8.2%
6/30/06	3,907	3,486	89.2%	421	1,226	34.3%
6/30/05	3,473	3,000	86.4%	473	1,107	42.7%
6/30/04	3,087	2,509	81.3%	579	889	65.1%
6/30/03	2,788	2,049	73.5%	739	891	82.9%
6/30/02	2,476	1,926	77.8%	551	876	62.9%
6/30/01	2,179	2,000	91.8%	180	850	21.1%
6/30/00	1,865	2,122	113.8%	(257)	759	(33.9%)
6/30/99	1,364	1,927	141.3%	(563)	682	(82.6%)
6/30/98	1,285	1,672	130.1%	(386)	511	(75.7%)
6/30/97	1,086	1,404	129.2%	(318)	414	(76.8%)
6/30/96	947	1,123	118.6%	(176)	474	(37.2%)
6/30/95	914	936	102.5%	(23)	408	(5.5%)
6/30/94	761	762	100.1%	(1)	385	(0.2%)
6/30/93	644	722	112.0%	(77)	265	(29.2%)
6/30/92	602	680	112.8%	(77)	263	(29.4%)
6/30/91	548	637	116.2%	(89)	262	(33.8%)

Liabilities and Employer Contributions

History of Funded Status and Funding Progress (continued)

State Peace Officers and Firefighters (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets	Funded Ratio	Unfunded Accrued Liability/(Surplus)	Projected Payroll for Contribution	UAL/(Surplus) as a % of Payroll
6/30/20	\$54,102	\$38,327	70.8%	\$15,774	\$4,048	389.6%
6/30/19	51,219	35,359	69.0%	15,860	3,825	414.6%
6/30/18	48,792	33,327	68.3%	15,466	3,719	415.9%
6/30/17	44,619	29,424	65.9%	15,194	3,616	420.2%
6/30/16	41,485	26,622	64.2%	14,863	3,434	432.9%
6/30/15	39,394	26,973	68.5%	12,420	3,335	372.4%
6/30/14	37,466	26,591	71.0%	10,875	3,206	339.2%
6/30/13	35,271	22,919	65.0%	12,352	3,087	400.1%
6/30/12	31,336	20,526	65.5%	10,810	3,132	345.2%
6/30/11	30,127	20,801	69.0%	9,326	3,393	274.8%
6/30/10	27,712	17,199	62.1%	10,512	3,455	304.3%
6/30/09	26,291	15,083	57.4%	11,208	3,592	312.0%
6/30/08	24,004	19,734	82.2%	4,270	3,589	119.0%
6/30/07	22,250	20,539	92.3%	1,711	3,420	50.0%
6/30/06	19,737	16,973	86.0%	2,764	3,058	90.4%
6/30/05	17,753	14,985	84.4%	2,769	2,860	96.8%
6/30/04	15,668	12,999	83.0%	2,670	2,604	102.5%
6/30/03	14,220	11,038	77.6%	3,182	2,507	126.9%
6/30/02	12,827	10,731	83.7%	2,095	2,407	87.1%
6/30/01	11,949	11,574	96.9%	375	2,304	16.3%
6/30/00	10,720	12,668	118.2%	(1,947)	2,227	(87.4%)
6/30/99	8,091	11,685	144.4%	(3,594)	2,018	(178.1%)
6/30/98	7,016	10,322	147.1%	(3,306)	1,540	(214.6%)
6/30/97	6,495	8,436	129.9%	(1,941)	1,410	(137.7%)
6/30/96	6,129	6,860	111.9%	(731)	1,654	(44.2%)
6/30/95	5,552	5,892	106.1%	(340)	1,592	(21.4%)
6/30/94	4,884	5,032	103.0%	(148)	1,505	(9.8%)
6/30/93	4,476	4,867	108.7%	(392)	1,348	(29.1%)
6/30/92	4,193	4,232	100.9%	(39)	1,332	(2.9%)
6/30/91	3,773	3,854	102.1%	(81)	1,320	(6.1%)

Liabilities and Employer Contributions

History of Funded Status and Funding Progress (continued)

California Highway Patrol (Dollars in Millions)

Valuation Date	Actuarial Accrued Liabilities	Market Value of Assets	Funded Ratio	Unfunded Accrued Liability/(Surplus)	Projected Payroll for Contribution	UAL/(Surplus) as a % of Payroll
6/30/20	\$14,786	\$9,501	64.3%	\$5,285	\$978	540.6%
6/30/19	14,087	9,082	64.5%	5,005	961	520.6%
6/30/18	13,384	8,541	63.8%	4,843	921	526.2%
6/30/17	12,322	7,417	60.2%	4,904	900	545.1%
6/30/16	11,471	6,706	58.5%	4,765	848	562.2%
6/30/15	10,942	6,735	61.6%	4,207	852	493.9%
6/30/14	10,329	6,645	64.3%	3,684	801	460.0%
6/30/13	9,775	5,760	58.9%	4,014	767	523.5%
6/30/12	8,659	5,220	60.3%	3,439	773	445.0%
6/30/11	8,193	5,336	65.1%	2,857	780	366.4%
6/30/10	7,704	4,440	57.6%	3,264	767	425.4%
6/30/09	7,300	3,932	53.9%	3,368	734	459.1%
6/30/08	6,609	5,238	79.3%	1,371	675	203.2%
6/30/07	6,249	5,546	88.8%	703	613	114.6%
6/30/06	5,744	4,682	81.5%	1,062	556	191.0%
6/30/05	5,349	4,249	79.4%	1,100	546	201.4%
6/30/04	4,742	3,734	78.7%	1,008	509	198.2%
6/30/03	4,421	3,230	73.1%	1,191	476	250.3%
6/30/02	4,138	3,159	76.3%	979	461	212.3%
6/30/01	3,981	3,466	87.1%	515	455	113.2%
6/30/00	3,635	3,443	94.7%	192	433	44.4%
6/30/99	2,983	3,249	108.9%	(266)	402	(66.1%)
6/30/98	2,756	2,901	105.3%	(145)	367	(39.5%)
6/30/97	2,621	2,912	111.1%	(291)	371	(78.6%)
6/30/96	2,328	2,496	107.2%	(168)	343	(49.0%)
6/30/95	2,134	2,207	103.4%	(73)	302	(24.2%)
6/30/94	1,971	1,968	99.9%	2	288	0.8%
6/30/93	1,773	1,941	109.5%	(168)	279	(60.2%)
6/30/92	1,733	1,956	112.9%	(224)	282	(79.2%)
6/30/91	1,629	1,916	117.6%	(287)	288	(99.7%)

Normal Cost Information

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- 43 State Bargaining Units 5, 9, 16, and 18 Member Contribution Rates

Normal Cost Information

Normal Cost by Group

The table below displays normal cost broken out by benefit group. 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. Generally, the normal cost for a benefit group subject to more generous benefit provisions will be greater than 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 such factors 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	15.0%	6% - 11%	\$0 - \$513	7.4%	7.6%
E	State Miscellaneous - 2nd Tier 2% @ 62 ⁴	10.8%	3.75%	\$0	3.8%	7.0%
P	State Industrial - 2% @ 62	15.6%	6% - 11%	\$317 - \$513	8.1%	7.5%
R	State Industrial - 2nd Tier 2% @ 62 ⁴	10.7%	3.75%	\$0	3.8%	6.9%
A	State Safety - 2% @ 57	19.9%	11% - 11.5%	\$0 - \$317	10.5%	9.4%
	State POFF - 2.5% @ 57	24.4%	12% - 13%	\$0 - \$863	11.3%	13.1%
	State POFF - 2.7% @ 57	24.3%	13%	\$863	10.4%	13.9%
	CHP - 2.7% @ 57	22.8%	12.5%	\$863	11.3%	11.5%
C	State Miscellaneous - 2% @ 60 & 3 Year FAC	16.6%	5% - 10%	\$317 - \$513	6.8%	9.8%
L	State Miscellaneous - 2% @ 55 ¹	17.5%	5% - 11%	\$317 - \$513	6.9%	10.6%
A	State Miscellaneous - 2nd Tier 2% @ 55 ⁴	12.5%	3.75%	\$0	3.8%	8.7%
S	State Industrial - 2% @ 60 & 3 Year FAC	17.9%	9% - 11%	\$317 - \$513	8.4%	9.5%
S	State Industrial - 2% @ 55 ¹	19.5%	5% - 11%	\$317 - \$513	8.3%	11.2%
I	State Industrial - 2nd Tier 2% @ 55 ⁴	15.1%	3.75%	\$0	3.8%	11.3%
C	State Safety - 2% @ 55 ¹	21.1%	11% - 11.5%	\$317	10.5%	10.6%
	State Safety - 2.5% @ 60 & 3 Year FAC	23.5%	11% - 11.5%	\$0 - \$317	10.8%	12.7%
	State Safety - 2.5% @ 55 ¹	25.5%	11% - 11.5%	\$317	10.6%	14.9%
	State POFF - 2.5% @ 55 & 3 Year FAC	28.2%	8% - 13%	\$238 - \$863	11.4%	16.8%
	State POFF - 3% @ 55 ¹	31.5%	8% - 13%	\$238 - \$863	11.2%	20.3%
	State POFF - 3% @ 50 ¹	31.4%	8% - 13%	\$0 - \$863	11.7%	19.7%
	CHP - 3% @ 55 & 3 Year FAC	29.3%	12.5%	\$863	11.5%	17.8%
	CHP - 3% @ 50 ¹	30.9%	12.5%	\$863	11.6%	19.3%
B	State Miscellaneous	16.48%	3.75% - 11%	\$0 - \$513	7.12%	9.36%
L	State Industrial	17.99%	3.75% - 11%	\$0 - \$513	8.16%	9.83%
E	State Safety	22.91%	11% - 11.5%	\$0 - \$317	10.58%	12.33%
N	State POFF	29.23%	8% - 13%	\$0 - \$863	11.62%	17.61%
D	CHP	29.26%	12.5%	\$863	11.56%	17.70%

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, 2020 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.

Normal Cost Information

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, 2021, based on 50% of the total normal cost for each respective plan as of the June 30, 2020 valuation.

	Basis for Current Rate			Rates Effective July 1, 2021			
	Total Normal Cost	Actuarial Valuation Date	Member Rate	Total Normal Cost	Change	Change Needed	Member Rate
State Miscellaneous – CSU, Legislature and Judicial	14.61%	6/30/2017	7.25%	15.03%	0.42%	No	7.25%
State POFF – CSU, Legislature and Judicial	24.09%	6/30/2018	12.00%	24.20%	0.11%	No	12.00%

Normal Cost Information

State Bargaining Units 5, 9, 16, and 18 Member Contribution Rates

Pursuant to Government Code section 20683, members of State Bargaining Units 5, 9, 16, and 18 are required to contribute at least 50% of the total annual normal cost of their pension benefit. The total normal cost is remeasured annually as part of the actuarial valuation. Initially, if the total normal cost of the category changes¹ by more than 1% from the total normal cost determined as of June 30, 2015, the new member rate shall be 50% of the new normal cost rounded to the nearest quarter percent. Subsequently, if the total normal cost of the category changes¹ by more than 1% from the basis at that time, the member rate will be revised to equal 50% of the new total normal cost rounded to the nearest quarter percent.

The table below shows the determination of the member contribution rates effective July 1, 2021 based on 50% of the total normal cost for each respective plan as of the June 30, 2020 valuation.

	Basis for Current Rate			Rates Effective July 1, 2021			
	Total Normal Cost	Actuarial Valuation Date	Member Rate	Total Normal Cost	Change	Change Needed	Member Rate
BU 5							
State Miscellaneous ²	15.48%	6/30/2015	8.00%	16.48%	1.00%	Yes	8.25%
California Highway Patrol ³	26.45%	6/30/2015	11.50%	29.26%	2.81%	Yes	12.50%
BU 9⁴							
State Miscellaneous ²	16.88%	6/30/2018	8.00%	16.48%	(0.40%)	Yes	8.50%
State Industrial ²	18.02%	6/30/2015	9.00%	17.99%	(0.03%)	No	9.00%
State Safety	23.19%	6/30/2018	11.00%	22.91%	(0.28%)	Yes	11.50%
BU 16							
State Miscellaneous ²	15.48%	6/30/2015	10.00%	16.48%	1.00%	No	10.00%
State Industrial ²	18.02%	6/30/2015	10.00%	17.99%	(0.03%)	No	10.00%
State Safety	23.19%	6/30/2018	11.50%	22.91%	(0.28%)	No	11.50%
BU 18							
State Miscellaneous ²	15.48%	6/30/2015	10.00%	16.48%	1.00%	No	10.00%
State Industrial ²	18.02%	6/30/2015	10.00%	17.99%	(0.03%)	No	10.00%
State Safety	21.73%	6/30/2015	11.00%	22.91%	1.18%	Yes	11.50%

¹ Provisions by Bargaining Unit:

- BU 5: the member rate will initially be adjusted if the Total Normal Cost increases by 1% or more; subsequently, the member rate will be adjusted if the Total Normal Cost increases or decreases by 1% or more. The increase or decrease in member rate is limited to 1.00% per year.
- BU 9: the July 1, 2021 member rate reverts back to what it was in fiscal year 2019-20, prior to the expiration of the initial 50% of normal cost agreement.
- BU 16: the member rate will initially be adjusted if the Total Normal Cost increases by 1% or more; subsequently, the member rate will be adjusted if the Total Normal Cost increases or decreases by more than 1%.
- BU 18: the member rate will initially be adjusted if the Total Normal Cost increases by 1% or more; subsequently, the member rate will be adjusted if the Total Normal Cost increases or decreases by more than 1%.

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

³ Assuming the total normal cost does not increase or decrease by more than 1% from 29.26% in the upcoming valuations, the member rate is scheduled to increase to 13.50% effective July 1, 2022, 14.50% effective July 1, 2023, and 14.75% effective July 1, 2024.

⁴ The 50% of normal cost sharing expired June 30, 2020. Member rates reverted on July 1, 2020 to previous levels. The 50% of normal cost sharing was reinstated effective July 1, 2021.

Risk Analysis

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Projected Contribution Rates and Future Investment Return Scenarios

The State Plans contribution rates for fiscal year 2022-23 will be based on the June 30, 2021 actuarial valuation. At the time of publication of this report, key actuarial assumptions to be used in that valuation, particularly the discount rate, are not yet known. The discount rate is a key driver of pension plan cost and therefore meaningful estimates of the contribution rate for fiscal year 2022-23 and future years will be unavailable until the final discount rate is known.

The discount rate is presently undergoing review as part of the periodic Asset Liability Management (ALM) study currently in progress. Other economic assumptions and demographic assumptions are also currently undergoing review as part of the CalPERS Experience Study conducted every four years. Revised assumptions resulting from these studies will be incorporated into the June 30, 2021 actuarial valuation.

The CalPERS Funding Risk Mitigation Policy has recently triggered an automatic decrease of 0.20% in the discount rate assumption due to the investment return in fiscal year 2020-21. However, the board may choose to further alter the discount rate as a result of the current ALM process.

It is currently anticipated that both economic and demographic assumptions will be finalized by the end of the 2021 calendar year.

Once assumptions are finalized, we will perform projections of employer contribution rates for the next four fiscal years reflecting both the new assumptions as well as fiscal year 2020-21 investment return (approximately 21.3% before reduction for administrative expenses). The projections will also reflect that, all other changes aside, the employer rates will increase in fiscal year 2022-23 due to the expiration of the State's supplanting payments under Government Code section 20825.1. See Appendix D for details on the supplanting payments. As in prior years, projected employer contribution rates will be developed under various scenarios of investment return over the projection period. Results of the projections will be released in an addendum to this report.

Discount Rate Sensitivity and Government Code Section 20229

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

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

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

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

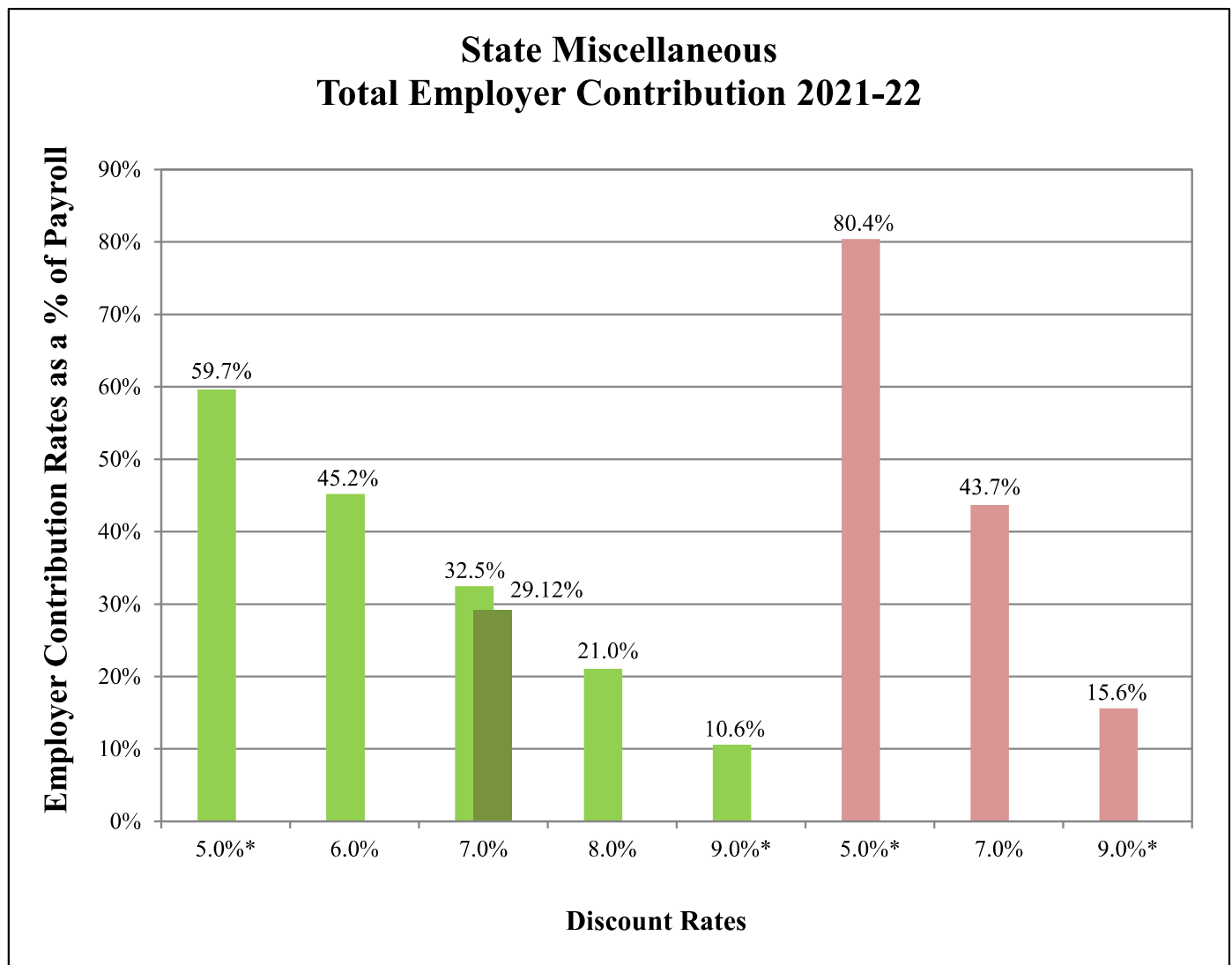
On the following pages, contribution rates and other key results are shown for the following discount rates:

- 5% (current discount rate -2%)
- 6% (current discount rate -1%)
- 7% (current discount rate)
- 8% (current discount rate +1%)
- 9% (current discount rate +2%)

The discount rates of 6% and 8% were selected as they reflect a 1% decrease or increase to the current rate of 7%. This shows the potential plan impacts if the PERF were to realize investment returns of 6% or 8% over the long term. The discount rates of 5% and 9% are shown in order to meet the requirements G.C. 20229. To further satisfy G.C. 20229, in the 5% and 9% discount rate scenarios, contribution rates for the current fiscal year are shown using both the current amortization method and amortization over the EARSP of the employees covered by the contributions.

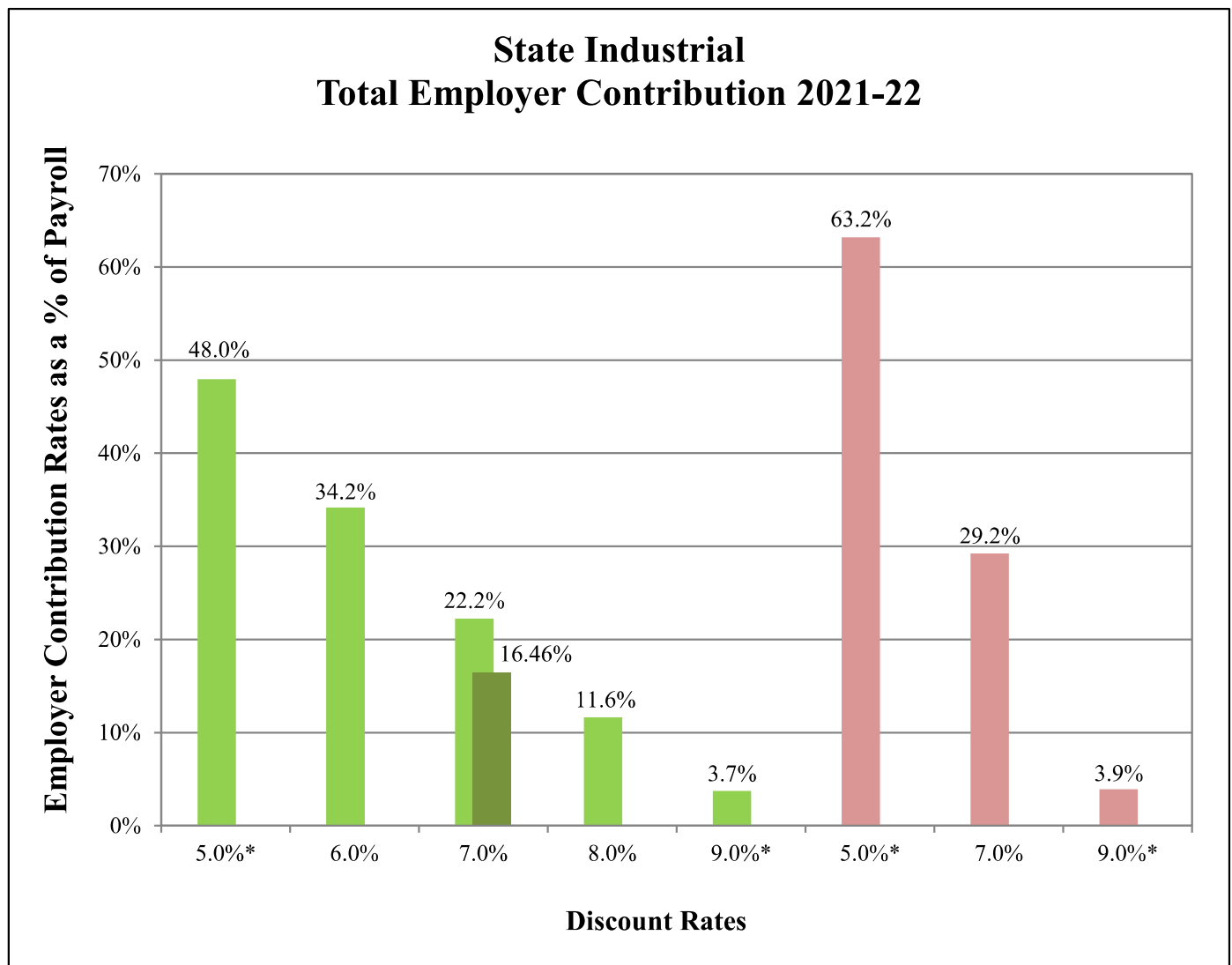
The results of the analysis are displayed in both graphical and tabular form. The reader may interpolate between the data points to estimate other data points of interest.

Discount Rate Sensitivity and Government Code Section 20229 (continued)



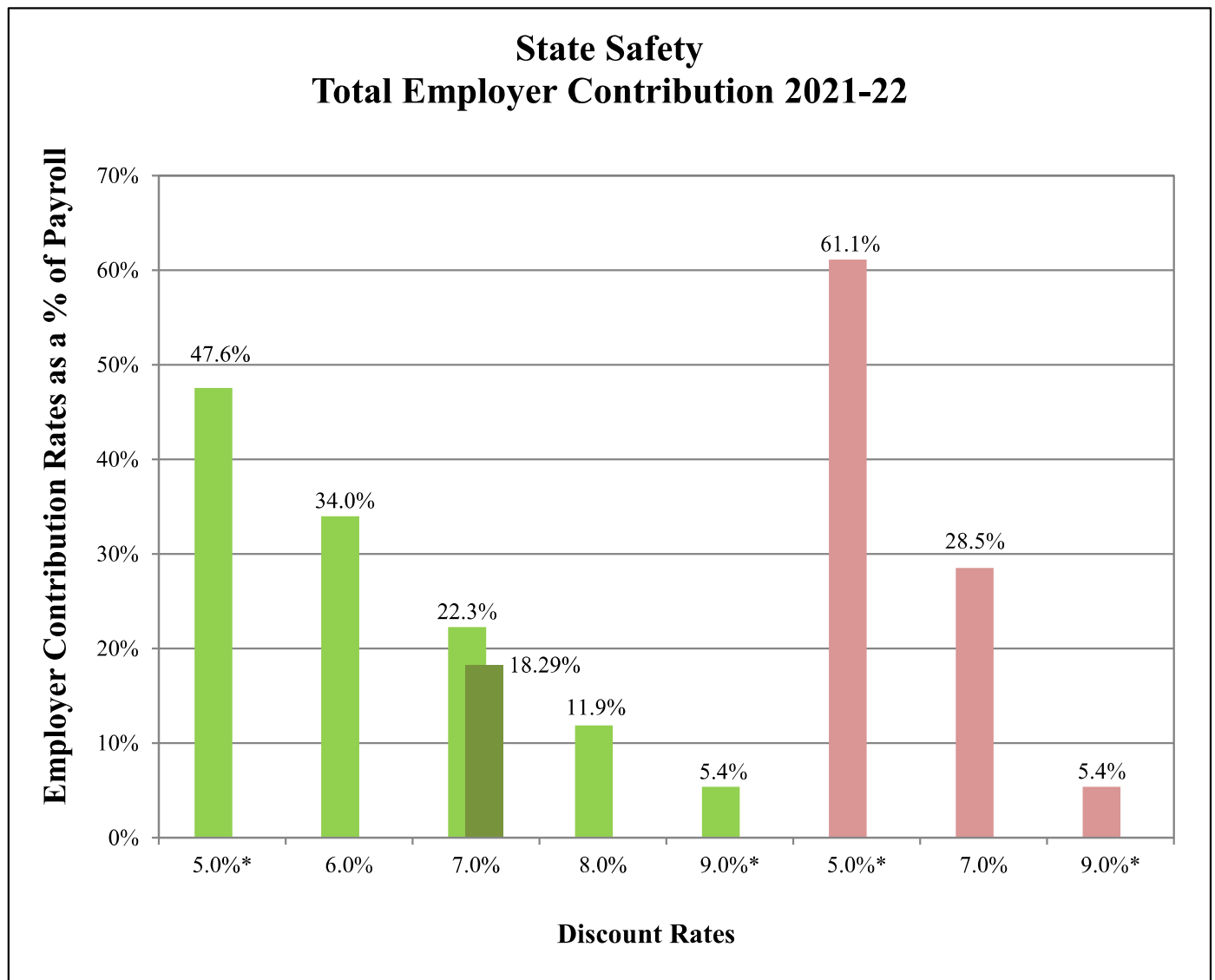
	Analysis of discount rate sensitivity based on current amortization method (varies from 3 to 28 years) or normal cost if in a surplus position, excludes Section 20825.1 contribution
	Actuarially required contribution rate for 2021-22 adopted by the board, includes Section 20825.1 contribution
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (11 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity and Government Code Section 20229 (continued)



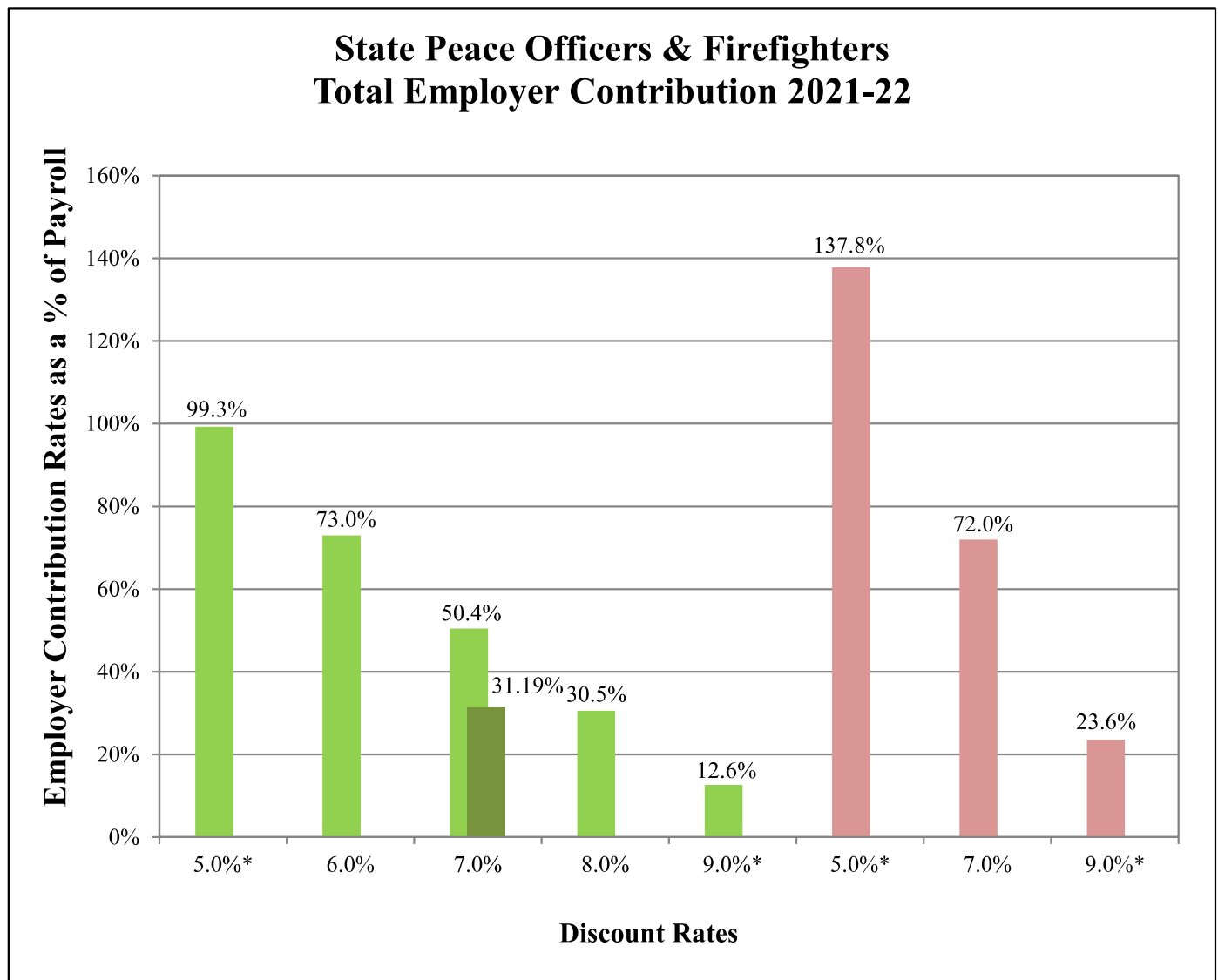
	Analysis of discount rate sensitivity based on current amortization method (varies from 3 to 28 years) or normal cost if in a surplus position, excludes Section 20825.1 contribution
	Actuarially required contribution rate for 2021-22 adopted by the board, includes Section 20825.1 contribution
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (11 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity and Government Code Section 20229 (continued)



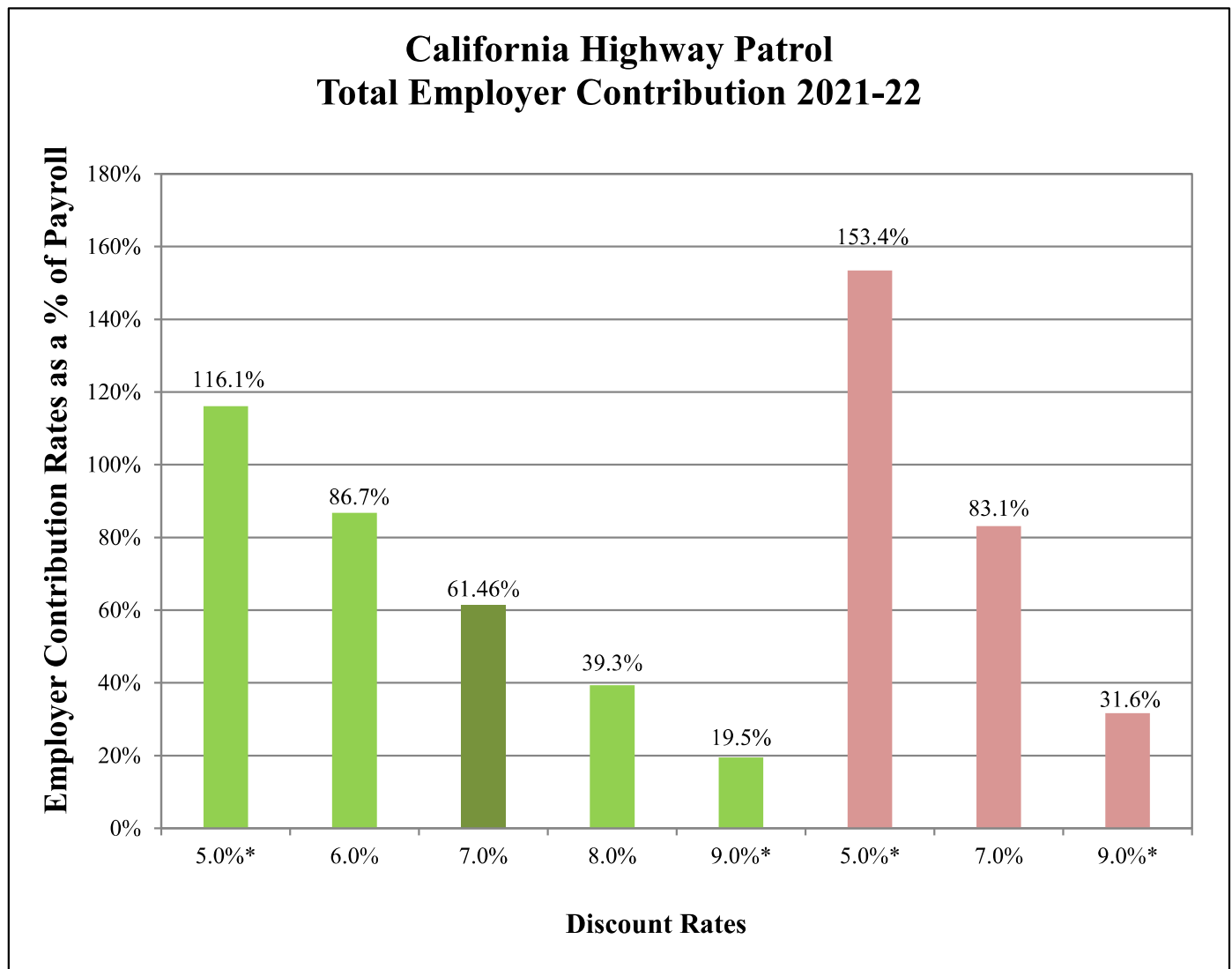
	Analysis of discount rate sensitivity based on current amortization method (varies from 2 to 28 years) or normal cost if in a surplus position, excludes Section 20825.1 contribution
	Actuarially required contribution rate for 2021-22 adopted by the board, includes Section 20825.1 contribution
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (11 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity and Government Code Section 20229 (continued)



	Analysis of discount rate sensitivity based on current amortization method (varies from 2 to 28 years) or normal cost if in a surplus position, excludes Section 20825.1 contribution
	Actuarially required contribution rate for 2021-22 adopted by the board, includes Section 20825.1 contribution
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (11 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity and Government Code Section 20229 (continued)



	Analysis of discount rate sensitivity based on current amortization method (varies from 1 to 28 years) or normal cost if in a surplus position
	Actuarially required contribution rate for 2021-22 adopted by the board
	Analysis of discount rate sensitivity based on amortization of UAL over EARSP (12 years)
*	Required by Government Code section 20229

Discount Rate Sensitivity and Government Code Section 20229 (continued)

State Miscellaneous

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

Sensitivity Analysis							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
6.0%	13.8%	31.4%	0.0%	45.2%	139,891,521,939	52,844,648,491	62.2%
7.0% (current discount rate)	9.4%	23.1%	0.0%	32.5%	124,694,577,728	37,647,704,280	69.8%
8.0%	6.0%	15.0%	0.0%	21.0%	111,969,357,695	24,922,484,247	77.7%

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

Current Amortization Method							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
5.0%	19.6%	40.0%	0.0%	59.7%	158,185,889,870	71,139,016,422	55.0%
7.0% (current discount rate)	9.4%	23.1%	0.0%	32.5%	124,694,577,728	37,647,704,280	69.8%
9.0%	3.5%	7.1%	0.0%	10.6%	101,232,320,767	14,185,447,319	86.0%

Amortization of Unfunded Accrued Liability over EARSP (11 Years)							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
5.0%	19.6%	60.7%	0.0%	80.4%	158,185,889,870	71,139,016,422	55.0%
7.0% (current discount rate)	9.4%	34.3%	0.0%	43.7%	124,694,577,728	37,647,704,280	69.8%
9.0%	3.5%	12.1%	0.0%	15.6%	101,232,320,767	14,185,447,319	86.0%

- To illustrate the sensitivity of employer contribution rates due to different discount rate scenarios, the unfunded accrued liability rates do not include the effect of the State contribution under Section 20825.1.
- 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.

Discount Rate Sensitivity and Government Code Section 20229 (continued)

State Industrial

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

Sensitivity Analysis							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
6.0%	14.3%	19.8%	0.0%	34.2%	5,943,684,506	1,859,889,708	68.7%
7.0% (current discount rate)	9.8%	12.4%	0.0%	22.2%	5,226,527,840	1,142,733,042	78.1%
8.0%	6.4%	5.3%	0.0%	11.6%	4,635,998,000	552,203,202	88.1%

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

Current Amortization Method							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
5.0%	20.3%	27.7%	0.0%	48.0%	6,823,059,852	2,739,265,054	59.9%
7.0% (current discount rate)	9.8%	12.4%	0.0%	22.2%	5,226,527,840	1,142,733,042	78.1%
9.0%	3.7%	0.0%	0.0%	3.7%	4,145,283,858	61,489,060	98.5%

Amortization of Unfunded Accrued Liability over EARSP (11 Years)							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
5.0%	20.3%	42.9%	0.0%	63.2%	6,823,059,852	2,739,265,054	59.9%
7.0% (current discount rate)	9.8%	19.4%	0.0%	29.2%	5,226,527,840	1,142,733,042	78.1%
9.0%	3.7%	0.2%	0.0%	3.9%	4,145,283,858	61,489,060	98.5%

- To illustrate the sensitivity of employer contribution rates due to different discount rate scenarios, the unfunded accrued liability rates do not include the effect of the State contribution under Section 20825.1.
- 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.

Discount Rate Sensitivity and Government Code Section 20229 (continued)

State Safety

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

Sensitivity Analysis							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
6.0%	17.4%	16.6%	0.0%	34.0%	17,385,506,974	5,135,707,530	70.5%
7.0% (current discount rate)	12.3%	9.9%	0.0%	22.3%	15,352,141,590	3,102,342,146	79.8%
8.0%	8.4%	3.5%	0.0%	11.9%	13,670,267,929	1,420,468,485	89.6%

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

Current Amortization Method							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
5.0%	23.9%	23.6%	0.0%	47.6%	19,867,033,966	7,617,234,522	61.7%
7.0% (current discount rate)	12.3%	9.9%	0.0%	22.3%	15,352,141,590	3,102,342,146	79.8%
9.0%	5.4%	0.0%	0.0%	5.4%	12,266,797,337	16,997,893	99.9%

Amortization of Unfunded Accrued Liability over EARSP (11 Years)							
As of June 30, 2020	Employer Normal Cost	UAL Liability Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
5.0%	23.9%	37.2%	0.0%	61.1%	19,867,033,966	7,617,234,522	61.7%
7.0% (current discount rate)	12.3%	16.2%	0.0%	28.5%	15,352,141,590	3,102,342,146	79.8%
9.0%	5.4%	0.0%	0.0%	5.4%	12,266,797,337	16,997,893	99.9%

- To illustrate the sensitivity of employer contribution rates due to different discount rate scenarios, the unfunded accrued liability rates do not include the effect of the State contribution under Section 20825.1.
- 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.

Discount Rate Sensitivity and Government Code Section 20229 (continued)

State Peace Officers and Firefighters

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

Sensitivity Analysis							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
6.0%	25.5%	47.5%	0.0%	73.0%	61,592,735,463	23,265,598,868	62.2%
7.0% (current discount rate)	17.6%	32.8%	0.0%	50.4%	54,101,543,037	15,774,406,442	70.8%
8.0%	11.7%	18.9%	0.0%	30.5%	47,958,832,524	9,631,695,929	79.9%

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

Current Amortization Method							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
5.0%	36.1%	63.2%	0.0%	99.3%	70,828,460,161	32,501,323,566	54.1%
7.0% (current discount rate)	17.6%	32.8%	0.0%	50.4%	54,101,543,037	15,774,406,442	70.8%
9.0%	7.1%	5.5%	0.0%	12.6%	42,870,007,462	4,542,870,867	89.4%

Amortization of Unfunded Accrued Liability over EARSP (11 Years)							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
5.0%	36.1%	101.7%	0.0%	137.8%	70,828,460,161	32,501,323,566	54.1%
7.0% (current discount rate)	17.6%	54.4%	0.0%	72.0%	54,101,543,037	15,774,406,442	70.8%
9.0%	7.1%	16.5%	0.0%	23.6%	42,870,007,462	4,542,870,867	89.4%

- To illustrate the sensitivity of employer contribution rates due to different discount rate scenarios, the unfunded accrued liability rates do not include the effect of the State contribution under Section 20825.1.
- 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.

Discount Rate Sensitivity and Government Code Section 20229 (continued)

California Highway Patrol

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

Sensitivity Analysis							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
6.0%	26.4%	60.3%	0.1%	86.7%	16,869,938,390	7,368,577,373	56.3%
7.0% (current discount rate)	17.7%	43.7%	0.1%	61.5%	14,785,866,497	5,284,505,480	64.3%
8.0%	11.2%	28.1%	0.1%	39.3%	13,080,735,803	3,579,374,786	72.6%

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

Current Amortization Method							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
5.0%	38.0%	78.0%	0.1%	116.1%	19,445,787,492	9,944,426,475	48.9%
7.0% (current discount rate)	17.7%	43.7%	0.1%	61.5%	14,785,866,497	5,284,505,480	64.3%
9.0%	6.3%	13.1%	0.1%	19.5%	11,670,961,109	2,169,600,092	81.4%

Amortization of Unfunded Accrued Liability over EARSP (12 Years)							
As of June 30, 2020	Employer Normal Cost	UAL Rate	Group Term Life Insurance	Total Employer Rate	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
5.0%	38.0%	115.3%	0.1%	153.4%	19,445,787,492	9,944,426,475	48.9%
7.0% (current discount rate)	17.7%	65.4%	0.1%	83.1%	14,785,866,497	5,284,505,480	64.3%
9.0%	6.3%	25.2%	0.1%	31.6%	11,670,961,109	2,169,600,092	81.4%

- 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.

Mortality Rate Sensitivity

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

State Miscellaneous

As of June 30, 2020	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Ratio	Total Normal Cost
10% lower mortality rates	\$127,561,396,740	\$87,046,873,448	\$40,514,523,292	68.2%	16.77%
Current mortality rates	124,694,577,728	87,046,873,448	37,647,704,280	69.8%	16.48%
10% higher mortality rates	122,065,859,981	87,046,873,448	35,018,986,533	71.3%	16.21%

State Industrial

As of June 30, 2020	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Ratio	Total Normal Cost
10% lower mortality rates	\$5,332,843,884	\$4,083,794,798	\$1,249,049,086	76.6%	18.29%
Current mortality rates	5,226,527,840	4,083,794,798	1,142,733,042	78.1%	17.99%
10% higher mortality rates	5,128,584,689	4,083,794,798	1,044,789,891	79.6%	17.71%

State Safety

As of June 30, 2020	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Ratio	Total Normal Cost
10% lower mortality rates	\$15,656,850,628	\$12,249,799,444	\$3,407,051,184	78.2%	23.25%
Current mortality rates	15,352,141,590	12,249,799,444	3,102,342,146	79.8%	22.91%
10% higher mortality rates	15,071,400,095	12,249,799,444	2,821,600,651	81.3%	22.59%

State Peace Officers & Firefighters

As of June 30, 2020	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Ratio	Total Normal Cost
10% lower mortality rates	\$54,969,231,894	\$38,327,136,595	\$16,642,095,299	69.7%	29.59%
Current mortality rates	54,101,543,037	38,327,136,595	15,774,406,442	70.8%	29.23%
10% higher mortality rates	53,296,835,613	38,327,136,595	14,969,699,018	71.9%	28.90%

California Highway Patrol

As of June 30, 2020	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Ratio	Total Normal Cost
10% lower mortality rates	\$15,024,500,571	\$9,501,361,017	\$5,523,139,554	63.2%	29.62%
Current mortality rates	14,785,866,497	9,501,361,017	5,284,505,480	64.3%	29.26%
10% higher mortality rates	14,564,865,184	9,501,361,017	5,063,504,167	65.2%	28.93%

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, 2020	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Ratio	Total Normal Cost
-1% inflation rate	\$130,849,843,470	\$87,046,873,448	\$43,802,970,022	66.5%	17.62%
Current inflation rate	124,694,577,728	87,046,873,448	37,647,704,280	69.8%	16.48%
+1% inflation rate	115,236,894,687	87,046,873,448	28,190,021,239	75.5%	14.98%

State Industrial

As of June 30, 2020	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Ratio	Total Normal Cost
-1% inflation rate	\$5,505,567,856	\$4,083,794,798	\$1,421,773,058	74.2%	19.28%
Current inflation rate	5,226,527,840	4,083,794,798	1,142,733,042	78.1%	17.99%
+1% inflation rate	4,810,788,553	4,083,794,798	726,993,755	84.9%	16.31%

State Safety

As of June 30, 2020	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Ratio	Total Normal Cost
-1% inflation rate	\$16,183,183,796	\$12,249,799,444	\$3,933,384,352	75.7%	24.53%
Current inflation rate	15,352,141,590	12,249,799,444	3,102,342,146	79.8%	22.91%
+1% inflation rate	14,130,568,326	12,249,799,444	1,880,768,882	86.7%	20.79%

State Peace Officers & Firefighters

As of June 30, 2020	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Ratio	Total Normal Cost
-1% inflation rate	\$57,232,381,476	\$38,327,136,595	\$18,905,244,881	67.0%	31.42%
Current inflation rate	54,101,543,037	38,327,136,595	15,774,406,442	70.8%	29.23%
+1% inflation rate	49,652,759,267	38,327,136,595	11,325,622,672	77.2%	26.46%

California Highway Patrol

As of June 30, 2020	Accrued Liability	Market Value of Assets	Unfunded Accrued Liability/(Surplus)	Funded Ratio	Total Normal Cost
-1% inflation rate	\$15,640,837,249	\$9,501,361,017	\$6,139,476,232	60.7%	31.40%
Current inflation rate	14,785,866,497	9,501,361,017	5,284,505,480	64.3%	29.26%
+1% inflation rate	13,586,513,054	9,501,361,017	4,085,152,037	69.9%	26.52%

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 percent. 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, 2019			June 30, 2020		
	Retiree Accrued Liability	Total Accrued Liability	Ratio	Retiree Accrued Liability	Total Accrued Liability	Ratio
State Miscellaneous	\$71,929,750,290	\$120,101,465,581	59.9%	\$75,276,504,570	\$124,694,577,728	60.4%
State Industrial	2,548,612,377	4,945,680,604	51.5%	2,730,544,718	5,226,527,840	52.2%
State Safety	8,015,373,155	14,482,873,130	55.3%	8,591,498,117	15,352,141,590	56.0%
State Peace Officers & Firefighters	32,045,744,847	51,218,664,150	62.6%	34,060,130,310	54,101,543,037	63.0%
California Highway Patrol	8,633,928,267	14,087,273,224	61.3%	9,169,257,200	14,785,866,497	62.0%

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, 2019			June 30, 2020		
	Number of Actives	Number of Retirees	Support Ratio	Number of Actives	Number of Retirees	Support Ratio
State Miscellaneous	176,842	197,691	89.5%	178,628	202,078	88.4%
State Industrial	11,795	15,345	76.9%	11,899	16,050	74.1%
State Safety	28,953	26,866	107.8%	29,307	27,905	105.0%
State Peace Officers & Firefighters	41,144	41,657	98.8%	41,787	43,525	96.0%
California Highway Patrol	7,267	9,301	78.1%	7,027	9,519	73.8%

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

Volatility Ratios

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

Asset Volatility Ratio

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

Liability Volatility Ratio

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

Rate Volatility

	Market Value of Assets without Receivables	Annual Covered Payroll	Asset Volatility Ratio	Accrued Liability	Liability Volatility Ratio
Plan	(1)	(2)	(1)÷(2)	(3)	(3)÷(2)
State Miscellaneous	\$86,845,126,240	\$13,532,810,988	6.4	\$124,694,577,728	9.2
State Industrial	4,071,279,528	765,383,759	5.3	5,226,527,840	6.8
State Safety	12,236,898,599	2,467,855,569	5.0	15,352,141,590	6.2
State Peace Officers & Firefighters	38,266,393,455	3,834,616,755	10.0	54,101,543,037	14.1
California Highway Patrol	9,492,260,084	925,937,291	10.3	14,785,866,497	16.0

Appendices

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

B-1 Appendix B – Principal Plan Provisions

C-1 Appendix C – Participant Data

D-1 Appendix D – Employer Rate for Fiscal Years 2020-21 and 2021-22 Adjusted for
Supplanting Payments

E-1 Appendix E – Glossary of Actuarial Terms

Appendix A – Statement of Actuarial Methods and Assumptions

Actuarial Data

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

Actuarial Methods

Actuarial Cost Method

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

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

CalPERS uses an in-house proprietary actuarial model for calculating plan costs. We believe this model is fit for its intended purpose and meets all applicable Actuarial Standards of Practice. Furthermore, the actuarial results of our model are independently confirmed periodically by outside auditing actuaries. The actuarial assumptions used are internally consistent and the generated results reasonable. A further refinement to the actuarial model will be the introduction of generational mortality in the June 30, 2021 actuarial valuation.

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	2.75%	2.75%	2.75%	2.75%	2.75%
- Inactive Plans	0%	0%	0%	0%	0%
Ramp Up	5	5	5	0	0
Ramp Down	5	5	5	0	0

The 5-year ramp up means that the payments in the first four years of the amortization period are 20 percent, 40 percent, 60 percent, and 80 percent 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 accrued 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 accrued liability; or
- When the payment would completely amortize the total unfunded accrued 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.

By State statute for California Highway Patrol only, a portion of the assets in excess of the Entry Age Actuarial Accrued Liability can be applied as a direct offset to required employer and employee contributions.

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

The Term Insurance Method is used for the State Group Term Life Insurance Program. The required contribution for the coming fiscal year is the difference between the reserves for that benefit and one and one-half times the expected benefit payments, but not less than zero.

Purchasing Power Protection Act (PPPA) Method

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

For the State plans, the total annual outlay for PPPA benefits is limited by State statute to earnings of up to 1.1 percent of accumulated member contributions. If this annual outlay is insufficient to provide the PPPA benefits in a given fiscal year, the 75 percent maintenance target would be proportionately reduced. Since the inception of the PPPA benefit program, 1.1 percent has proved more than sufficient to provide the 75 percent maintenance. Under the inflation assumption of 2.5 percent compounded annually, the 1.1 percent 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 2020 of \$230,000, up from the 2019 limit of \$225,000 used in the prior valuation.

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 2020 of \$285,000, up from the 2019 limit of \$280,000 used in the prior valuation.

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 board 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 2017, CalPERS completed its most recent asset liability management study incorporating actuarial assumptions and strategic asset allocation. In December 2017, the board adopted relatively modest changes to the asset allocation that reduced the expected volatility of returns. The adopted asset allocation was expected to have a long-term blended return that continued to support a discount rate assumption of 7.0%. The board also approved several changes to the demographic assumptions that more closely aligned with actual experience. These new actuarial assumptions were first used in the June 30, 2017 valuation to set the fiscal year 2018-19 contribution for the State plans.

On December 21, 2016, the board lowered the discount rate from 7.5% to 7.0% using a three-year phase-in beginning with the June 30, 2016 actuarial valuations. The required employer contributions for fiscal year 2021-22 determined in this valuation were calculated using a discount rate of 7.0%. The decision to reduce the discount rate was primarily based on reduced capital market assumptions provided by external investment consultants and CalPERS investment staff. The specific decision adopted by the board reflected recommendations from CalPERS staff and additional input from employer and employee stakeholder groups. Based on the investment allocation adopted by the board and capital market assumptions, the reduced discount rate schedule provides a more realistic assumption for the long-term investment return of the fund.

Notwithstanding the board's decision to phase into a 7.0% discount rate, subsequent analysis of the expected investment return of CalPERS assets or changes to the investment allocation may result in a further change to the discount rate.

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

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

Appendix A – Statement of Actuarial Methods and Assumptions

Actuarial Assumptions (continued)

Economic Assumptions

Discount Rate

The discount rate assumption adopted by the board is 7.0% compounded annually (net of investment and administrative expenses).

Salary Growth

Annual increases vary by entry age and duration of service. A sample of assumed increases is shown below. Wage inflation assumption in the valuation year (2.75% for 2020) is added to these factors for total salary growth.

State Miscellaneous Tier 1 & Tier 2

Duration of Service	Entry Age		
	20	30	40
0	6.4%	5.6%	4.4%
3	5.3%	4.4%	3.1%
5	4.3%	3.6%	2.4%
10	2.3%	1.8%	1.2%
15	1.5%	1.2%	0.8%
20	1.0%	0.9%	0.6%
25	0.7%	0.6%	0.4%
30	0.5%	0.4%	0.3%

State Industrial

Duration of Service	Entry Age		
	20	30	40
0	7.3%	7.0%	6.4%
3	5.1%	4.7%	3.9%
5	4.0%	3.6%	2.8%
10	2.7%	2.2%	1.4%
15	1.8%	1.5%	1.1%
20	1.2%	1.0%	0.8%
25	0.8%	0.7%	0.6%
30	0.5%	0.5%	0.4%

State Safety, POFF and CHP

Duration of Service	State Safety	POFF	CHP
0	5.0%	14.7%	6.8%
3	3.1%	6.7%	4.0%
5	2.1%	4.0%	2.4%
10	0.8%	1.2%	1.0%
15	0.7%	0.5%	1.0%
20	0.6%	1.4%	1.8%
25	0.5%	1.5%	2.0%
30	0.5%	1.0%	1.0%

Appendix A – Statement of Actuarial Methods and Assumptions

Economic Assumptions (continued)

Overall Payroll Growth

2.75% compounded annually (used in projecting the payroll over which unfunded accrued liability is amortized for amortization bases established prior to June 30, 2019). For the State Miscellaneous plan, the payroll of Tier 2 members is assumed to decrease in accordance with actuarial assumptions based on the assumption that all new State Miscellaneous entrants will elect Tier 1. The payroll of Tier 1 members is assumed to grow at the rate necessary for the overall payroll of the State Miscellaneous plan to grow annually at a rate of 2.75%.

Inflation

2.50% compounded annually.

Appendix A – Statement of Actuarial Methods and Assumptions

Demographic Assumptions

Post-Retirement Mortality

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

	Healthy Recipients		Non-Industrial Disabled (Not Job-Related)		Industrial Disabled (Job-Related)	
Age	Male	Female	Male	Female	Male	Female
50	0.00372	0.00346	0.01183	0.01083	0.00372	0.00346
55	0.00437	0.00410	0.01613	0.01178	0.00437	0.00410
60	0.00671	0.00476	0.02166	0.01404	0.00671	0.00476
65	0.00928	0.00637	0.02733	0.01757	0.01113	0.00765
70	0.01339	0.00926	0.03358	0.02183	0.01607	0.01111
75	0.02316	0.01635	0.04277	0.02969	0.02779	0.01962
80	0.03977	0.03007	0.06272	0.04641	0.04773	0.03609
85	0.07122	0.05418	0.09793	0.07847	0.08547	0.06501
90	0.13044	0.10089	0.14616	0.13220	0.14348	0.11098
95	0.21658	0.17698	0.21658	0.21015	0.21658	0.17698
100	0.32222	0.28151	0.32222	0.32226	0.32222	0.28151
105	0.46691	0.43491	0.46691	0.43491	0.46691	0.43491
110	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

The post-retirement mortality rates above include 15 years of projected ongoing mortality improvement using 90% of Scale MP-2016 published by the Society of Actuaries.

Marital Status

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

Plan	Percent Married
State Miscellaneous	70%
State Industrial	70%
State Safety	70%
State Peace Officers & Firefighters	80%
California Highway Patrol	90%

Age of Spouse

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

Terminated Members

Terminated members who are not vested are assumed to refund immediately. Terminated 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	0.007	0.010	0.014	0.019	0.019	0.022	0.029
52	0.013	0.012	0.013	0.018	0.020	0.023	0.031
54	0.011	0.017	0.020	0.030	0.035	0.039	0.049
56	0.023	0.035	0.043	0.062	0.083	0.106	0.165
58	0.027	0.043	0.047	0.074	0.089	0.121	0.170
60	0.037	0.062	0.075	0.119	0.141	0.175	0.246
62	0.087	0.127	0.152	0.221	0.263	0.310	0.356
65	0.090	0.158	0.175	0.245	0.249	0.301	0.344
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

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				
	20	25	30	35	40
0	0.16570	0.16570	0.15120	0.13660	0.12920
1	0.13660	0.13660	0.12160	0.10660	0.09650
2	0.11060	0.11060	0.09650	0.08250	0.07190
3	0.08770	0.08770	0.07600	0.06430	0.05540
4	0.06790	0.06790	0.06000	0.05200	0.04680
5	0.02720	0.02720	0.02230	0.01740	0.01600
10	0.00480	0.00480	0.00430	0.00370	0.00270
15	0.00160	0.00160	0.00120	0.00080	0.00070
20	0.00110	0.00110	0.00080	0.00050	0.00050
25	0.00080	0.00080	0.00060	0.00040	0.00030
30	0.00060	0.00060	0.00040	0.00020	0.00020

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				
	20	25	30	35	40
5	0.04410	0.04410	0.03940	0.03460	0.02890
6	0.03970	0.03970	0.03570	0.03180	0.02610
7	0.03550	0.03550	0.03220	0.02890	0.02330
8	0.03170	0.03170	0.02880	0.02600	0.02060
9	0.02820	0.02820	0.02570	0.02320	0.01800
10	0.02510	0.02510	0.02270	0.02040	0.01560
14	0.01610	0.01610	0.01370	0.01130	0.00850
15	0.01460	0.01460	0.01220	0.00970	0.00740
19	0.01040	0.01040	0.00790	0.00540	0.00430
20	0.00950	0.00950	0.00710	0.00470	0.00380
24	0.00580	0.00580	0.00370	0.00170	0.00130
25	0.00500	0.00500	0.00290	0.00080	0.00070
29	0.00290	0.00290	0.00150	0.00000	0.00000
30	0.00260	0.00260	0.00130	0.00000	0.00000

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

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

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

Attained Age	Non-Industrial Death (Not Job-Related)		Non-Industrial Disability (Not Job-Related)	
	Male	Female	Male	Female
20	0.000216	0.000069	0.000190	0.000390
25	0.000289	0.000109	0.000190	0.000390
30	0.000379	0.000155	0.000190	0.000460
35	0.000491	0.000270	0.000360	0.000960
40	0.000637	0.000366	0.001030	0.001860
45	0.000795	0.000543	0.002040	0.003260
50	0.001161	0.000794	0.002740	0.004050
55	0.001717	0.001204	0.002380	0.003100
60	0.002550	0.001657	0.002000	0.002560

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	0.007	0.010	0.014	0.019	0.019	0.022	0.029
52	0.013	0.012	0.013	0.018	0.020	0.023	0.031
54	0.011	0.017	0.020	0.030	0.035	0.039	0.049
56	0.023	0.035	0.043	0.062	0.083	0.106	0.165
58	0.027	0.043	0.047	0.074	0.089	0.121	0.170
60	0.037	0.062	0.075	0.119	0.141	0.175	0.246
62	0.087	0.127	0.152	0.221	0.263	0.310	0.356
65	0.090	0.158	0.175	0.245	0.249	0.301	0.344
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

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				
	20	25	30	35	40
0	0.1496	0.1433	0.1370	0.1307	0.1244
1	0.1365	0.1302	0.1239	0.1176	0.1113
2	0.1234	0.1172	0.1109	0.1046	0.0983
3	0.1104	0.1041	0.0978	0.0915	0.0852
4	0.0973	0.0910	0.0848	0.0785	0.0722
5	0.0843	0.0780	0.0717	0.0654	0.0591
6	0.0792	0.0729	0.0666	0.0603	0.0540
7	0.0741	0.0678	0.0615	0.0553	0.0490
8	0.0691	0.0628	0.0565	0.0502	0.0439
9	0.0640	0.0577	0.0514	0.0451	0.0388

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				
	20	25	30	35	40
10	0.0589	0.0526	0.0463	0.0400	0.0000
14	0.0480	0.0417	0.0354	0.0291	—
15	0.0453	0.0390	0.0327	—	—
19	0.0344	0.0281	0.0218	—	—
20	0.0317	0.0254	—	—	—
24	0.0208	0.0145	—	—	—
25	0.0180	—	—	—	—
29	0.0071	—	—	—	—
30	—	—	—	—	—

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

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

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

Attained Age	Non-Industrial Death (Not Job-Related)		Non-Industrial Disability (Not Job-Related)	
	Male	Female	Male	Female
20	0.000216	0.000069	0.000190	0.000390
25	0.000289	0.000109	0.000190	0.000390
30	0.000379	0.000155	0.000190	0.000460
35	0.000491	0.000270	0.000360	0.000960
40	0.000637	0.000366	0.001030	0.001860
45	0.000795	0.000543	0.002040	0.003260
50	0.001161	0.000794	0.002740	0.004050
55	0.001717	0.001204	0.002380	0.003100
60	0.002550	0.001657	0.002000	0.002560

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	0.006	0.008	0.013	0.019	0.026	0.029	0.036
52	0.007	0.009	0.015	0.023	0.031	0.034	0.043
54	0.014	0.020	0.030	0.046	0.062	0.069	0.086
56	0.028	0.040	0.062	0.094	0.126	0.140	0.174
58	0.029	0.041	0.064	0.098	0.131	0.145	0.181
60	0.042	0.060	0.093	0.142	0.191	0.211	0.262
62	0.079	0.113	0.176	0.266	0.357	0.398	0.493
65	0.081	0.117	0.182	0.276	0.371	0.413	0.511
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

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
0.0912	0.0190	0.0029	0.0016	0.0010	0.0006	0.0004	0.0002	0.0001	0.0001

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	0.0496	0.0449	0.0405	0.0356	0.0311
6	0.0470	0.0421	0.0377	0.0328	0.0281
7	0.0442	0.0393	0.0346	0.0297	0.0250
8	0.0414	0.0365	0.0316	0.0267	0.0220
9	0.0384	0.0335	0.0285	0.0234	0.0187
10	0.0353	0.0302	0.0253	0.0201	—
14	0.0311	0.0257	0.0206	0.0152	—
15	0.0302	0.0246	0.0194	—	—
19	0.0248	0.0190	0.0136	—	—
20	0.0232	0.0176	—	—	—
24	0.0173	0.0115	—	—	—
25	0.0159	—	—	—	—
29	0.0091	—	—	—	—
30	—	—	—	—	—

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

Non-Industrial (Not Job-Related) Death

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

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

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

Attained Age	Non-Industrial Death		Non-Industrial Disability	Industrial Death	Industrial Disability
	Male	Female	Male and Female	Male and Female	Male and Female
20	0.000216	0.000069	0.000430	0.000040	0.000150
25	0.000289	0.000109	0.000430	0.000060	0.000150
30	0.000379	0.000155	0.001060	0.000070	0.000150
35	0.000491	0.000270	0.001840	0.000090	0.000290
40	0.000637	0.000366	0.002950	0.000100	0.000290
45	0.000795	0.000543	0.004480	0.000120	0.000440
50	0.001161	0.000794	0.006010	0.000130	0.000440
55	0.001717	0.001204	0.007710	0.000150	0.000580
60	0.002550	0.001657	0.007710	0.000160	0.000580

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	0.008	0.013	0.020	0.030	0.032	0.039	0.045
52	0.008	0.017	0.017	0.030	0.030	0.035	0.044
54	0.016	0.023	0.023	0.034	0.041	0.054	0.099
56	0.032	0.039	0.058	0.109	0.138	0.171	0.231
58	0.035	0.047	0.069	0.109	0.132	0.179	0.256
60	0.048	0.056	0.090	0.154	0.158	0.201	0.257
62	0.084	0.095	0.140	0.239	0.253	0.308	0.356
65	0.111	0.138	0.172	0.249	0.257	0.311	0.359
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

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										
0	1	2	3	4	5	10	15	20	25	30
0.1408	0.1014	0.0723	0.0533	0.0444	0.0155	0.0033	0.0019	0.0011	0.0006	0.0004

Termination with Vested Deferred Benefits

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

Duration of Service										
5	6	7	8	9	10	15	20	25	30	35
0.0246	0.0218	0.0194	0.0173	0.0155	0.0141	0.0097	0.0073	0.0050	0.0034	0.0000

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

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Safety (continued)

Non-Industrial (Not Job-Related) Death

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

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

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

	Non-Industrial Death		Non-Industrial Disability	Industrial Death	Industrial Disability
Attained Age	Male	Female	Male and Female	Male and Female	Male and Female
20	0.000216	0.000069	0.000360	0.000040	0.000020
25	0.000289	0.000109	0.000540	0.000060	0.000760
30	0.000379	0.000155	0.000630	0.000070	0.001700
35	0.000491	0.000270	0.000720	0.000090	0.002640
40	0.000637	0.000366	0.000720	0.000100	0.003600
45	0.000795	0.000543	0.001080	0.000120	0.004570
50	0.001161	0.000794	0.002010	0.000130	0.005570
55	0.001717	0.001204	0.002400	0.000150	0.006580
60	0.002550	0.001657	0.003200	0.000160	0.007620

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	0.012	0.030	0.044	0.109	0.224	0.449	0.467
52	0.012	0.026	0.041	0.096	0.145	0.255	0.257
54	0.021	0.042	0.053	0.118	0.162	0.292	0.306
56	0.031	0.044	0.057	0.135	0.213	0.335	0.345
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

Service Retirement - PEPRA Members – 2.5% @ 57

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

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

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

State Peace Officers and Firefighters (continued)

Service Retirement - PEPRA Members – 2.7% @ 57

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

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

Termination with Refund

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

Duration of Service										
0	1	2	3	4	5	10	15	20	25	30
0.1217	0.0779	0.0431	0.0353	0.0275	0.0056	0.0039	0.0025	0.0015	0.0006	0.0003

Termination with Vested Deferred Benefits

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

Duration of Service										
5	6	7	8	9	10	15	20	25	30	35
0.0117	0.0115	0.0112	0.0108	0.0103	0.0098	0.0069	0.0049	0.0031	0.0020	0.0000

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

Non-Industrial (Not Job-Related) Death

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

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

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

Attained Age	Non-Industrial Death		Non-Industrial Disability	Industrial Death	Industrial Disability
	Male	Female	Male and Female	Male and Female	Male and Female
20	0.000216	0.000069	0.000300	0.000040	0.000390
25	0.000289	0.000109	0.000300	0.000060	0.000870
30	0.000379	0.000155	0.000300	0.000070	0.001670
35	0.000491	0.000270	0.000300	0.000090	0.002890
40	0.000637	0.000366	0.000400	0.000100	0.004640
45	0.000795	0.000543	0.000600	0.000120	0.007060
50	0.001161	0.000794	0.000980	0.000130	0.010270
55	0.001717	0.001204	0.001430	0.000150	0.014420
60	0.002550	0.001657	0.001880	0.000160	0.019660

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	0.038	0.038	0.038	0.049	0.107	0.418	0.453
52	0.027	0.027	0.027	0.027	0.093	0.315	0.383
54	0.038	0.038	0.038	0.038	0.124	0.309	0.404
56	0.051	0.051	0.051	0.084	0.139	0.350	0.380
58	0.049	0.049	0.049	0.049	0.171	0.338	0.350
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										
0	1	2	3	4	5	10	15	20	25	30
0.1050	0.0243	0.0152	0.0091	0.0054	0.0029	0.0005	0.0003	0.0002	0.0002	0.0002

Termination with Vested Deferred Benefits

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

Duration of Service										
5	6	7	8	9	10	15	20	25	30	35
0.0090	0.0084	0.0079	0.0075	0.0071	0.0067	0.0049	0.0034	0.0023	0.0010	0.0000

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

Appendix A – Statement of Actuarial Methods and Assumptions

PLAN SPECIFIC ACTUARIAL ASSUMPTIONS (continued)

California Highway Patrol (continued)

Non-Industrial (Not Job-Related) Death

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

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

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

	Non-Industrial Death		Non-Industrial Disability	Industrial Death	Industrial Disability
Attained Age	Male	Female	Male and Female	Male and Female	Male and Female
20	0.000216	0.000069	0.000100	0.000040	0.000156
25	0.000289	0.000109	0.000100	0.000060	0.000348
30	0.000379	0.000155	0.000100	0.000070	0.000684
35	0.000491	0.000270	0.000100	0.000090	0.001224
40	0.000637	0.000366	0.000100	0.000100	0.002022
45	0.000795	0.000543	0.000200	0.000120	0.003162
50	0.001161	0.000794	0.000200	0.000130	0.012138
55	0.001717	0.001204	0.000200	0.000150	0.054066
60	0.002550	0.001657	0.000200	0.000160	0.204306

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 1

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

RETIREMENT PROGRAM

Service Retirement

Eligibility

Classic members become eligible for Service Retirement upon attainment of age 50 with at least five years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements). PEPRAs 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 PEPRAs 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 \$126,291 for 2020 and for those employees who do not participate in Social Security the cap for 2020 is \$151,549. 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 percent of final compensation, multiplied by *service*, which is determined as follows:

- *Service* is CalPERS credited service, for members with less than 10 years of service or greater than 18.518 years of service; or
- *Service* is CalPERS credited service plus the additional number of years that the member would have worked until age 60, for members with at least 10 years but not more than 18.518 years of service. The maximum benefit in this case is 33-1/3% 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% 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% of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 75% of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. The retiree may choose to provide for some of this *option portion* to be paid to **any** designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 1 (continued)

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

Basic Death Benefit

Eligibility

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

Benefit

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

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

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

Alternate Death Benefit

Eligibility

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

Benefit

The Alternate Death Benefit is calculated as though the member were the minimum retirement age and elected an optional form of benefit that provided 100 percent 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 and age 52 for Miscellaneous PEPRAs, and has at least five years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member who is no longer actively employed with **any** CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death or, if there is no eligible spouse, to the member's unmarried children under age 18. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the Optional Settlement 2W Death benefit.

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 1 (continued)

Benefit

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

Optional Settlement 2W Death Benefit

Eligibility

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

Benefit

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

Cost-of-Living Adjustments

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

Purchasing Power Protection Allowance (PPPA)

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 1 (continued)

Employee Contributions

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

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

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

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

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

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

Refund of Employee Contributions

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

1959 Survivor Benefits Program

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

State Miscellaneous Tier 2

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

RETIREMENT PROGRAM

Tier 2 Members electing Tier 1 benefits

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

Service Retirement

Eligibility

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 2 (continued)

Benefit

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

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

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

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, and then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.
- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For some new members hired after July 1, 2006 and for all new members hired on or after January 15, 2011, final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPRA members have a cap on the annual salary used to calculate final compensation based on the Social Security Contribution and Benefit Base. For employees who participate in Social Security this cap is \$126,291 for 2020 and for those employees who do not participate in Social Security the cap for 2020 is \$151,549. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers
- Employees may or may not be covered by Social Security. The final compensation is not offset by a dollar amount.
- The Service Retirement benefit is not capped.

Vested Deferred Retirement

Eligibility for Deferred Status

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 2 (continued)

Eligibility to Start Receiving Benefits

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

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 2 (continued)

For retirement allowances with respect to service earned by employment in this group, 25% 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% of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 75% of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. The retiree may choose to provide for some of this *option portion* to be paid to **any** designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

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

Benefit

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

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

Basic Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 2 (continued)

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

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

Alternate Death Benefit

Eligibility

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

Benefit

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

For members who are age-eligible to retire:

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

1957 Survivor Benefit

Eligibility

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

Benefit

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

Optional Settlement 2W Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Miscellaneous Tier 2 (continued)

Cost-of-Living Adjustments

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

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

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

Refund of Employee Contributions

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

1959 Survivor Benefits Program

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

State Industrial Tier 1

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

RETIREMENT PROGRAM

Service Retirement

Eligibility

Classic members become eligible for Service Retirement upon attainment of age 50 with at least five years of credited service (total service across all CalPERS employers, and with certain other Retirement Systems with which CalPERS has reciprocity agreements). PEPR 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 \$126,291 for 2020 and for those employees who do not participate in Social Security the cap for 2020 is \$151,549. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- Employees may or may not be covered by Social Security. For employees covered by Social Security, the final compensation is offset by \$133.33 (or by one third if the final compensation is less than \$400). For some PEPRA members, the final compensation is not offset.
- The Service Retirement benefit is not capped.

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Vested Deferred Retirement

Eligibility for Deferred Status

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

Eligibility to Start Receiving Benefits

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

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

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

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Industrial (Job-Related) Disability Retirement

Eligibility

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

Benefit

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

For retirement allowances with respect to service earned by employment in this group, 25% 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% of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 75% of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. Or, the retiree may choose to provide for some of this *option portion* to be paid to any designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

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

Benefit

The benefit is a lump sum payment of \$5,000 plus an additional amount equal to 50 percent 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 PEPPRA members, and has at least five years of credited service (total service across all CalPERS employers and with certain other Retirement Systems with which CalPERS has reciprocity agreements). A CalPERS member who is no longer actively employed with **any** CalPERS employer is not eligible for this benefit. An *eligible survivor* means the surviving spouse to whom the member was married at least one year before death or, if there is no eligible spouse, to the member's unmarried children under age 18. A member's survivor may choose this benefit in lieu of the Basic Death benefit or the Special Death benefit.

Benefit

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

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Optional Settlement 2W Death Benefit

Eligibility

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

Benefit

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

Cost-of-Living Adjustments

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

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

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

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

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

Appendix B – Principal Plan Provisions

State Industrial Tier 1 (continued)

Refund of Employee Contributions

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

1959 Survivor Benefits Program

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

State Industrial Tier 2

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

RETIREMENT PROGRAM

Tier 2 Members Electing Tier 1 Benefits

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

Service Retirement

Eligibility

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

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

Benefit

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

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

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

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, and then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.
- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For some new members hired after July 1, 2006 and for all new members hired on or after January 15, 2011, final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPPRA 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 \$126,291 for 2020 and for those employees who do not participate in Social Security the cap for 2020 is \$151,549. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- The employees in this group may or may not be covered by Social Security. The final compensation is not offset by a dollar amount.
- The Service Retirement benefit is not capped.

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

Vested Deferred Retirement

Eligibility for Deferred Status

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

Eligibility to Start Receiving Benefits

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

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

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

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

Industrial (Job-Related) Disability Retirement

Eligibility

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

Benefit

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

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

In other words, 25% of the allowance, the *continuance portion*, is paid to the retiree for as long as he or she is alive, and that same amount is continued to the retiree's spouse (or if no eligible spouse, to unmarried children until they attain age 18; or, if no eligible children, to a qualifying dependent parent) for the rest of his or her lifetime.

The remaining 75% of the retirement allowance, which may be referred to as the *option portion* of the benefit, is paid to the retiree as an annuity for as long as he or she is alive. Or, the retiree may choose to provide for some of this *option portion* to be paid to **any** designated beneficiary after the retiree's death. Benefit options applicable to the *option portion* are the same as those offered with the standard form. The reduction is calculated in the same manner but is applied only to the *option portion*.

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

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

Benefit

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

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

Basic Death Benefit

Eligibility

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

Benefit

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

Special Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

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

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

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

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

Alternate Death Benefit

Eligibility

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

Benefit

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

For members who are age-eligible to retire:

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

1957 Survivor Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Industrial Tier 2 (continued)

Optional Settlement 2W Death Benefit

Eligibility

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

Benefit

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

Cost-of-Living Adjustments

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

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

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

Refund of Employee Contributions

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

1959 Survivor Benefits Program

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

Appendix B – Principal Plan Provisions

State Safety

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

RETIREMENT PROGRAM

Service Retirement

Eligibility

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

Benefit

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

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

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

- The *years of service* is the amount credited by CalPERS to a member while he or she is employed in this group (or for other periods that are recognized under the employer's contract with CalPERS). For a member who has earned service with multiple CalPERS employers, the benefit from each employer is calculated separately according to each employer's contract, then added together for the total allowance. Any unused sick leave accumulated at the time of retirement will be converted to credited service at the rate of 0.004 years of service for each day of sick leave.
- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For some new members hired after July 1, 2006 and for all new members hired on or after January 15, 2011, final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. PEPRAs members have a cap on the annual salary used to calculate final compensation based on the Social Security Contribution and Benefit Base. For employees who participate in Social Security this cap is \$126,291 for 2020 and for those employees who do not participate in Social Security the cap for 2020 is \$151,549. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- The employees in this group are not covered by Social Security. The final compensation is not offset by a dollar amount.
- The Service Retirement benefit for Classic members is capped at 80% of final compensation.

Appendix B – Principal Plan Provisions

State Safety (continued)

Vested Deferred Retirement

Eligibility for Deferred Status

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

Eligibility to Start Receiving Benefits

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

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

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

Appendix B – Principal Plan Provisions

State Safety (continued)

Industrial (Job-Related) Disability Retirement

Eligibility

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

Benefit

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

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

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

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

Appendix B – Principal Plan Provisions

State Safety (continued)

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

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

Benefit

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

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

Basic Death Benefit

Eligibility

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

Benefit

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

Special Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Safety (continued)

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

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

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

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

Alternate Death Benefit

Eligibility

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

Benefit

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

For members who are age-eligible to retire:

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

1957 Survivor Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Safety (continued)

Optional Settlement 2W Death Benefit

Eligibility

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

Benefit

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

Cost-of-Living Adjustments

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

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

The active population is subject to the following schedule:

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

Appendix B – Principal Plan Provisions

State Safety (continued)

Refund of Employee Contributions

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

1959 Survivor Benefits Program

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

State Peace Officers and Firefighters

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

RETIREMENT PROGRAM

Service Retirement

Eligibility

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

Benefit

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

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

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

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

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). For some new members hired after January 1, 2007 and for all new members hired on or after January 15, 2011, final compensation is based on the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. 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 \$126,291 for 2020 and for those employees who do not participate in Social Security the cap for 2020 is \$151,549. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- The employees in this group are not covered by Social Security. The final compensation is not offset by a dollar amount.
- The Service Retirement benefit for Classic members is capped at 90% of final compensation.

Vested Deferred Retirement

Eligibility for Deferred Status

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

Eligibility to Start Receiving Benefits

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

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

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

Industrial (Job-Related) Disability Retirement

Eligibility

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

Benefit

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

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

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

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

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

Benefit

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

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

Basic Death Benefit

Eligibility

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

Benefit

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

Special Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

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

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

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

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

Alternate Death Benefit

Eligibility

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

Benefit

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

For members who are age-eligible to retire:

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

1957 Survivor Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

Optional Settlement 2W Death Benefit

Eligibility

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

Benefit

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

Cost-of-Living Adjustments

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

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

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

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

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

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

Appendix B – Principal Plan Provisions

State Peace Officers and Firefighters (continued)

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

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

Refund of Employee Contributions

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

1959 Survivor Benefits Program

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

California Highway Patrol

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

RETIREMENT PROGRAM

Service Retirement

Eligibility

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

Benefit

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

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

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

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

Appendix B – Principal Plan Provisions

California Highway Patrol (continued)

- The *final compensation* is the monthly average of the member's highest 12 consecutive months' full-time equivalent monthly pay (no matter which CalPERS employer paid this compensation). The *final compensation* for an employee hired on or after October 31, 2010 is the monthly average of the member's highest 36 consecutive months' full-time equivalent monthly pay. 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 \$126,291 for 2020 and for those employees who do not participate in Social Security the cap for 2020 is \$151,549. Adjustments to the caps are permitted annually based on changes to the CPI for All Urban Consumers.
- The employees in this group are not covered by Social Security. The final compensation is not offset by a dollar amount.
- The Service Retirement benefit for Classic members is capped at 90% of final compensation.

Vested Deferred Retirement

Eligibility for Deferred Status

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

Eligibility to Start Receiving Benefits

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

Benefit

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

Non-Industrial (Non-Job Related) Disability Retirement

Eligibility

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

Benefit

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

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

Appendix B – Principal Plan Provisions

California Highway Patrol (continued)

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

Industrial (Job-Related) Disability Retirement

Eligibility

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

Benefit

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

Post-Retirement Death Benefit

Lump Sum Payment

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

Form of Payment for Retirement Allowance

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

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

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

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

Appendix B – Principal Plan Provisions

California Highway Patrol (continued)

Pre-Retirement Death Benefits

Group Term Life Insurance

Eligibility

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

Benefit

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

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

Basic Death Benefit

Eligibility

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

Benefit

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

Special Death Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

California Highway Patrol (continued)

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

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

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

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

Alternate Death Benefit

Eligibility

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

Benefit

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

For members who are age-eligible to retire:

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

1957 Survivor Benefit

Eligibility

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

Benefit

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

Appendix B – Principal Plan Provisions

California Highway Patrol (continued)

Optional Settlement 2W Death Benefit

Eligibility

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

Benefit

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

Cost-of-Living Adjustments

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

Purchasing Power Protection Allowance (PPPA)

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

Employee Contributions

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

- The percent contributed below the monthly compensation breakpoint is 0%.
- The monthly compensation breakpoint is \$863.
- The percent contributed above the monthly compensation breakpoint is 11.5%. This rate was originally scheduled to increase 1%/year until it reached 50% of normal cost, but this gradual increase has been temporarily suspended.

Refund of Employee Contributions

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

1959 Survivor Benefits Program

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

Appendix C – Participant Data

Source of Participant Information

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

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

Data Validation

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

Checks on the data included:

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

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

Data Statement

The data does not contain information about reciprocal systems and hence salary information for terminated 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 terminated participants represents less than 2% of the present value of benefits for all members. We are unaware of any other data issues that would have a material effect on the results of this valuation.

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

Reconciliation of Participants

State Miscellaneous¹

	Active	Transfer	Terminated	Receiving	Total
As of June 30, 2019	176,842	37,822	63,003	197,691	475,358
Retirements	(6,760)	(1,550)	(751)	9,061	-
Industrial Disabilities	-	(57)	(2)	59	-
Non-Industrial Disabilities	(205)	(39)	(10)	254	-
Deaths ²	(251)	(30)	(507)	(6,616)	(7,404)
New Survivors	n/a	n/a	n/a	1,573	1,573
Non-Vested Terminations ³	(3,677)	(637)	4,315	(1)	-
Vested Terminations	(1,434)	(438)	1,873	(1)	-
Refunds of Contributions	(790)	(73)	(1,676)	-	(2,539)
Transfers	(1,303)	2,016	(709)	(4)	-
Redeposits/Rehires	1,650	(494)	(1,155)	(1)	-
First Year in Status	14,582	234	687	30	15,533
Data Corrections ⁴	(26)	(6,624)	(674)	33	(7,291)
As of June 30, 2020	178,628	30,130	64,394	202,078	475,230

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 terminated participants with employee contributions left in the plan.

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

Reconciliation of Participants (continued)

State Industrial

	Active	Transfer	Terminated	Receiving	Total
As of June 30, 2019	11,795	8,974	3,730	15,345	39,844
Retirements	(417)	(436)	(50)	899	(4)
Industrial Disabilities	(3)	(18)	-	22	1
Non-Industrial Disabilities	(23)	(11)	(9)	46	3
Deaths ¹	(16)	(10)	(26)	(313)	(365)
New Survivors	n/a	n/a	n/a	84	84
Non-Vested Terminations ²	(148)	(61)	209	-	-
Vested Terminations	(89)	(76)	167	(2)	-
Refunds of Contributions	(79)	(24)	(107)	-	(210)
Transfers	(558)	659	(91)	(10)	-
Redeposits/Rehires	164	(90)	(68)	(6)	-
First Year in Status	1,321	63	52	30	1,466
Data Corrections ³	(48)	(1,130)	(102)	(45)	(1,325)
As of June 30, 2020	11,899	7,840	3,705	16,050	39,494

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

² Includes non-vested terminated participants with employee contributions left in the plan.

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

State Safety

	Active	Transfer	Terminated	Receiving	Total
As of June 30, 2019	28,953	6,216	7,706	26,866	69,741
Retirements	(921)	(240)	(72)	1,192	(41)
Industrial Disabilities	(143)	(10)	(14)	180	13
Non-Industrial Disabilities	(38)	(4)	(5)	50	3
Deaths ¹	(43)	(2)	(36)	(679)	(760)
New Survivors	n/a	n/a	n/a	183	183
Non-Vested Terminations ²	(585)	(76)	660	(1)	(2)
Vested Terminations	(323)	(72)	396	(2)	(1)
Refunds of Contributions	(260)	(20)	(318)	0	(598)
Transfers	(539)	564	(99)	(8)	(82)
Redeposits/Rehires	305	(89)	(189)	(14)	13
First Year in Status	2925	166	186	158	3,435
Data Corrections ³	(24)	(984)	(120)	(20)	(1,148)
As of June 30, 2020	29,307	5,449	8,095	27,905	70,756

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

² Includes non-vested terminated 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	Terminated	Receiving	Total
As of June 30, 2019	41,144	6,289	7,545	41,657	96,635
Retirements	(1450)	(171)	(116)	1,697	(40)
Industrial Disabilities	(304)	(34)	(24)	368	6
Non-Industrial Disabilities	(18)	(5)	(2)	20	(5)
Deaths ¹	(53)	(5)	(16)	(598)	(672)
New Survivors	n/a	n/a	n/a	294	294
Non-Vested Terminations ²	(253)	(130)	383	0	0
Vested Terminations	(187)	(71)	259	(7)	(6)
Refunds of Contributions	(82)	(10)	(170)	0	(262)
Transfers	(288)	380	(172)	(4)	(84)
Redeposits/Rehires	413	(43)	(367)	(15)	(12)
First Year in Status	2874	125	197	125	3,321
Data Corrections ³	(9)	(1003)	(109)	(12)	(1,133)
As of June 30, 2020	41,787	5,322	7,408	43,525	98,042

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

² Includes non-vested terminated 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	Terminated	Receiving	Total
As of June 30, 2019	7,267	264	482	9,301	17,314
Retirements	(233)	(8)	(20)	257	(4)
Industrial Disabilities	(74)	(4)	0	83	5
Non-Industrial Disabilities	(1)	0	0	0	(1)
Deaths ¹	(3)	0	(2)	(223)	(228)
New Survivors	n/a	n/a	n/a	97	97
Non-Vested Terminations ²	(13)	0	13	0	0
Vested Terminations	(61)	(6)	68	(1)	0
Refunds of Contributions	(10)	(1)	(8)	0	(19)
Transfers	(8)	16	(8)	0	0
Redeposits/Rehires	6	(1)	(4)	(1)	0
First Year in Status	157	1	18	10	186
Data Corrections ³	0	0	(7)	(4)	(11)
As of June 30, 2020	7,027	261	532	9,519	17,339

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

² Includes non-vested terminated 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, 2020

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	2,912	7	0	0	0	0	2,919	\$121,749,441
25 - 29	11,400	1,365	6	0	0	0	12,771	662,189,972
30 - 34	12,495	6,327	1,045	23	0	0	19,890	1,239,029,552
35 - 39	10,088	7,040	4,422	850	68	2	22,470	1,615,316,282
40 - 44	7,304	5,553	4,935	3,090	1,078	80	22,040	1,700,929,877
45 - 49	5,722	4,482	4,633	4,106	3,185	930	23,058	1,869,988,646
50 - 54	4,725	3,883	4,247	4,364	3,945	4,135	25,299	2,117,942,380
55 - 59	3,972	3,471	3,653	3,694	3,663	6,055	24,508	2,065,969,081
60 - 64	2,400	2,520	2,658	2,657	2,426	3,917	16,578	1,381,277,542
65 and over	1,308	1,482	1,644	1,504	1,176	1,981	9,095	758,418,215
Total	62,326	36,130	27,243	20,288	15,541	17,100	178,628	\$13,532,810,988

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

Distribution of Average Annual Salaries by Age and Years of Service

State Miscellaneous – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25+	
15 - 24	\$41,704	\$44,026	\$0	\$0	\$0	\$0	\$41,709
25 - 29	50,777	60,799	57,942	0	0	0	51,851
30 - 34	57,855	68,673	76,397	78,444	0	0	62,294
35 - 39	63,776	74,990	82,853	83,618	94,028	82,707	71,888
40 - 44	64,208	77,811	85,657	86,384	93,970	111,506	77,175
45 - 49	63,820	76,424	86,303	88,814	95,934	99,156	81,099
50 - 54	63,328	74,006	84,042	87,857	95,214	100,460	83,716
55 - 59	62,482	72,494	80,258	87,185	93,582	100,434	84,298
60 - 64	61,945	71,139	78,631	84,287	92,797	100,909	83,320
65 and over	56,830	70,220	80,265	85,537	95,217	104,715	83,388
Average	\$58,902	\$73,143	\$82,964	\$86,876	\$94,508	\$101,025	\$75,760

Appendix C – Participant Data

Active Members (continued)

Distribution of Active Members by Age and Years of Service

State Industrial – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	251	1	0	0	0	0	252	\$9,318,793
25 - 29	920	122	1	0	0	0	1,043	46,625,316
30 - 34	958	389	145	1	0	0	1,493	83,207,374
35 - 39	749	454	404	53	0	0	1,660	102,681,468
40 - 44	542	361	416	147	52	2	1,520	103,004,025
45 - 49	485	342	392	199	159	49	1,626	114,591,100
50 - 54	368	319	418	221	204	154	1,684	121,912,384
55 - 59	268	270	371	181	173	158	1,421	99,869,553
60 - 64	160	143	235	114	92	74	818	56,277,487
65 and over	57	93	95	59	48	30	382	27,896,259
Total	4,758	2,494	2,477	975	728	467	11,899	\$765,383,759

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

Distribution of Average Annual Salaries by Age and Years of Service

State Industrial – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25+	
15 - 24	\$36,948	\$44,766	\$0	\$0	\$0	\$0	\$36,979
25 - 29	43,509	53,517	67,584	0	0	0	44,703
30 - 34	50,962	63,081	67,372	78,640	0	0	55,732
35 - 39	56,229	65,484	66,922	71,697	0	0	61,856
40 - 44	60,759	71,721	71,334	70,545	76,463	80,081	67,766
45 - 49	65,068	72,739	70,769	73,959	75,660	74,845	70,474
50 - 54	69,524	73,160	71,615	72,323	74,226	77,459	72,395
55 - 59	64,174	73,635	69,703	70,413	69,857	76,581	70,281
60 - 64	66,581	69,031	68,070	66,786	70,305	76,691	68,799
65 and over	64,192	82,503	68,646	71,560	66,337	87,897	73,027
Average	\$55,028	\$69,115	\$69,682	\$71,313	\$72,645	\$77,448	\$64,323

Appendix C – Participant Data

Active Members (continued)

Distribution of Active Members by Age and Years of Service

State Safety – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	415	1	0	0	0	0	416	\$18,941,266
25 - 29	1,613	174	0	0	0	0	1,787	103,304,694
30 - 34	2,210	958	169	3	0	0	3,340	238,133,684
35 - 39	1,954	1,212	621	95	2	0	3,884	299,588,914
40 - 44	1,547	1,086	972	280	35	0	3,920	327,218,265
45 - 49	1,388	1,050	1,120	509	151	12	4,230	381,604,538
50 - 54	1,201	937	1,037	585	300	87	4,147	373,384,611
55 - 59	939	783	955	537	258	107	3,579	319,571,099
60 - 64	473	607	745	429	200	101	2,555	244,723,610
65 and over	186	286	475	266	163	73	1,449	161,384,888
Total	11,926	7,094	6,094	2,704	1,109	380	29,307	\$2,467,855,569

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

Distribution of Average Annual Salaries by Age and Years of Service

State Safety – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25+	
15 - 24	\$45,452	\$78,583	\$0	\$0	\$0	\$0	\$45,532
25 - 29	57,336	62,191	0	0	0	0	57,809
30 - 34	68,679	76,603	75,608	63,017	0	0	71,298
35 - 39	72,546	83,168	80,841	70,137	84,744	0	77,134
40 - 44	74,563	86,799	92,820	88,260	76,336	0	83,474
45 - 49	75,500	91,202	104,550	95,322	94,570	96,048	90,214
50 - 54	77,950	88,192	103,378	89,966	96,886	94,616	90,037
55 - 59	75,686	87,611	98,229	92,242	101,621	96,662	89,291
60 - 64	79,851	91,474	107,798	94,728	100,264	103,259	95,782
65 and over	97,406	99,883	122,039	110,022	117,499	113,888	111,377
Average	\$70,904	\$86,050	\$100,031	\$93,252	\$100,641	\$101,237	\$84,207

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, 2020

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	1,376	2	0	0	0	0	1,378	\$66,765,837
25 - 29	4,139	908	0	0	0	0	5,047	343,409,316
30 - 34	3,225	2,192	403	0	0	0	5,820	455,748,293
35 - 39	1,677	1,630	2,940	531	3	0	6,781	616,545,308
40 - 44	804	892	2,309	2,221	662	4	6,892	679,052,223
45 - 49	450	546	1,607	1,885	2,274	601	7,363	772,966,983
50 - 54	245	297	981	1,120	1,360	844	4,847	519,089,381
55 - 59	121	169	566	602	574	434	2,466	257,258,544
60 - 64	37	70	201	230	228	183	949	98,563,266
65 and over	7	24	54	63	45	51	244	25,217,604
Total	12,081	6,730	9,061	6,652	5,146	2,117	41,787	\$3,834,616,755

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

Distribution of Average Annual Salaries by Age and Years of Service

State Peace Officers and Firefighters – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25+	
15 - 24	\$48,397	\$85,753	\$0	\$0	\$0	\$0	\$48,451
25 - 29	64,129	85,882	0	0	0	0	68,042
30 - 34	69,007	88,200	98,922	0	0	0	78,307
35 - 39	71,895	90,276	99,956	102,896	106,058	0	90,922
40 - 44	74,935	90,581	99,864	104,662	112,445	131,540	98,528
45 - 49	78,904	93,858	101,025	104,381	112,266	119,494	104,980
50 - 54	85,808	97,665	100,636	104,999	112,358	118,401	107,095
55 - 59	91,960	96,961	101,213	101,845	109,032	111,897	104,322
60 - 64	79,739	97,570	99,768	103,081	107,903	111,580	103,860
65 and over	71,256	99,924	102,915	100,214	104,886	112,351	103,351
Average	\$66,757	\$89,941	\$100,242	\$104,146	\$111,691	\$116,667	\$91,766

Appendix C – Participant Data

Active Members (continued)

Distribution of Active Members by Age and Years of Service

California Highway Patrol – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Payroll
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	83	0	0	0	0	0	83	\$7,993,607
25 - 29	573	68	0	0	0	0	641	70,856,078
30 - 34	420	296	246	0	0	0	962	115,513,636
35 - 39	219	234	768	115	0	0	1,336	170,044,064
40 - 44	24	119	550	541	185	1	1,420	190,210,952
45 - 49	1	34	266	511	620	231	1,663	234,718,044
50 - 54	0	1	17	179	334	251	782	115,038,734
55 - 59	1	1	2	5	47	84	140	21,562,176
60 - 64	0	0	0	0	0	0	0	0
65 and over	0	0	0	0	0	0	0	0
Total	1,321	753	1,849	1,351	1,186	567	7,027	\$925,937,291

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

Distribution of Average Annual Salaries by Age and Years of Service

California Highway Patrol – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25+	
15 - 24	\$96,309	\$0	\$0	\$0	\$0	\$0	\$96,309
25 - 29	108,780	125,373	0	0	0	0	110,540
30 - 34	110,780	126,209	128,571	0	0	0	120,077
35 - 39	112,445	127,169	130,047	137,259	0	0	127,278
40 - 44	113,939	127,226	129,283	136,763	146,184	198,024	133,951
45 - 49	62,440	126,834	130,009	134,677	146,117	157,353	141,141
50 - 54	0	128,773	135,665	134,122	146,816	157,606	147,108
55 - 59	173,688	89,904	150,822	142,518	147,203	159,117	154,016
60 - 64	0	0	0	0	0	0	0
65 and over	0	0	0	0	0	0	0
Average	\$109,347	\$126,576	\$129,692	\$135,688	\$146,367	\$157,798	\$131,769

Appendix C – Participant Data

Transferred and Terminated Participants

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

State Miscellaneous – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	189	0	0	0	0	0	189	\$62,046
25 - 29	1,583	28	0	0	0	0	1,611	70,167
30 - 34	2,247	283	17	0	0	0	2,547	73,457
35 - 39	2,358	608	171	21	0	0	3,158	77,133
40 - 44	2,724	746	319	145	12	1	3,947	83,776
45 - 49	3,214	1,037	412	272	90	19	5,044	88,351
50 - 54	2,870	1,285	618	362	216	88	5,439	87,514
55 - 59	2,287	914	563	341	190	158	4,453	84,691
60 - 64	1,440	465	296	191	129	97	2,618	82,316
65 and over	691	220	83	68	31	31	1,124	81,135
Total	19,603	5,586	2,479	1,400	668	394	30,130	\$82,694

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

State Miscellaneous – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	701	0	0	0	0	0	701	\$32,575
25 - 29	4,077	64	0	0	0	0	4,141	37,404
30 - 34	6,611	564	21	0	0	0	7,196	42,374
35 - 39	7,909	1,279	241	19	0	0	9,448	45,420
40 - 44	7,483	1,487	478	140	12	0	9,600	48,456
45 - 49	6,084	1,647	640	237	65	10	8,683	52,434
50 - 54	5,238	1,648	843	266	118	32	8,145	53,053
55 - 59	4,684	1,270	678	233	75	29	6,969	49,559
60 - 64	3,841	811	452	158	38	17	5,317	45,875
65 and over	3,360	478	253	70	22	11	4,194	42,554
Total	49,988	9,248	3,606	1,123	330	99	64,394	\$47,087

Appendix C – Participant Data

Transferred and Terminated Participants (continued)

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

State Industrial – As of June 30, 2020

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	\$39,704
25 - 29	292	2	0	0	0	0	294	46,905
30 - 34	654	87	6	0	0	0	747	59,184
35 - 39	785	177	31	3	0	0	996	71,168
40 - 44	766	217	63	17	2	0	1,065	78,225
45 - 49	837	249	98	36	8	4	1,232	82,539
50 - 54	1,038	302	138	47	28	15	1,568	82,439
55 - 59	711	231	87	32	21	8	1,090	83,650
60 - 64	422	105	47	10	10	1	595	78,754
65 and over	160	38	14	3	3	0	218	82,281
Total	5,700	1,408	484	148	72	28	7,840	\$76,596

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

State Industrial – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	32	0	0	0	0	0	32	\$32,331
25 - 29	186	3	0	0	0	0	189	36,546
30 - 34	301	30	2	0	0	0	333	40,353
35 - 39	377	60	18	0	0	0	455	42,950
40 - 44	330	70	18	7	0	0	425	43,695
45 - 49	416	91	23	19	4	1	554	44,639
50 - 54	417	107	34	12	6	2	578	44,292
55 - 59	328	84	22	6	1	1	442	39,361
60 - 64	273	34	9	1	1	1	319	38,086
65 and over	326	49	2	1	0	0	378	36,771
Total	2,986	528	128	46	12	5	3,705	\$41,368

Appendix C – Participant Data

Transferred and Terminated Participants (continued)

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

State Safety – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	30	0	0	0	0	0	30	\$45,368
25 - 29	264	4	0	0	0	0	268	58,343
30 - 34	448	53	3	0	0	0	504	68,028
35 - 39	571	142	33	3	0	0	749	78,343
40 - 44	623	174	55	1	1	0	854	84,282
45 - 49	634	163	90	17	1	0	905	87,952
50 - 54	564	174	70	27	9	0	844	92,179
55 - 59	448	131	64	24	8	1	676	93,259
60 - 64	303	98	42	10	3	4	460	90,639
65 and over	107	36	10	3	3	0	159	85,971
Total	3,992	975	367	85	25	5	5,449	\$84,004

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

State Safety – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	86	0	0	0	0	0	86	\$35,340
25 - 29	443	8	0	0	0	0	451	45,135
30 - 34	736	73	5	0	0	0	814	56,069
35 - 39	921	168	30	1	0	0	1,120	60,419
40 - 44	894	173	46	8	0	0	1,121	68,739
45 - 49	888	208	66	22	5	0	1,189	70,974
50 - 54	859	191	71	17	2	0	1,140	69,709
55 - 59	735	107	18	4	1	0	865	64,016
60 - 64	671	54	16	3	0	0	744	63,314
65 and over	526	30	6	2	0	1	565	64,346
Total	6,759	1,012	258	57	8	1	8,095	\$63,799

Appendix C – Participant Data

Transferred and Terminated Participants (continued)

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

State Peace Officers and Firefighters – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	63	0	0	0	0	0	63	\$53,490
25 - 29	416	4	0	0	0	0	420	69,692
30 - 34	738	79	2	0	0	0	819	79,502
35 - 39	793	149	35	1	0	0	978	91,570
40 - 44	812	91	46	13	1	0	963	106,271
45 - 49	721	119	38	10	8	1	897	108,842
50 - 54	512	117	27	12	2	4	674	107,670
55 - 59	266	60	20	3	1	0	350	97,078
60 - 64	75	23	6	3	0	2	109	86,084
65 and over	36	10	1	2	0	0	49	83,034
Total	4,432	652	175	44	12	7	5,322	\$95,317

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

State Peace Officers and Firefighters – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	199	0	0	0	0	0	199	\$40,408
25 - 29	613	7	0	0	0	0	620	43,489
30 - 34	841	64	1	0	0	0	906	42,147
35 - 39	1,051	141	44	3	0	0	1,239	43,521
40 - 44	965	189	65	35	9	0	1,263	46,702
45 - 49	869	199	107	61	32	6	1,274	50,630
50 - 54	722	122	32	12	5	4	897	42,724
55 - 59	483	66	26	6	3	3	587	38,216
60 - 64	228	29	8	2	2	0	269	37,175
65 and over	129	16	5	2	2	0	154	39,154
Total	6,100	833	288	121	53	13	7,408	\$44,194

Appendix C – Participant Data

Transferred and Terminated Participants (continued)

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

California Highway Patrol – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	1	0	0	0	0	0	1	\$88,553
25 - 29	7	1	0	0	0	0	8	82,993
30 - 34	19	3	0	0	0	0	22	85,028
35 - 39	24	4	1	0	0	0	29	94,112
40 - 44	28	7	4	1	0	0	40	110,554
45 - 49	59	16	10	1	2	0	88	115,529
50 - 54	31	6	3	1	0	0	41	109,876
55 - 59	19	4	1	1	0	0	25	88,118
60 - 64	5	0	0	1	0	0	6	84,725
65 and over	1	0	0	0	0	0	1	82,116
Total	194	41	19	5	2	0	261	\$104,365

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

California Highway Patrol – As of June 30, 2020

Attained Age	Years of Service at Valuation Date						Total	Average Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20-24	25+		
15 - 24	1	0	0	0	0	0	1	\$73,967
25 - 29	20	3	0	0	0	0	23	80,403
30 - 34	30	18	4	0	0	0	52	90,683
35 - 39	38	18	11	1	0	0	68	90,988
40 - 44	44	41	21	15	2	0	123	97,117
45 - 49	57	52	35	15	12	0	171	93,223
50 - 54	33	15	4	1	0	1	54	71,185
55 - 59	14	8	1	0	0	1	24	70,538
60 - 64	6	4	3	0	0	0	13	56,239
65 and over	3	0	0	0	0	0	3	33,074
Total	246	159	79	32	14	2	532	\$88,495

Appendix C – Participant Data

Retired Members and Beneficiaries

Number of Retirees and Beneficiaries - by Age and Retirement Type

State Miscellaneous – As of June 30, 2020

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	1	11	1	248	261
30-34	0	3	1	0	0	156	160
35-39	0	25	16	2	1	222	266
40-44	1	91	31	9	3	285	420
45-49	0	259	48	31	4	339	681
50-54	1,387	653	145	62	10	544	2,801
55-59	9,740	1,378	369	163	16	908	12,574
60-64	23,580	2,103	501	306	12	1,590	28,092
65-69	35,849	2,361	496	358	11	2,504	41,579
70-74	35,569	2,005	432	359	7	3,542	41,914
75-79	23,012	1,353	217	278	5	3,970	28,835
80-84	14,712	763	138	226	8	4,103	19,950
85 and Over	15,516	581	85	274	4	8,085	24,545
Total	159,366	11,575	2,480	2,079	82	26,496	202,078

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, 2020

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$184	\$80,590	\$402	\$2,197,557	\$2,278,734
30-34	0	26,767	124	0	0	1,420,682	1,447,573
35-39	0	234,962	4,341	58,239	166	2,168,472	2,466,178
40-44	20,712	1,129,183	39,894	154,365	34,746	3,364,753	4,743,652
45-49	0	3,884,299	200,285	636,075	31,647	4,578,776	9,331,081
50-54	18,602,681	10,213,213	598,158	1,410,384	56,746	8,486,573	39,367,756
55-59	293,885,946	22,792,445	1,475,855	4,071,205	156,883	15,361,213	337,743,547
60-64	850,550,826	36,464,985	2,831,303	8,309,523	150,725	31,098,517	929,405,878
65-69	1,299,031,172	42,138,167	2,344,239	9,513,671	98,713	56,944,842	1,410,070,805
70-74	1,289,680,594	34,892,946	2,132,507	10,826,056	61,241	92,058,233	1,429,651,578
75-79	853,604,544	25,102,267	1,166,860	8,220,188	26,216	112,252,184	1,000,372,259
80-84	541,541,237	13,830,776	830,802	6,708,725	12,299	124,758,666	687,682,504
85 and Over	521,016,732	9,142,348	383,117	7,763,258	3,972	229,899,256	768,208,683
Total	\$5,667,934,444	\$199,852,357	\$12,007,668	\$57,752,279	\$633,755	\$684,589,724	\$6,622,770,227

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 of Retirees and Beneficiaries - by Years Retired and Retirement Type

State Miscellaneous – As of June 30, 2020

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	41,238	1,418	298	325	9	8,872	52,160
5 - 9	36,841	1,877	341	374	7	6,303	45,743
10 - 14	29,917	1,389	288	362	16	4,308	36,280
15 - 19	24,577	1,995	455	299	9	3,052	30,387
20 - 24	12,774	2,279	395	234	12	1,838	17,532
25 - 29	8,313	1,338	368	191	6	1,124	11,340
30 and over	5,706	1,279	335	294	23	999	8,636
Total	159,366	11,575	2,480	2,079	82	26,496	202,078

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, 2020

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$1,545,147,672	\$23,348,802	\$1,429,418	\$8,676,356	\$143,365	\$252,774,496	\$1,831,520,111
5 - 9	1,297,108,921	31,406,135	2,159,307	10,247,736	99,548	170,584,878	1,511,606,524
10 - 14	1,115,376,462	24,209,466	1,862,991	10,676,393	211,163	110,660,802	1,262,997,278
15 - 19	945,677,726	37,950,456	2,917,611	8,492,460	95,378	72,849,521	1,067,983,153
20 - 24	400,315,237	41,835,017	1,948,020	7,129,493	47,714	40,339,874	491,615,355
25 - 29	251,669,598	24,152,012	1,241,027	5,447,544	21,594	22,502,027	305,033,802
30 and over	112,638,828	16,950,468	449,294	7,082,294	14,993	14,878,126	152,014,004
Total	\$5,667,934,444	\$199,852,357	\$12,007,668	\$57,752,279	\$633,755	\$684,589,724	\$6,622,770,227

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 of Retirees and Beneficiaries - by Age and Retirement Type

State Industrial – As of June 30, 2020

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	1	0	0	18	19
30-34	0	1	0	0	0	16	17
35-39	0	8	1	0	0	15	24
40-44	0	22	7	0	0	27	56
45-49	0	55	23	5	0	25	108
50-54	235	133	48	3	1	33	453
55-59	1,384	237	93	13	1	72	1,800
60-64	2,588	295	103	25	1	116	3,128
65-69	3,109	283	120	18	1	163	3,694
70-74	2,572	210	73	16	0	190	3,061
75-79	1,443	127	41	15	2	201	1,829
80-84	727	71	22	14	2	147	983
85 and Over	570	28	16	6	4	254	878
Total	12,628	1,470	548	115	12	1,277	16,050

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, 2020

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$37	\$0	\$0	\$74,506	\$74,543
30-34	0	1,665	0	0	0	70,736	72,400
35-39	0	57,803	398	0	0	74,094	132,295
40-44	0	214,400	4,249	0	0	170,060	388,709
45-49	0	372,294	188,218	67,412	0	322,092	950,016
50-54	1,600,605	1,477,370	331,125	21,994	6,170	242,098	3,679,361
55-59	19,439,812	2,551,707	422,748	171,822	1,203	401,730	22,989,021
60-64	39,744,393	3,067,170	807,016	245,041	472	1,004,419	44,868,511
65-69	45,151,521	2,755,614	810,789	122,173	70	1,422,089	50,262,256
70-74	38,670,168	2,167,477	574,958	120,627	0	2,082,557	43,615,788
75-79	23,185,744	1,237,551	331,929	304,519	21,741	2,249,809	27,331,292
80-84	12,136,946	902,696	161,385	441,525	23,576	2,038,736	15,704,864
85 and Over	9,798,193	453,869	91,628	151,989	106,212	4,163,802	14,765,694
Total	\$189,727,383	\$15,259,615	\$3,724,479	\$1,647,102	\$159,445	\$14,316,727	\$224,834,752

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 of Retirees and Beneficiaries - by Years Retired and Retirement Type

State Industrial – As of June 30, 2020

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	3,962	247	103	33	2	449	4,796
5 - 9	3,369	355	105	21	1	325	4,176
10 - 14	2,536	184	72	17	1	227	3,037
15 - 19	1,628	299	124	18	0	124	2,193
20 - 24	662	220	61	11	1	84	1,039
25 - 29	298	108	47	10	0	42	505
30 and over	173	57	36	5	7	26	304
Total	12,628	1,470	548	115	12	1,277	16,050

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, 2020

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$63,064,964	\$2,720,337	\$643,406	\$337,022	\$6,642	\$5,449,025	\$72,221,395
5 - 9	49,110,638	3,605,125	933,533	279,587	70	3,731,169	57,660,122
10 - 14	38,779,712	1,996,566	597,634	379,594	1,203	2,215,593	43,970,302
15 - 19	24,719,474	3,174,641	762,725	234,987	0	1,416,742	30,308,569
20 - 24	8,092,332	2,181,617	308,373	185,433	84	939,021	11,706,860
25 - 29	3,872,177	999,146	305,669	182,327	0	307,340	5,666,659
30 and over	2,088,086	582,184	173,140	48,151	151,445	257,838	3,300,844
Total	\$189,727,383	\$15,259,615	\$3,724,479	\$1,647,102	\$159,445	\$14,316,727	\$224,834,752

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 of Retirees and Beneficiaries - by Age and Retirement Type

State Safety – As of June 30, 2020

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	0	2	1	46	49
30-34	0	1	19	1	0	15	36
35-39	0	1	56	0	1	31	89
40-44	0	18	105	3	0	31	157
45-49	0	30	183	1	1	44	259
50-54	299	66	285	13	2	65	730
55-59	1,796	108	549	31	6	144	2,634
60-64	3,577	156	766	56	10	288	4,853
65-69	4,729	196	934	74	17	404	6,354
70-74	4,311	157	863	60	14	503	5,908
75-79	2,328	81	458	27	6	545	3,445
80-84	1,158	34	234	27	13	380	1,846
85 and Over	672	22	162	15	13	661	1,545
Total	18,870	870	4,614	310	84	3,157	27,905

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, 2020

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$0	\$26,898	\$28,277	\$345,686	\$400,861
30-34	0	10,932	598,687	36,867	0	169,182	815,668
35-39	0	4,973	1,868,304	0	34,223	364,516	2,272,016
40-44	0	284,596	3,244,695	86,594	0	323,730	3,939,614
45-49	0	402,020	5,955,477	26,314	31,048	575,390	6,990,249
50-54	4,681,125	845,413	9,141,237	380,580	80,425	825,018	15,953,798
55-59	43,879,547	1,385,002	16,683,799	616,162	192,842	2,364,879	65,122,232
60-64	90,313,662	2,276,431	22,813,631	903,560	349,095	5,003,398	121,659,777
65-69	121,755,304	3,011,307	28,834,785	1,444,897	455,913	7,604,502	163,106,708
70-74	109,142,343	2,241,534	25,138,601	1,285,043	449,845	9,160,711	147,418,078
75-79	55,680,560	1,144,314	13,497,526	488,508	222,802	10,224,819	81,258,528
80-84	26,636,756	743,215	7,048,622	525,019	425,961	6,322,461	41,702,035
85 and Over	14,049,155	349,016	4,967,450	317,677	395,879	11,530,481	31,609,658
Total	\$466,138,452	\$12,698,754	\$139,792,815	\$6,138,117	\$2,666,311	\$54,814,773	\$682,249,222

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 of Retirees and Beneficiaries - by Years Retired and Retirement Type

State Safety – As of June 30, 2020

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	5,834	236	900	68	6	1,150	8,194
5 - 9	5,368	238	1,013	58	3	854	7,534
10 - 14	4,023	118	596	70	8	487	5,302
15 - 19	2,291	117	733	61	14	284	3,500
20 - 24	845	93	417	27	9	180	1,571
25 - 29	306	35	280	5	6	117	749
30 and over	203	33	675	21	38	85	1,055
Total	18,870	870	4,614	310	84	3,157	27,905

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, 2020

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$170,439,552	\$4,608,515	\$33,293,763	\$1,652,692	\$205,675	\$21,995,073	\$232,195,270
5 - 9	138,273,297	4,000,818	35,496,553	1,386,166	204,043	14,787,982	194,148,859
10 - 14	97,298,220	1,687,995	18,616,548	1,227,156	392,979	8,400,993	127,623,891
15 - 19	41,620,924	1,164,375	19,963,868	968,468	345,741	4,353,611	68,416,987
20 - 24	10,820,961	770,323	10,649,139	446,557	336,958	2,318,206	25,342,144
25 - 29	3,941,824	198,383	6,251,279	81,926	217,769	1,690,532	12,381,714
30 and over	3,743,674	268,344	15,521,665	375,153	963,146	1,268,375	22,140,357
Total	\$466,138,452	\$12,698,754	\$139,792,815	\$6,138,117	\$2,666,311	\$54,814,773	\$682,249,222

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 of Retirees and Beneficiaries - by Age and Retirement Type

State Peace Officers and Firefighters – As of June 30, 2020

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	6	1	4	59	70
30-34	0	1	22	2	2	25	52
35-39	0	9	147	1	3	30	190
40-44	0	17	381	1	10	56	465
45-49	0	29	727	12	18	59	845
50-54	2,946	69	1,299	27	23	106	4,470
55-59	6,024	107	2,055	47	28	246	8,507
60-64	6,070	104	1,864	44	25	405	8,512
65-69	5,428	79	1,618	49	24	591	7,789
70-74	4,364	80	1,274	49	20	628	6,415
75-79	2,157	30	622	21	11	580	3,421
80-84	1,055	18	235	8	11	435	1,762
85 and Over	559	6	97	9	2	354	1,027
Total	28,603	549	10,347	271	181	3,574	43,525

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, 2020

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$152,755	\$27,205	\$60,055	\$689,252	\$929,267
30-34	0	14,642	701,730	73,727	60,636	417,432	1,268,167
35-39	0	106,746	5,337,532	49,649	84,616	500,652	6,079,194
40-44	0	376,628	14,420,283	33,590	431,328	1,470,990	16,732,819
45-49	0	622,475	28,225,276	531,707	950,295	1,633,839	31,963,593
50-54	197,913,030	2,143,124	58,721,699	1,690,135	1,102,210	3,450,515	265,020,713
55-59	400,843,015	2,644,818	94,843,922	2,292,253	1,267,900	9,649,324	511,541,232
60-64	397,077,046	2,857,516	83,070,454	2,099,717	1,037,934	17,332,107	503,474,773
65-69	339,753,949	2,382,786	75,471,845	2,202,985	924,745	24,758,479	445,494,788
70-74	261,696,152	2,464,566	60,068,616	2,092,873	772,730	27,577,027	354,671,964
75-79	118,093,383	885,132	28,308,150	968,760	444,315	24,726,528	173,426,268
80-84	52,593,725	642,034	10,224,209	313,946	404,269	17,476,616	81,654,799
85 and Over	25,237,400	120,379	3,964,387	285,143	70,092	13,445,765	43,123,166
Total	\$1,793,207,700	\$15,260,846	\$463,510,857	\$12,661,688	\$7,611,126	\$143,128,525	\$2,435,380,743

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 of Retirees and Beneficiaries - by Years Retired and Retirement Type

State Peace Officers and Firefighters – As of June 30, 2020

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	8,055	107	1,774	53	30	1,443	11,462
5 - 9	7,989	129	2,085	51	17	941	11,212
10 - 14	6,749	74	1,323	56	48	552	8,802
15 - 19	3,345	98	2,009	47	33	335	5,867
20 - 24	1,433	92	1,411	35	20	174	3,165
25 - 29	698	33	1,068	21	9	88	1,917
30 and over	334	16	677	8	24	41	1,100
Total	28,603	549	10,347	271	181	3,574	43,525

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, 2020

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$505,709,117	\$4,229,622	\$93,190,052	\$2,837,866	\$1,280,066	\$62,160,006	\$669,406,730
5 - 9	499,113,807	3,385,377	99,746,556	2,469,247	918,549	39,296,265	644,929,801
10 - 14	470,291,495	2,692,324	69,934,238	2,814,054	2,360,369	20,542,048	568,634,528
15 - 19	199,535,720	2,071,577	86,688,982	2,007,061	1,241,737	11,931,183	303,476,261
20 - 24	68,515,905	1,934,489	53,533,171	1,435,730	690,437	5,461,211	131,570,943
25 - 29	35,501,129	621,238	40,307,298	829,562	343,790	2,595,923	80,198,939
30 and over	14,540,526	326,220	20,110,560	268,168	776,177	1,141,890	37,163,542
Total	\$1,793,207,700	\$15,260,846	\$463,510,857	\$12,661,688	\$7,611,126	\$143,128,525	\$2,435,380,743

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 of Retirees and Beneficiaries - by Age and Retirement Type

California Highway Patrol – As of June 30, 2020

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	0	0	0	0	4	15	19
30-34	0	0	3	0	2	3	8
35-39	0	0	19	0	8	7	34
40-44	0	2	40	0	4	6	52
45-49	0	2	84	0	14	8	108
50-54	562	2	188	6	21	15	794
55-59	934	3	373	2	20	41	1,373
60-64	956	8	446	7	12	78	1,507
65-69	578	4	398	6	7	122	1,115
70-74	499	5	551	8	15	231	1,309
75-79	512	4	692	5	13	310	1,536
80-84	246	4	405	4	14	278	951
85 and Over	158	4	220	3	9	319	713
Total	4,445	38	3,419	41	143	1,433	9,519

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, 2020

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 30	\$0	\$0	\$0	\$0	\$190,728	\$273,015	\$463,743
30-34	0	0	171,040	0	112,035	47,328	330,403
35-39	0	0	1,088,693	0	627,497	89,189	1,805,379
40-44	0	15,730	2,120,411	0	357,293	83,134	2,576,568
45-49	0	44,290	4,520,064	0	997,051	126,184	5,687,589
50-54	57,520,660	10,186	14,178,275	453,351	1,519,883	810,850	74,493,206
55-59	96,422,153	69,739	27,550,722	188,786	1,308,804	2,603,524	128,143,728
60-64	97,410,481	283,904	32,641,401	586,053	739,581	4,463,404	136,124,824
65-69	52,210,460	51,995	28,506,656	476,937	275,304	5,410,482	86,931,834
70-74	35,808,197	372,989	38,664,254	519,921	412,086	9,619,562	85,397,010
75-79	30,146,421	184,523	38,091,518	260,564	375,413	11,917,707	80,976,146
80-84	11,977,146	64,673	18,854,638	152,314	426,792	9,094,749	40,570,313
85 and Over	7,113,552	125,521	9,746,269	72,717	254,509	9,441,794	26,754,363
Total	\$388,609,070	\$1,223,552	\$216,133,941	\$2,710,644	\$7,596,976	\$53,980,922	\$670,255,105

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 of Retirees and Beneficiaries - by Years Retired and Retirement Type

California Highway Patrol – As of June 30, 2020

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	1,178	2	308	4	38	475	2,005
5 - 9	927	5	295	3	11	325	1,566
10 - 14	1,005	2	398	6	27	216	1,654
15 - 19	533	5	588	9	6	157	1,298
20 - 24	440	10	473	7	6	110	1,046
25 - 29	204	4	482	3	5	62	760
30 and over	158	10	875	9	50	88	1,190
Total	4,445	38	3,419	41	143	1,433	9,519

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, 2020

Years Retired	Service Retirement	Non-Industrial Disability	Industrial Disability	Non-Industrial Death	Industrial Death	Death After Retirement	Total
Under 5 Years	\$123,119,515	\$196,642	\$28,350,182	\$431,786	\$2,872,996	\$20,055,428	\$175,026,549
5 - 9	90,273,820	60,964	26,014,883	214,646	721,610	14,530,820	131,816,742
10 - 14	96,885,761	262,569	36,562,830	416,091	1,827,644	7,900,668	143,855,564
15 - 19	37,034,898	242,444	47,898,267	804,680	269,451	5,079,150	91,328,890
20 - 24	25,035,403	225,099	27,597,348	397,073	278,966	2,944,283	56,478,171
25 - 29	9,650,132	45,859	22,290,440	166,051	207,169	1,500,467	33,860,119
30 and over	6,609,542	189,975	27,419,991	280,317	1,419,141	1,970,106	37,889,071
Total	\$388,609,070	\$1,223,552	\$216,133,941	\$2,710,644	\$7,596,976	\$53,980,922	\$670,255,105

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, 2020

State Miscellaneous

Year Retired	Total Retirement	Total Benefits	Average Benefits
2020 ¹	3,898	\$126,139,643	\$32,360
2019	10,881	392,585,288	36,080
2018	10,809	380,499,268	35,202
2017	10,227	364,058,474	35,598
2016	9,830	332,600,000	33,835
2015	9,768	328,281,246	33,608
2014	9,733	322,705,943	33,156
2013	8,459	263,939,951	31,202
2012	9,132	302,951,603	33,175
2011	9,036	296,874,132	32,855
2010	9,630	349,372,617	36,280
2009	8,310	314,437,874	37,838
2008	7,082	253,663,830	35,818
2007	6,692	226,507,326	33,847
2006	6,336	198,365,183	31,308
2005	7,056	239,125,426	33,890
2004	7,926	285,096,284	35,970
2003	5,552	180,649,371	32,538
2002	5,335	179,242,264	33,597
2001	5,297	197,355,463	37,258
2000	6,558	245,819,222	37,484
1999	2,715	63,594,989	23,424
1998	3,599	95,278,548	26,474
1997	3,427	90,553,819	26,424
1996	3,137	85,786,064	27,347
1995	2,681	75,643,113	28,215
1994	2,527	67,603,831	26,753
1993	1,892	40,349,134	21,326
1992	2,648	74,675,095	28,201
1991 and Earlier	11,905	249,015,227	20,915
Total	202,078	\$6,622,770,228	\$32,773

State Industrial

Year Retired	Total Retirement	Total Benefits	Average Benefits
2020 ¹	356	\$5,366,549	\$15,075
2019	1,044	16,440,911	15,748
2018	952	14,536,898	15,270
2017	908	13,436,724	14,798
2016	932	13,651,224	14,647
2015	916	12,844,681	14,023
2014	861	11,282,898	13,104
2013	764	10,020,233	13,115
2012	880	13,046,159	14,825
2011	799	11,101,768	13,895
2010	909	13,731,876	15,107
2009	764	11,072,522	14,493
2008	597	8,470,090	14,188
2007	488	6,924,487	14,190
2006	518	6,750,087	13,031
2005	506	7,644,704	15,108
2004	595	8,679,915	14,588
2003	406	5,000,057	12,315
2002	394	5,164,241	13,107
2001	362	5,301,221	14,644
2000	452	6,783,611	15,008
1999	161	1,708,177	10,610
1998	233	2,269,754	9,741
1997	194	2,058,242	10,609
1996	154	1,533,229	9,956
1995	150	1,584,001	10,560
1994	121	1,109,135	9,166
1993	101	934,637	9,254
1992	115	1,620,537	14,092
1991 and Earlier	418	4,766,185	11,402
Total	16,050	\$224,834,752	\$14,008

¹ The numbers for 2020 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, 2020 (continued)

State Safety

Year Retired	Total Retirement	Total Benefits	Average Benefits
2020 ¹	682	\$20,561,000	\$30,148
2019	1,715	49,267,232	28,727
2018	1,720	49,167,492	28,586
2017	1,571	43,521,923	27,703
2016	1,585	44,053,509	27,794
2015	1,541	40,905,004	26,544
2014	1,557	38,922,883	24,999
2013	1,433	37,118,012	25,902
2012	1,554	39,206,427	25,229
2011	1,441	37,849,814	26,266
2010	1,550	45,408,443	29,296
2009	1,296	35,009,858	27,014
2008	1,007	24,558,803	24,388
2007	935	20,382,091	21,799
2006	868	16,393,677	18,887
2005	903	17,978,248	19,909
2004	914	18,446,521	20,182
2003	669	12,915,370	19,305
2002	630	11,860,814	18,827
2001	597	11,531,703	19,316
2000	654	12,738,617	19,478
1999	324	5,257,477	16,227
1998	337	4,883,927	14,492
1997	280	4,616,575	16,488
1996	226	3,590,966	15,889
1995	188	2,706,519	14,396
1994	194	3,028,660	15,612
1993	118	2,126,967	18,025
1992	171	3,286,040	19,217
1991 and Earlier	1,245	24,954,653	20,044
Total	27,905	\$682,249,225	\$24,449

State Peace Officers and Firefighters

Year Retired	Total Retirement	Total Benefits	Average Benefits
2020 ¹	1,057	\$65,655,949	\$62,115
2019	2,219	126,122,982	56,838
2018	2,324	135,905,342	58,479
2017	2,178	125,203,677	57,486
2016	2,099	117,444,749	55,953
2015	2,306	136,107,346	59,023
2014	2,254	126,338,289	56,051
2013	2,149	118,068,127	54,941
2012	2,448	144,802,113	59,151
2011	2,168	124,481,697	57,418
2010	2,343	145,498,798	62,099
2009	2,096	140,165,847	66,873
2008	1,498	98,243,462	65,583
2007	1,676	111,576,602	66,573
2006	1,886	121,308,847	64,321
2005	1,175	65,234,377	55,519
2004	1,336	69,745,668	52,205
2003	1,095	55,006,645	50,234
2002	1,208	62,768,411	51,961
2001	1,081	54,365,958	50,292
2000	1,378	75,583,281	54,850
1999	534	18,788,272	35,184
1998	613	22,237,440	36,276
1997	596	23,712,556	39,786
1996	537	23,051,366	42,926
1995	443	19,019,443	42,933
1994	417	16,198,499	38,845
1993	388	15,670,057	40,387
1992	437	18,651,164	42,680
1991 and Earlier	1,586	58,423,780	36,837
Total	43,525	\$2,435,380,744	\$55,954

¹ The numbers for 2020 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, 2020 (continued)

California Highway Patrol

Year Retired	Total Retirement	Total Benefits	Average Benefits
2020 ¹	128	\$9,374,449	\$73,238
2019	438	38,880,952	88,769
2018	391	31,686,605	81,040
2017	400	37,694,552	94,236
2016	352	29,137,952	82,778
2015	393	34,972,591	88,989
2014	294	25,014,130	85,082
2013	303	24,390,169	80,496
2012	367	31,762,521	86,546
2011	359	32,141,461	89,531
2010	368	33,769,889	91,766
2009	347	32,625,101	94,020
2008	265	23,212,671	87,595
2007	269	21,366,829	79,431
2006	298	22,986,546	77,136
2005	340	27,851,032	81,915
2004	256	18,871,950	73,719
2003	188	11,741,571	62,455
2002	269	18,387,064	68,353
2001	280	20,547,701	73,385
2000	395	26,767,581	67,766
1999	143	7,101,597	49,662
1998	177	8,868,763	50,106
1997	210	10,718,773	51,042
1996	229	12,961,697	56,601
1995	185	9,382,718	50,717
1994	163	7,168,599	43,979
1993	186	8,583,014	46,145
1992	142	5,658,693	39,850
1991 and Earlier	1,384	46,627,934	33,691
Total	9,519	\$670,255,105	\$70,412

¹ The numbers for 2020 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 – Employer Rate for Fiscal Years 2020-21 and 2021-22 Adjusted for Supplanting Payments

Senate Bill 90 (SB 90), approved by the Governor in June 2019, established Government Code section 20825.1 and directed the State to contribute an additional \$2.5 billion to the State plans. The contribution was made July 29, 2019.

According to the original statute and direction from the Department of Finance, this payment was to be split between an advance payment for fiscal year 2019-20 and an additional paydown of Unfunded Accrued Liability (UAL). The advance payment portion was an acceleration of part of the UAL payment required for fiscal year 2019-20 with a corresponding reduction in the required employer rate for that fiscal year. The additional UAL paydown portion was intended to supplement the required payment, thereby reducing UAL more quickly and generating long-term savings.

Due to budget challenges caused by the COVID-19 pandemic, in order to capture all contribution savings over the next two fiscal years, in June 2020 the Department of Finance revised the application of the portion originally intended to be an additional UAL payment to instead be supplanting payments for fiscal years 2020-21 and 2021-22. The revised allocation of the July 2019 supplemental payment of \$2.5 billion among plans and fiscal years is as follows:

Plan	Fiscal Year 2019-20	Fiscal Year 2020-21	Fiscal Year 2021-22	Total Supplanting Payment
State Miscellaneous	\$32,384,208	\$339,222,800	\$476,449,992	\$848,057,000
State Industrial	3,166,795	33,172,000	46,591,205	82,930,000
State Safety	7,042,595	73,770,800	103,613,605	184,427,000
State Peace Officers & Firefighters	52,872,296	553,834,400	777,879,304	1,384,586,000
California Highway Patrol	0	0	0	0
Total	\$95,465,894	\$1,000,000,000	\$1,404,534,106	\$2,500,000,000

Appendix D – Employer Rate for Fiscal Years 2020-21 and 2021-22 Adjusted for Supplanting Payments

The tables below show the total employer contribution rate for fiscal years 2020-21 and 2021-22 reflecting both the supplanting payment and the additional statutory contribution under Government Code section 20683.2. For more information on the latter, see “Additional Contributions per Government Code section 20683.2” in the Highlights and Executive Summary section.

Total Employer Contribution for Fiscal Year 2020-21

Plan	Preliminary Actuarially Required Employer Contribution for 2020-21	Reduction due to Supplanting Payment per GC 20825.1	Revised Actuarially Required Employer Contribution for 2020-21	Additional Statutory Contribution per GC 20683.2	Total Employer Contribution for 2020-21
State Miscellaneous	31.76%	(2.49%)	29.27%	0.10%	29.37%
State Industrial	21.62%	(4.31%)	17.31%	0.88%	18.19%
State Safety	21.66%	(2.89%)	18.77%	1.18%	19.95%
State Peace Officers & Firefighters	48.93%	(14.48%)	34.45%	1.65%	36.10%
California Highway Patrol	59.76%	-	59.76%	1.32%	61.08%

Total Employer Contribution for Fiscal Year 2021-22

Plan	Preliminary Actuarially Required Employer Contribution for 2021-22 ¹	Reduction due to Supplanting Payment per GC 20825.1 ¹	Actuarially Required Employer Contribution for 2021-22	Additional Statutory Contribution per GC 20683.2	Total Employer Contribution for 2021-22
State Miscellaneous	32.45%	(3.33%)	29.12%	0.10%	29.22%
State Industrial	22.22%	(5.76%)	16.46%	0.88%	17.34%
State Safety	22.26%	(3.97%)	18.29%	1.18%	19.47%
State Peace Officers & Firefighters	50.41%	(19.22%)	31.19%	1.65%	32.84%
California Highway Patrol	61.46%	-	61.46%	1.32%	62.78%

¹ To illustrate the impact of State contribution under Section 20825.1.

Appendix E – Glossary of Actuarial Terms

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

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

Actuarial Methods: Procedures employed by actuaries to achieve certain funding goals of a pension plan. Actuarial methods include cost method, amortization policy and determination of asset value on which funding requirements are based.

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

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

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

Classic Member (under PEPPRA): A classic member is a member who joined CalPERS prior to January 1, 2013 and who is not defined as a new member under PEPPRA. (See definition of new member below.)

Discount Rate: The assumed long-term rate of return on plan assets. This is the rate at which projected future cash flows are discounted to the valuation date to determine Accrued Liability. This assumption is called "investment return" in earlier CalPERS reports or "actuarial interest rate" in Section 20014 of the California Public Employees' Retirement Law (PERL).

Entry Age: The earliest age at which a plan member begins to accrue benefits under a defined benefit pension plan or risk pool. In most cases, this is the same as the date of hire.

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. The method as employed in this valuation yields a funding rate expressed as a level percentage of payroll.

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

Fresh Start: A Fresh Start is when multiple Amortization Bases are collapsed to one base and amortized together 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 liabilities and the employer need only contribute the Normal Cost, and a ratio less than 100% means liabilities are greater than assets 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. GASB 68 replaced GASB 27 effective the first fiscal year beginning after June 15, 2014.

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 annual cost of service accrual for a given fiscal year for active employees. The normal cost as a percentage of payroll can be viewed as the long-term contribution rate.

Pension Actuary: A business professional who satisfies the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States with regard to 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): When a plan or pool's Market Value of Assets is less than its Accrued Liability, the difference is the plan or pool's Unfunded Accrued Liability. When an Unfunded Accrued Liability exists, the employer will have to pay contributions exceeding the Normal Cost.

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