Judges' Retirement System II
Actuarial Valuation

As of June 30, 2021

CalPERS

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Actuarial Certification

April 2022

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 Judges' Retirement System II. This valuation is based on the member and financial data as of June 30, 2021 provided by the various CalPERS databases and the benefits under this plan 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 the standards of practice prescribed by the Actuarial Standards Board. The assumptions and methods are internally consistent and reasonable for this plan, as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employee's Retirement Law.

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

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Highlights and Executive Summary

Highlights and Executive Summary

Introduction

This is the actuarial valuation report as of June 30, 2021 for the Judges' Retirement System II. The actuarial valuation is used to set the fiscal year 2022-23 required employer contribution rates. The System began on November 9, 1994 to provide retirement and ancillary benefits to judges elected or appointed on or after that date. The employer contribution rate from the inception of the plan until June 30, 1996 was set by State statute. Subsequently, the employer contribution rate was determined through an actuarial valuation process.

On January 1, 2013, the Public Employees' Pension Reform Act of 2013 (PEPRA) took effect. For more information on PEPRA, please refer to the CalPERS website.

Purpose of Report

This actuarial valuation of the Judges' Retirement System II of the State of California was performed by CalPERS team actuaries as of June 30, 2021 in order to:

- Set forth the assets, accrued liabilities, and funded status of this plan as of June 30, 2021.
- Establish the Required Employer Contribution for the system for the fiscal year July 1, 2022 through June 30, 2023.
- Provide actuarial information as of June 30, 2021, to the CalPERS Board of Administration 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 No. 68 for an Agent Employer Defined Benefit Pension Plan. A separate accounting valuation report for such purposes is available from CalPERS. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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 "Scenario Test," projecting future results under different investment income returns.
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 5.0% and 7.0%, and inflation rate of 1.3% and 3.3%.
- 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 2021.
- Plan maturity measures indicating how sensitive a plan may be to the risks noted above.

Highlights and Executive Summary

Required Employer Contribution

This actuarial valuation sets the employer contribution rate for the fiscal year July 1, 2022 through June 30, 2023. The Required Employer Contribution is shown as a percentage of projected payroll and as an estimated dollar amount for current and previous valuation.

Required Employer Contribution

	Fiscal Year 2021-22	Fiscal Year 2022-23
1) Contribution in Projected Dollars		
a) Total Normal Cost	$123,258,972	$122,202,677
b) Employee Contribution	35,693,899	36,048,863
c) Employer Normal Cost [(1a) – (1b)]	87,565,073	86,153,814
d) Unfunded Accrued Liability Payment	2,373,291	0
e) Required Employer Contribution [(1c) + (1d)]	**$89,938,364**	**$86,153,814**
Projected Annual Payroll for Contribution Year	$371,038,447	$370,873,071
2) Contribution as a Percentage of Payroll		
a) Total Normal Cost	33.22%	32.95%
b) Employee Contribution[1]	9.62%	9.72%
c) Employer Normal Cost [(2a) – (2b)]	23.60%	23.23%
d) Unfunded Accrued Liability Payment	0.64%	0.00%
e) Required Employer Contribution Rate [(2c) + (2d)][2]	**24.24%**	**23.23%**

(1) This is the expected average contribution rate between Classic and PEPRA members.

(2) Required Employer Contribution Rate reflects minimum PEPRA law requirement of paying the Employer Normal Cost

Plan's Funded Status

The table below summarizes the funded status of the Judges' Retirement System II as of June 30, 2021.

	June 30, 2020	June 30, 2021
1) Present Value of Projected Benefits	$2,681,671,589	$2,902,440,109
2) Entry Age Normal Accrued Liability	1,913,087,688	1,964,843,572
3) Market Value of Assets (MVA)	1,885,403,709	2,403,366,317
4) Unfunded Accrued Liability [(2) - (3)]	**$27,683,978**	**($438,522,745)**
5) Funded Ratio [(3) / (2)]	**98.6%**	**122.3%**

This measure of funded status is an assessment of the need for future employer contributions. The Unfunded Accrued Liability, if positive, 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. This measure of funded status is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligations.

Highlights and Executive Summary

Changes Since the Prior Year's Valuation

Actuarial Methods & Assumptions

The actuarial assumptions were changed in the June 30, 2021 actuarial valuation. An experience study was completed in 2021. Due to the experience study, the retirement, pre-retirement and post-retirement mortality rates were changed to reflect future anticipated experienced. In addition, the discount rate was lowered from 6.5% to 6.0% due to the changes in Capital Market Assumptions (CMAs) and asset allocation adopted by the board in March 2022. A new assumption was added to this report, Monetary Credit Balance Interest Crediting Rate. Since the Monetary Credit Balance cannot be credited with a rate less than 0%, a Monetary Credit Balance Interest Crediting Rate assumption was established in this valuation set equal to the discount rate plus 2.75%.

A complete description of the actuarial methods and assumptions used in the June 30, 2021 valuation may be found in Appendix A of this report.

Plan Provisions

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

Subsequent Events

In the case of Robert M. Mallano, et al. v. John Chiang, Controller of the State of California (SCO), the Judges' Retirement System (JRS), and the Judges' Retirement System II (JRS II), the judge issued a Statement of Decision which orders judicial salary increases to be given to the judges for the FY 2008-09, FY 2009-10, FY 2010-11, FY 2013-14, FY 2014-15, and FY 2015-16 plus 10% interest per year for each year that the judicial salaries were not increased. Based on the increased judicial salaries, adjustments to the defined benefit and lump sum payments have been calculated and paid. Any remaining payments will be reflected in future valuations as they are claimed and paid.

Assets

Assets

Reconciliation of the Market Value of Assets

The following displays the change in the Market Value of Assets from the prior valuation date to June 30, 2021.

	Market Value
Beginning Balance as of June 30, 2020	$1,885,403,709
Prior Period Adjustment	0
Adjusted Beginning Balance as of June 30, 2020	1,885,403,709
Member Contributions	34,093,711
Employer Contributions	84,147,044
Benefit Payments	(61,612,762)
Refunds	(380,816)
Administration Costs	(1,762,370)
Investment Earnings[1]	463,477,756
Ending Balance as of June 30, 2021	**$2,403,366,317**

(1) Net Fund return for the FY 2020-21 is 24.1%.

Asset Allocation

Shown below is the Market Value of Assets, by asset type, as of the valuation date.

Investment Type	Value as of June 30, 2021
Cash	$724,279
Investments at Market Value	
Short-Term Investments	1,863,327
Global Equity Securities	1,530,490,335
Global Debt Securities	864,105,628
Real Assets	0
Private Equity	0
Capital Assets, Net & Other Assets	0
Accounts Receivable	$7,278,519
Total Liabilities	$(1,095,771)
Fund Balance at Market Value on June 30, 2021	**$2,403,366,317**

Liabilities and Employer Contributions

Liabilities and Required Employer Contributions

Comparison of Current and Prior Year Results

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

	June 30, 2020	June 30, 2021
1) Members Included in the Valuation		
a) Active Members	1,627	1,625
b) Inactive Members	2	2
c) Receiving Payments	303	374
d) Total	**1,932**	**2,001**
2) Payroll		
a) Covered Annual Payroll	$351,443,287	$350,945,010
b) Projected Covered Annual Payroll	$371,038,447	$370,873,071
c) Average Covered Annual Payroll [(2a) / (1a)]	216,007	215,966
3) Age and Service for Actives		
a) Average Attained Age for Actives	59.33	59.30
b) Average Service for Actives	10.25	10.23
4) Present Value of Benefits at Valuation Date		
a) Active Members	$2,236,919,981	$2,327,223,743
b) Inactive Members	923,195	189,789
c) Receiving Benefits	443,098,893	574,818,658
d) Total	**$2,681,671,589**	**$2,902,440,109**
5) Present Value of Future Employee Contributions	**$242,301,468**	**$291,449,585**
6) Present Value of Future Employer Normal Cost	**$526,282,433**	**$646,146,952**
7) Accrued Actuarial Liability		
a) Active Members	$1,468,336,080	$1,389,627,206
b) Inactive Members	923,195	189,789
c) Receiving Benefits	$443,098,893	$574,818,658
d) Total	**$1,913,087,688**	**$1,964,843,572**
8) Assets		
a) Market Value of Assets	1,885,403,709	2,403,366,317
b) Unfunded Accrued Actuarial Liability [(7d) – (8a)]	27,683,978	(438,522,745)
c) Funded Ratio [(8a) / (7d)]	98.6%	122.3%

Liabilities and Required Employer Contributions

(Gain)/Loss Analysis

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

1) Total (Gain)/Loss for the Year	
a) Unfunded Accrued Liability (UAL) as of 6/30/2020	$27,683,978
b) Expected Payment on UAL During FY 2020-21	2,419,423
c) Interest through 6/30/2021 [.065 X 1a - $(1.0650)^{1/2} - 1)$ X 1b]	1,722,066
d) Expected UAL Before All Other Changes [1a – 1b + 1c]	26,986,621
e) Change Due to Revised Actuarial Methods	0
f) Change Due to New Actuarial Assumptions	(63,261,190)
g) Expected UAL After All Changes [1d + 1e + 1f]	(36,274,569)
h) Actual Unfunded Accrued Liability as of 6/30/2021	(438,522,745)
i) Total (Gain)/Loss for FY 2020-21 [1h – 1g]	**(402,248,176)**
2) Contribution (Gain)/Loss for the Year	
a) Expected Contribution (Employer and Employee)	$122,379,494
b) Interest on Expected Contributions [$((1.0650)^{1/2} - 1)$ x 2a]	3,914,721
c) Actual Contribution	118,240,755
d) Interest on Actual Contributions [$((1.0650)^{1/2} - 1)$ x 2c]	3,782,329
e) Contribution (Gain)/Loss [(2a + 2b) – (2c + 2d)]	**$4,271,131**
3) Asset (Gain)/Loss for the Year	
a) Market Value of Assets as of 6/30/2020	$1,885,403,709
b) Contributions Received	118,240,755
c) Benefits, Refunds Paid and Administrative Costs	(61,993,579)
d) Transfers, SCP, and Miscellaneous Adjustments	45
e) Expected Interest [0.0650 x 3a + $((1.0650)^{1/2} - 1)$ x (3b + 3c + 3d)]	124,350,498
f) Expected Assets as of 6/30/2021 [3a + 3b + 3c + 3d + 3e]	2,066,001,429
g) Actual Market Value of Assets as of 6/30/2021	2,403,366,317
h) Asset (Gain)/Loss [3f - 3g]	**($337,364,888)**
4) Liability (Gain)/Loss for the Year	
a) Total (Gain)/Loss (1i)	($402,248,176)
b) Contribution (Gain)/Loss (2e)	4,271,131
c) Asset (Gain)/Loss (3h)	(337,364,888)
d) Liability (Gain)/Loss [4a – 4b – 4c]	**($69,154,419)**

Liabilities and Required Employer Contributions

Schedule of Amortization Bases

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 of June 30, 2021.
- The required employer contributions determined by the valuation are for the fiscal year beginning one year after the valuation date: fiscal year 2022-23.

This one-year lag is necessary due to the amount of time needed to extract and test the membership and financial data, and the need to provide public agencies with their required employer contribution well 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 one year by subtracting the expected payment on the UAL for the prior fiscal year and adjusting for interest. The expected payment on the UAL for the prior fiscal year is equal to the Expected Employer Contribution for that fiscal year minus the Expected Normal Cost for the year. The Employer Contribution for the prior fiscal year is determined by the actuarial valuation one year ago. The Normal Cost Rate for the prior fiscal year is assumed to be the same as the rate determined by the current valuation. All 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.

The schedule below shows the development of the payment on the Amortization Bases. Please refer to Appendix A for an explanation of how amortization periods are determined. For this valuation, the individual amortization bases were combined into a single amount and amortized over twenty years.

Reason for Base	Date Established	Amortization Period	Balance on 6/30/2021	Expected Payment on UAL 2021-22	Balance on 6/30/2022	Scheduled Payment Fiscal Year 2022-2023	% of Projected Payroll
Fresh Start	6/30/2021	N/A	($438,522,745)	$3,283,020	($468,214,185)	$0	0.00%
Total			**($438,522,745)**	**$3,283,020**	**($468,214,185)**	**$0**	**0.00%**

The Judges' Retirement System II funded status increased from 98.6% as of June 30, 2020 to 122.3% as of June 30, 2021. The funded status increase was driven by the asset gain.

Reconciliation of Required Employer Contributions

This table illustrates how the Required Employer Contribution is calculated and, more importantly, why the Required Employer Contribution differs this year from the previous year.

	Percentage of Projected Payroll	Estimated $ Based on Projected Payroll
1) FY 2021-22 Required Employer Contribution (from prior year annual report)	24.24%	$89,938,364
2) Effect of Changes Since the Prior Annual Valuation		
a) Effect of Change in Payroll	0.02%	($54,938)
b) Effect of (Gain)/Loss	(3.62%)	($13,344,581)
c) Effect of Plan Changes	0.00%	$0
d) Effect of Method Changes	0.00%	$0
e) Effect of Assumption Changes	(1.85%)	($6,860,754)
f) Application of PEPRA Normal Cost Minimum[1]	4.44%	$16,475,723
g) Net Effect of Changes [Sum of a – f]	(1.01%)	($3,784,550)
3) FY 2022-23 Required Employer Contribution	**23.23%**	**$86,153,814**

[1]Due to PEPRA, the employer contribution rate cannot be less than the normal cost.

Liabilities and Required Employer Contributions

Required Employer Contribution Rate History

This table provides the 10-year history of Required Employer Contributions for the Judges' Retirement System II.

Fiscal Year	Required Employer Contribution Rate
2022-23	23.23%
2021-22	24.24%
2020-21	24.400%
2019-20	24.964%
2018-19	24.660%
2017-18	24.409%
2016-17	23.185%
2015-16	23.370%
2014-15	24.615%
2013-14	22.687%

Funding History

The Funding History below shows the recent history of the Actuarial Accrued Liability, the Market Value of Assets, Funded Ratio and the Annual Covered Payroll.

Valuation Date	Entry Age Normal Accrued Liability	Market Value of Assets (MVA)	Funded Ratio (MVA)	Projected Annual Covered Payroll
6/30/21	$1,964,843,572	$2,403,366,317	122.3%	$370,873,071
6/30/20	1,913,087,688	1,885,403,709	98.6%	371,038,447
6/30/19	1,725,877,206	1,715,056,468	99.4%	362,399,174
6/30/18	1,554,347,674	1,531,542,896	98.5%	327,594,817
6/30/17	1,365,862,092	1,356,099,297	99.3%	307,629,600
6/30/16	1,272,750,990	1,172,952,527	92.2%	299,830,339
6/30/15	1,081,824,423	1,084,141,932	100.2%	289,305,463
6/30/14	950,642,328	1,013,839,948	106.6%	266,907,427
6/30/13	837,197,578	795,966,486	95.1%	256,724,949
6/30/12	702,732,271	655,383,900	93.3%	244,788,249

Normal Cost by Benefit Group

The table below displays the Total Normal Cost broken out by benefit group for Fiscal Year 2022-23. The Total Normal Cost is the annual cost of service accrual for the fiscal year for active employees and can be viewed as the long-term contribution rate for the benefits contracted. Generally, the normal cost for a benefit group subject to more generous benefit provisions will exceed the normal cost for a group with less generous benefits. However, based on the characteristics of the members (particularly when the number of actives is small), this may not be the case. Future measurements of the Total Normal Cost for each group may differ significantly from the current values due to such factors as: changes in the demographics of the group, changes in economic and demographic assumptions, changes in plan benefits or applicable law.

Rate Plan Identifier	Benefit Group Name	Total Normal Cost FY 2022-23	Number of Actives	Payroll on 6/30/2021
10000	JRS II	32.82%	1,283	$277,162,491
29000	JRS II PEPRA	33.40%	342	$73,782,519
Plan Total		**32.95%**	**1,625**	**$350,945,010**

Liabilities and Required Employer Contributions

PEPRA Member Contribution Rates

The California Public Employees' Pension Reform Act of 2013 ("PEPRA") established new benefit formulas, final compensation period, and contribution requirements for "new" employees (generally those first hired into a CalPERS-covered position on or after January 1, 2013). In accordance with Government Code Section 7522.30(b), "new members … shall have an initial contribution rate of at least 50% of the normal cost rate." The normal cost for the plan is dependent on the benefit levels, actuarial assumptions, and demographics of the plan, particularly members' entry age into the plan. Should the total normal cost of the plan change by one percent or more from the base total normal cost established for the plan, the new member rate shall be 50% of the new normal cost rounded to the nearest quarter percent.

The table below shows the determination of the PEPRA member contribution rates effective July 1, 2022, based on 50% of the Total Normal Cost for each respective plan as of the June 30, 2021 valuation.

		Basis for Current Rate		Rates Effective July 1, 2022			
Rate Plan Identifier	Benefit Group Name	Total Normal Cost	Member Rate	Total Normal Cost	Change	Change Needed	Member Rate
29000	JRS II PEPRA	32.10%	16.00%	32.43%	0.33%	No	16.00%

For purposes of setting member rates, it is preferable to determine total normal cost using a large active population so that the rate remains relatively stable. While each CalPERS non-pooled plan has a sufficiently large active population for this purpose, the PEPRA active population by itself may not be sufficiently large. The total PEPRA normal cost will be determined based on the plan's PEPRA membership only if the number of members covered under the PEPRA formula meets either:

- 50% of the active population, or
- 25% of the active population and 100 or more PEPRA members

Until one of these conditions is met, the plan's total PEPRA normal cost will be determined using the entire active plan population (both PEPRA and Classic) based on the PEPRA benefit provisions. For this reason, the PEPRA member contribution rate determined in the table above may not equal 50% of the total normal cost of the PEPRA group shown on the "Total Normal Cost by Group" page.

Risk Analysis

Risk Analysis

Future Investment Return Scenarios

Analysis was performed to determine the effects of various future investment returns on required employer contributions. The projections below provide a range of results based on five investment return scenarios assumed to occur during the next four fiscal years (2021-22, 2022-23, 2023-24 and 2024-25). The projections also assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur.

For fiscal years 2021-22, 2022-23, 2023-24 and 2024-25, each scenario assumes an alternate fixed annual return. The fixed return assumptions for the five scenarios are 2.3%, 4.5%, 6.0%, 7.7% and 10.2%.

These alternate investment returns were chosen based on stochastic analysis of future investment returns over the 20-year period ending June 30, 2041. Using the expected returns and volatilities of the asset classes in which the funds are invested, five thousand stochastic outcomes were generated for this period based on the most recently completed Asset Liability Management process. We then selected annual returns that approximate the 5th, 25th, 50th, 75th, and 95th percentiles for these outcomes.

Required contributions outside of this range are also possible. In particular, whereas it is unlikely that investment returns will average less than 2.3% or greater than 10.2% over a four-year period, the likelihood of a single investment return less than 2.3% or greater than 10.2% in any given year is much greater.

Assumed Annual Return from 2021-22 through 2024-25	Projected Employer Contribution Rates			
	2023-24	2024-25	2025-26	2026-27
2.3% (5th Percentile)	23.0%	22.9%	22.7%	22.5%
4.5% (25th Percentile)	23.0%	22.9%	22.7%	22.5%
6.0%	23.0%	22.9%	22.7%	22.5%
7.7% (75th Percentile)	23.0%	22.9%	22.7%	22.5%
10.2% (95th Percentile)	23.0%	22.9%	22.7%	22.5%

Risk Analysis

Discount Rate Sensitivity

The discount rate assumption is calculated as the sum of the assumed real rate of return and the assumed annual price inflation, currently 3.70% and 2.30%, respectively. Changing either the price inflation assumption or the real rate of return assumption will change the discount rate. The sensitivity of the valuation results to the discount rate assumption depends on which component of the discount rate is changed. Shown below are various valuation results as of June 30, 2021 assuming alternate discount rates by changing the two components independently. Results are shown using the current discount rate of 6.0% as well as alternate discount rates of 5.0% and 7.0%. The rates of 5.0% and 7.0% were selected since they illustrate the impact of a 1.0% increase or decrease to the 6.0% assumption. This type of analysis gives the reader a sense of the long-term risk to the Funded Status and to the FY 2022-23 employer contribution rates.

Sensitivity to the Real Rate of Return Assumption

As of June 30, 2021	1% Lower Real Return Rate	Current Real Return Rate	1% Higher Real Return Rate
Discount Rate	**5.0%**	**6.0%**	**7.0%**
Inflation	2.3%	2.3%	2.3%
Real Rate of Return	**2.7%**	**3.7%**	**4.7%**
a) Total Normal Cost	39.31%	32.95%	27.98%
b) Accrued Liability	$2,196,703,532	$1,964,843,572	$1,772,234,350
c) Market Value of Assets	2,403,366,317	2,403,366,317	2,403,366,317
d) Unfunded Liability (Surplus) [(b)-(c)]	(206,662,785)	(438,522,745)	(631,131,967)
e) Funded Status	109.4%	122.3%	135.6%

Sensitivity to the Price Inflation Assumption

As of June 30, 2021	1% Lower Inflation Rate	Current Inflation Rate	1% Higher Inflation Rate
Discount Rate	**5.0%**	**6.0%**	**7.0%**
Inflation	**1.3%**	**2.3%**	**3.3%**
Real Rate of Return	3.7%	3.7%	3.7%
a) Total Normal Cost	33.27%	32.95%	31.90%
b) Accrued Liability	$1,984,513,206	$1,964,843,572	$1,903,919,400
c) Market Value of Assets	2,403,366,317	2,403,366,317	2,403,366,317
d) Unfunded Liability (Surplus) [(b)-(c)]	(418,853,111)	(438,522,745)	(499,446,917)
e) Funded Status	121.1%	122.3%	126.2%

Mortality Rate Sensitivity

The following table looks at the change in the June 30, 2021 plan costs and funded ratio under two different longevity scenarios, namely assuming rates of mortality are 10% lower or 10% higher than our current mortality assumptions. This type of analysis highlights the impact on the plan of improving or worsening mortality over the long-term.

As of June 30, 2021	10% Lower Mortality Rates	Current Mortality	10% Higher Mortality Rates
a) Total Normal Cost	33.68%	32.95%	32.30%
b) Accrued Liability	$2,007,464,058	$1,964,843,572	$1,927,368,333
c) Market Value of Assets	2,403,366,317	2,403,366,317	2,403,366,317
d) Unfunded Liability (Surplus) [(b)-(c)]	(395,902,259)	(438,522,745)	(475,997,984)
e) Funded Status	119.7%	122.3%	124.7%

Risk Analysis

Maturity Measures

As pension plans mature, they become more sensitive to risks. Understanding plan maturity and how it affects the ability of a pension plan to tolerate risk is important in understanding how the plan is impacted by investment return volatility, other economic variables and changes in longevity or other demographic assumptions. One way to look at the maturity level of CalPERS and its plans is to look at the ratio of a plan's retiree liability to its 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%.

Ratio of Retiree Accrued Liability to Total Accrued Liability	June 30, 2020	June 30, 2021
1. Retiree Accrued Liability	$443,098,893	$574,818,658
2. Total Accrued Liability	$1,913,087,688	$1,964,843,572
3. Ratio of Retiree AL to Total AL [(1) / (2)]	23.2%	29.3%

Another measure of the maturity level of CalPERS and its plans is the ratio of actives to retirees, also called 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. The average support ratio for CalPERS public agency plans is 1.25.

Support Ratio	June 30, 2020	June 30, 2021
1. Number of Actives	1,627	1,625
2. Number of Retirees	303	374
3. Support Ratio [(1) / (2)]	5.4	4.3

The actuarial calculations supplied in this communication are based on various assumptions about long-term demographic and economic behavior. Unless these assumptions (e.g., terminations, deaths, disabilities, retirements, salary growth, 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 required employer contributions from one year to the next. Therefore, employer contributions will inevitably fluctuate, especially due to the ups and downs of investment returns.

Asset Volatility Ratio (AVR)

Shown in the table below is the asset volatility ratio (AVR), which is the ratio of market value of assets to payroll. Plans that have a higher AVR experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with AVR of 8 may experience twice the contribution volatility due to investment return volatility than a plan with AVR of 4. It should be noted that this ratio is a measure of the current situation. It increases over time but generally tends to stabilize as a plan matures.

Risk Analysis

Liability Volatility Ratio (LVR)

Also shown in the table below is the liability volatility ratio (LVR), which is the ratio of accrued liability to payroll. Plans that have a higher LVR experience more volatile employer contributions (as a percentage of payroll) due to investment return and changes in liability. For example, a plan with LVR ratio of 8 is expected to have twice the contribution volatility of a plan with LVR of 4. It should be noted that this ratio indicates a longer-term potential for contribution volatility. The AVR, described above, will tend to move closer to the LVR as a plan matures.

Contribution Volatility	June 30, 2020	June 30, 2021
1. Market Value of Assets without Receivables	$1,885,403,709	$2,403,366,317
2. Payroll	$351,443,287	$350,945,010
3. Asset Volatility Ratio (AVR) [(1) / (2)]	5.4	6.8
4. Accrued Liability	$1,913,087,688	$1,964,843,572
5. Liability Volatility Ratio (LVR) [(4) / (2)]	5.4	5.6

Maturity Measures History	June 30, 2019	June 30, 2020	June 30, 2021
Ratio of Retiree AL to Total AL	21.9%	23.0%	29.0%
Support Ratio	6.2	5.4	4.3
Asset Volatility Ratio	5.0	5.4	6.8
Liability Volatility Ratio	5.0	5.4	5.6

Appendices

Appendix A – Statement of Actuarial Methods and Assumptions

Appendix B – Summary of Principal Plan Provisions

Appendix C – Participant Data

Appendix D – Glossary of Actuarial Terms

Appendix A – Statement of Actuarial Methods and Assumptions

Actuarial Data

As stated in the Actuarial Certification, the data, which serves as the basis of this valuation, has been obtained from the various CalPERS databases. We have reviewed the valuation data and believe that it is reasonable and appropriate in aggregate.

Actuarial Cost Method

The actuarial funding method used for the Retirement Program is the Entry Age Normal 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 percent of pay in each year from the age of hire (entry age) to the assumed retirement age. 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.

The following table provides a brief history of the actuarial cost method.

Valuation Year June 30	Funding Method
1997-Current	Entry Age Normal

Amortization of Unfunded Actuarial Accrued Liability

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

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

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 table below:

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

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

Appendix A - Statement of Actuarial Methods and Assumptions

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:

Driver	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

Exceptions for Inconsistencies

If a surplus exists (i.e., the Market Value of Assets exceeds the plan's accrued liability) any prior amortization layers shall be considered fully amortized, and the surplus shall not be amortized.

In the event of any subsequent unfunded liability a Fresh Start shall be used with an amortization period of 20 years or less.

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.

Exceptions for Small Amounts

Where small unfunded liabilities are identified in annual valuations which result in small payment amounts, the actuary may shorten the remaining period for these bases.

- When the balance of a single amortization base has an absolute value less than $250, the amortization period is reduced to one year.
- When the entire unfunded liability is a small amount the actuary may perform a Fresh Start and use an appropriate amortization period.

Appendix A - Statement of Actuarial Methods and Assumptions

Asset Valuation Method

The value of assets equals the market value of the fund.

Actuarial Assumptions

The actuarial assumptions used in the valuation are shown below.

The demographic assumptions used in the valuation, with the exception of the mortality assumption, have been in place for many years and have not produced significant experience gains or losses for the plan. The actuary has concluded that the continued use of these assumptions is reasonable for valuation purposes and all assumptions represent an estimate of future experience. More information on the mortality assumption is available in the mortality assumption section of this appendix.

The assumptions for inflation, individual salary increase and overall payroll growth are based on the 2021 experience study performed by CalPERS staff based on the Public Employees' Retirement Fund (PERF) and adopted by the CalPERS Board of Administration in November 2021.

The discount rate (investment return assumption) for this valuation is 6.0%. It was reduced from 6.5% to 6.0% as of the June 30, 2021 valuation. The decision was primarily based on reduced CMAs provided by external investment consultants and CalPERS investment staff in March 2021 along with the change in asset allocation.

Economic Assumptions

The following table identifies the economic assumptions used in the valuation.

June 30, 2021	Percentage
Gross Investment Return	6.15%
Less Administrative Expense	0.15%
Net Investment Return compounded annually	6.00%
Individual Salary Increases, compounded annually	2.80%
Overall Payroll Growth, compounded annually[1]	2.80%
Inflation	2.30%
Monetary Credit Balance Excess Interest Rate	2.75%

(1) The Overall Payroll Growth assumption is used in projecting the payroll over which the unfunded liability is amortized.

Discount Rate

The discount rate assumption (net of investment and administrative expenses), adopted by the CalPERS Board in March of 2022 reflecting the most recent CMAs and asset allocation, is 6.0%. The following table provides a brief history of the discount rate assumption.

Valuation Year	Investment Return
2021	6.00%
2016-2020	6.50%
2011-2015	7.00%
2003-2010	7.25%
1998-2002	7.75%
1997	8.50%

Appendix A - Statement of Actuarial Methods and Assumptions

Inflation, Individual Salary Increase, and Payroll Growth

The following table provides a brief history of the Inflation, Individual Salary Increase, and Payroll Growth Assumptions.

Valuation Year	Inflation	Individual Salary Increase	Payroll Growth
2021	2.30%	2.80%	2.80%
2017-2020	2.50%	2.75%	2.75%
2011-2016	2.75%	3.00%	3.00%
2003-2010	3.00%	3.25%	3.25%
1998-2002	3.50%	3.75%	3.75%
1997	4.50%	5.75%	4.50%

Monetary Credit Balance Interest Crediting Rate

The following table shows a summary of the Monetary Credit Balance Interest Crediting Rate in Excess of the Discount Rate.

Valuation Year	Return in Excess of Discount Rate
2021	2.75%
1997-2020	0.00%

Demographic Assumptions

Service Retirement

The table below illustrates the assumptions used in the valuation to determine the probability of a judge retiring out of the system.

Service Greater than 20 Years	
Age	Rate
Below 65	0.000
65	0.550
66	0.350
67	0.450
68	0.350
69	0.200
70 to 73	0.250
74 to 79	0.200
80[1]	1.000

(1) For Judges age 80 and older with 5 or more years of service the probability of retirement is 100%.

Withdrawal

Rates vary by age and years of service as shown in the table below.

	Years of Service					
Entry Age	0- 1	1 - 2	2 - 3	3 - 4	4 - 5	5 or more
35	0.00525	0.00525	0.00525	0.00525	0.00525	0.00225
40	0.00450	0.00450	0.00450	0.00450	0.00450	0.00375
45	0.00375	0.00375	0.00375	0.00375	0.00375	0.00750
50	0.00375	0.00375	0.00375	0.00375	0.00375	0.00900
55	0.00000	0.00000	0.00000	0.00000	0.00000	0.00825
60	0.00000	0.00000	0.00000	0.00000	0.00000	0.00750

Appendix A - Statement of Actuarial Methods and Assumptions

Demographic Assumptions (continued)

Pre-Retirement Non-Industrial Disability

Rates vary by age as shown in the table below.

Attained Age	Male	Female
35	0.00000	0.00000
40	0.00100	0.00100
45	0.00190	0.00190
50	0.00320	0.00320
55	0.00540	0.00540
60	0.00850	0.00850
65	0.01220	0.01220
70	0.00000	0.00000

The mortality assumptions are based on mortality rates resulting from the most recent CalPERS Experience Study adopted by the CalPERS Board. For purposes of the mortality rates, the rates incorporate Generational Mortality to capture on-going mortality improvement using 80% of Scale MP 2020 published by the Society of Actuaries. Generational mortality explicitly assumes that members born more recently will live longer than the members born before them thereby capturing the mortality improvement seen in the past and expected continued improvement. For more details, please refer to the 2021 experience study report that can be found on the CalPERS website. Rates vary by age and gender are shown in the tables below. These tables only contain a sample of the 2017 base table rates for illustrative purposes.

Pre-Retirement Mortality

Attained Age	Male	Female
35	0.00058	0.00029
40	0.00075	0.00039
45	0.00093	0.00054
50	0.00134	0.00081
55	0.00198	0.00123
60	0.00287	0.00179
65	0.00403	0.00250
70	0.00594	0.00404

Post-Retirement Mortality

	Standard		Non-Industrial Disability	
Attained Age	Male	Female	Male	Female
35	0.00058	0.00029	0.00644	0.00504
40	0.00075	0.00039	0.00807	0.00730
45	0.00093	0.00054	0.01114	0.01019
50	0.00266	0.00199	0.01701	0.01439
55	0.00390	0.00325	0.02210	0.01734
60	0.00578	0.00455	0.02708	0.01962
65	0.00857	0.00612	0.03334	0.02276
70	0.01333	0.00996	0.04001	0.02910
75	0.02391	0.01783	0.05376	0.04160
80	0.04371	0.03403	0.07936	0.06111
85	0.08274	0.06166	0.11561	0.09385
90	0.14539	0.11086	0.16608	0.14396
95	0.24664	0.20364	0.24664	0.20364
100	0.36198	0.31582	0.36198	0.31582
105	0.52229	0.44679	0.52229	0.44679
110	1.00000	1.00000	1.00000	1.00000

Appendix A - Statement of Actuarial Methods and Assumptions

Industrial Mortality

Rates are zero.

Industrial Disability

Rates are zero.

Marital Status

Probability of being married at service retirement or disability retirement is 90%.

Age of Spouse

Assumes that female spouses are three years younger than male spouses are.

Internal Revenue Code Section 415

The limitations on benefits imposed by Internal Revenue Code Section 415 were taken into account in this valuation.

Internal Revenue Code Section 401(a)(17)

The limitations on compensation imposed by Internal Revenue Code Section 401(a) (17) were taken into account in this valuation.

Retirement Benefit Payable at Service Retirement

For each contingency under which a Service Retirement benefit is payable, the value of the Monetary Service Account and the value of the defined benefit are compared, and the member is assumed to elect the benefit with the larger value. Monetary Service Accounts are assumed to be paid as lump sums.

Appendix B – Summary of Principal Plan Provisions

Background

Judges' Retirement System II (JRS II) was established in 1994 to create a fully funded, actuarially sound retirement system for judges appointed or elected on or after November 9, 1994. This system provides a unique combination of two basic types of retirement allowances: a defined benefit plan and a monetary credit plan. The defined benefit plan provides a lifetime monthly retirement allowance of up to 75% of final compensation. The monetary credit plan allows for a refund of member contributions, employer contributions (see below) and interest at retirement.

Membership

The JRS II provides retirement, death, withdrawal, and disability benefits for Supreme and Appellate Court Justices, Superior Court Judges, and Municipal Court Judges who are appointed or elected on or after November 9, 1994, and their beneficiaries.

Membership Contributions

Classic members - Members contribute 8% of their annual compensation to the plan.

PEPRA members - The Base Total Normal Cost rate for PEPRA members is re-determined in each annual valuation. The employee contribution for the PEPRA group will only change in any given year once the change to the total normal cost is greater than 1% from the Base Total Normal Cost. The PEPRA member rate should be 50% of the new normal cost rounded to the nearest quarter percentage.

Monetary Credit Account

Members accrue monthly monetary credits equal to 18% of monthly salary. These monetary credits are accumulated in a Monetary Credit Account for each member and also credited with earnings monthly at a rate, not less than zero, equal to the annual net earnings rate achieved by the Fund in the prior fiscal year. The Monetary Credit Account provides an optional benefit at eligible retirement ages (described below) if the member chooses this option. If a member withdraws from the system before he or she has vested (accumulated at least five years of service), the member is paid the amount of his or her contributions to the system, but not the full Monetary Credit Account. After five years of service however, the member is vested in the Monetary Credit Account.

Service Retirement

Eligibility

Judges must be at least age 65 with 20 years or more of service or age 70 with a minimum of five years of service. Two types of service retirement are available: Defined Benefit Plan or Monetary Credit Plan. Election of a plan must be made within 30 days after retirement.

Defined Benefit Plan

Classic Members -This option provides a "defined benefit" of 3.75% of the highest 12-month average salary per year of service, up to 75% of final average pay for judges reaching age 65 with at least 20 years of service. The normal form of payment is a joint and 50% contingent annuity with the spouse as contingent annuitant. This provides a surviving spouse with a monthly allowance equal to 50% of the judge's allowance. Optional settlements are available which reduce a judge's normal retirement benefit.

Appendix B - Summary of Principal Plan Provisions

PEPRA Members -This option provides a "defined benefit" of 3.75% of the highest 36-month average salary per year of service, up to 75% of final average pay for judges reaching age 65 with at least 20 years of service. The normal form of payment is a joint and 50% contingent annuity with the spouse as contingent annuitant. This provides a surviving spouse with a monthly allowance equal to 50% of the judge's allowance. Optional settlements are available which reduce a judge's normal retirement benefit.

Monetary Credit Plan

This option provides a cash payment in a single lump sum or the member may elect to receive an annuity at retirement based on the value of his or her Monetary Credit Account.

Non-Industrial Disability Retirement (Non-Work Related)

Eligibility

Judges who have five years of service who become permanently disabled because of a mental or physical disability may apply to the Commission on Judicial Performance for disability retirement.

Benefit

An allowance, based upon the judge's age, equal to the lesser of the following:

- 3.75% of final compensation multiplied by the number of years of service the judge would have been credited had he or she continued to work until the age he or she would have first been eligible to retire, or
- 65% of the judge's average monthly salary during the 12 or 36 months preceding the retirement date.

The normal form of payment is a joint and 50% contingent annuity with the spouse as the contingent annuitant.

Industrial Disability Retirement (Work-Related)

Benefit

Judges receive 65% of their average monthly salary during the 12 or 36 months preceding the retirement date regardless of age or length of service.

The normal form of payment is a joint and 50% contingent annuity with the spouse as the contingent annuitant.

Appendix B - Summary of Principal Plan Provisions

Pre-Retirement Death Benefit

If Eligible for Service Retirement - Spouses receive either the monthly retirement allowance equal to one-half of the judge's "defined benefit" plan allowance or the judge's monetary credits.

If Not Eligible for Service Retirement - Spouses receive the judge's monetary credits or three times the annual salary at the time of death, whichever is greater. This is paid in 36 monthly installments. If there is no spouse, this benefit is paid to member children; or if none, to the designated beneficiary.

Pre-Retirement Death Benefit Optional Settlement Two

If a judge dies in office, is age 65 or older with a minimum of 20 years of service and elects to have this provision apply (one-time irrevocable election while judge is in office) then a payment to the surviving spouse is payable upon death. The spouse would receive a monthly allowance equal to the Optional Settlement 2 allowance paid to the judge had he or she retired immediately preceding death. A spouse who receives this benefit is not entitled to any other Pre-Retirement Death Benefit.

Post Retirement Death Benefit

If the Judge elected the Defined Benefit Plan - The surviving spouse of a retired judge who elected an Optional Settlement in the defined benefit plan receives one of four options:

- Option 1 - return of unused accumulated contributions.
- Option 2 - 4 - the Optional Settlement Benefit amount varies based on the option chosen by the member.

If the Judge elected the Monetary Credit Plan - If the full amount of monetary credits was received in a lump sum, there are no survivor benefits. If the judge elected the Monetary Credit Plan with benefits paid as an annuity, the spouse receives the amount based on the option chosen at retirement.

Cost-of-Living Adjustments (COLA)

If the Judge elected the Defined Benefit Plan - The retirement allowance of retired judges who have elected the defined benefit plan will be adjusted every January after the judge has been retired six months. The adjustment is based on the United States city average of the "Consumer Price Index For All Urban Consumers," as published by the United States Bureau of Labor Statistics. No adjustment shall be made unless the cost-of-living increase equals or exceeds 1%. Further, the allowance shall not be increased more than 3% in a single year. Increases shall be compounded.

Appendix C – Participant Data

Summary of Valuation Data

The table below illustrates counts of records processed by the valuation.

	June 30, 2020	June 30, 2021
1) Active Members		
a) Counts	1,627	1,625
b) Average Attained Age	59.33	59.30
c) Average Entry Age	49.04	49.03
d) Average Years of Service	10.25	10.23
e) Average Annual Covered Pay	$216,007	$215,966
f) Annual Covered Payroll	$351,443,287	$350,945,010
g) Projected Annual Payroll for Contribution Year	$371,038,447	$370,873,071
h) Present Value of Future Payroll	$2,394,934,341	$2,869,798,309
2) Transferred and Vested Termination Members		
a) Counts	2	2
3) Retired Members and Beneficiaries		
a) Counts	303	374
b) Average Attained Age	73.24	73.21
c) Average Annual Benefits	$113,825	$117,178
4) Active to Retired Ratio [(1a) / (3a)]	5.4	4.3

Reconciliation of Participants

The table below illustrates a reconciliation of the participant data over the course of the valuation year. It identifies numerically who entered the plan, who left the plan and who remained in the plan in the same status as on the previous valuation date or who moved to a new status over the course of the year.

Reconciliation of Participants for the Fiscal Year Ending June 30, 2021

	Actives	Inactive	Retirees and Beneficiaries	Total
As of June 30, 2020	**1,627**	**2**	**303**	**1,932**
New Entrants	99	—	—	99
Non-Vested Terminations				
Refund Paid	(4)	—	—	(4)
Refund Pending	(1)	1	—	—
Vested Terminations				
Monetary Credit Paid	(21)	(1)	—	(22)
Monetary Credit Pending	—	—	—	—
Disabilities	(1)	—	1	—
Retirements	(70)	—	70	—
Death with Beneficiary	(2)	—	2	—
Death without Beneficiary	(2)	—	(2)	(4)
Active Death Beneficiary	—	—	1	1
Benefits Ceasing (Beneficiaries)	—	—	(-1)	(1)
As of June 30, 2021	**1,625**	**2**	**374**	**2,001**

Appendix C - Participant Data

Distribution of Active Members

The following table displays the number of active participants by age and service as of June 30, 2021.

Attained Age	Years of Service at Valuation Date							
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total Count
15 - 19	0	0	0	0	0	0	0	0
20 - 24	-	-	-	-	-	-	-	-
25 - 29	-	-	-	-	-	-	-	-
30 - 34	-	-	-	-	-	-	-	-
35 - 39	8	-	-	-	-	-	-	8
40 - 44	77	4	-	-	-	-	-	81
45 - 49	103	40	11	-	-	-	-	154
50 - 54	106	79	68	5	-	-	-	258
55 - 59	82	61	118	54	9	-	-	324
60 - 64	57	89	87	78	49	8	-	368
65 - 69	29	41	93	100	21	8	-	292
70 - 74	5	21	32	23	18	4	-	103
75 - 79	1	4	1	8	12	3	-	29
80 - 84	-	-	-	-	3	5	-	8
85+	-	-	-	-	-	-	-	-
Total	**468**	**339**	**410**	**268**	**112**	**28**	**-**	**1,625**

Distribution of Average Annual Salaries

The following table displays the average salaries of active participants by age and service as of June 30, 2021.

Attained Age	Years of Service at Valuation Date							
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Average Valuation Payroll
15 - 19	$0	$0	$0	$0	$0	$0	$0	$0
20 - 24	-	-	-	-	-	-	-	-
25 - 29	-	-	-	-	-	-	-	-
30 - 34	-	-	-	-	-	-	-	-
35 - 39	214,601	-	-	-	-	-	-	214,601
40 - 44	214,601	234,182	-	-	-	-	-	215,568
45 - 49	215,512	217,334	214,601	-	-	-	-	215,920
50 - 54	215,185	216,769	215,512	214,601	-	-	-	215,745
55 - 59	214,601	215,617	214,864	215,175	214,601	-	-	214,983
60 - 64	215,144	216,689	215,669	216,984	217,130	222,345	-	216,453
65 - 69	214,601	215,357	214,934	217,389	223,452	218,473	-	216,511
70 - 74	214,601	214,601	215,569	214,601	216,322	222,345	-	215,503
75 - 79	214,601	222,345	214,601	214,601	219,764	235,252	-	219,942
80 - 84	-	-	-	-	214,601	220,796	-	218,473
85+	-	-	-	-	-	-	-	-
Average	**$215,000**	**$216,573**	**$215,205**	**$216,450**	**$218,197**	**$222,345**	**$0**	**$215,966**

Appendix C - Participant Data

Distribution of Retired Members and Beneficiaries

The following table displays the number of recipients by age and retirement type as of June 30, 2021.

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Beneficiaries	Total Count of Participants Receiving Benefits
Under 30	0	0	0	0	0
30 - 34	-	-	-	-	-
35 - 39	-	-	-	-	-
40 - 44	-	-	-	-	-
45 - 49	-	-	-	-	-
50 - 54	-	-	-	2	2
55 - 59	-	1	-	2	3
60 - 64	-	4	1	7	12
65 - 69	64	4	2	3	73
70 - 74	147	6	-	6	159
75 - 79	73	3	-	8	84
80 - 84	24	1	-	6	31
85+	6	-	-	2	8
Total[1]	**314**	**19**	**3**	**36**	**372**

(1) Does not include 2 beneficiaries receiving 36-month pre-retirement death benefit.

Distribution Annual Benefits for Retired Members and Beneficiaries

The following table displays the distribution of annual benefits for retirees, beneficiaries by age used in the June 30, 2021 valuation.

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Beneficiaries	Annual Benefits
Under 30	$0	$0	$0	$0	$0
30 - 34	-	-	-	-	-
35 - 39	-	-	-	-	-
40 - 44	-	-	-	-	-
45 - 49	-	-	-	-	-
50 - 54	-	-	-	48,701	48,701
55 - 59	-	137,538	-	67,564	90,889
60 - 64	-	130,552	141,251	86,454	105,720
65 - 69	149,908	127,981	131,274	71,721	144,983
70 - 74	118,197	117,940	-	64,241	116,151
75 - 79	107,600	117,535	-	70,458	104,418
80 - 84	121,109	49,260	-	90,252	112,819
85+	92,599	-	-	72,908	87,676
Total	121,930	120,062	134,600	74,703	117,367
Average	**$121,930**	**$120,062**	**$134,600**	**$74,703**	**$117,367**

Appendix D – Glossary of Actuarial Terms

Accrued Liability: (Actuarial Accrued Liability) The portion of the Present Value of Benefits allocated to prior years. Based on CalPERS funding Policies, the accrued liability is the target level of assets on any valuation date.

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

Actuarial Methods: Procedures employed by actuaries to achieve certain funding goals of a pension plan. Actuarial methods include an actuarial cost method, an amortization policy, and an asset valuation method.

Actuarial Valuation: The determination, as of a valuation date of the Normal Cost, Accrued Liability, and related actuarial present values for a pension plan. These valuations are performed annually or when an employer is contemplating a change to their plan provisions.

Amortization Bases: Separate payment schedules for different portions of the Unfunded Accrued Liability (UAL). The total UAL of a rate plan can be segregated by cause. The impact of such individual causes on the UAL are quantified at the time of their occurrence, resulting in new amortization bases. Each base is creating “bases” separately amortized and paid for over a specific period of time. Generally, in an actuarial valuation, the separate bases consist of changes in UAL due to contract amendments, actuarial assumption changes, method changes and/or gains and losses.

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

Classic Member (under PEPRA): A classic member is a member who joined the Judges’ Retirement System prior to January 1, 2013 and who is not defined as a new member under PEPRA. (See definition of new member below)

Discount Rate: This is the rate used to discount the expected future benefit payments to the valuation date to determine the Projected Value of Benefits. The discount rate is based on the assumed long-term rate of return on plan assets, net of investment and administrative expenses. This rate is called the "actuarial interest rate" in Section 20014 of the California Public Employees" Retirement Law (PERL).

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

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

Fresh Start: A Fresh Start is when multiple amortization bases are collapsed to one base and amortized together over a new funding period.

Appendix D – Glossary of Actuarial Terms

Funded Ratio: Defined as the Market Value of Assets divided by the Accrued Liability. It is a measure of how well funded a rate plan is. A ratio greater than 100% means the rate plan has more assets than the target established by CalPERS funding policies on the valuation date, and the employer needs to only contribute the Normal Cost. A ratio less than 100% means assets are less than the funding target, and contributions in addition to Normal Cost are required.

GASB 68: Statement No. 68 of the Governmental Accounting Standards Board. The accounting standard governing a state or local governmental employer's accounting and financial reporting for pensions.

New Member (under PEPRA): A new member includes an individual who becomes a member of the Judges' Retirement System for the first time on or after January 1, 2013, and who was not a member of another public retirement system prior to that date, and who is not subject to reciprocity with another public retirement system.

Normal Cost: The portion of the Present Value of Benefits allocated to the upcoming fiscal year for active employees. The normal cost plus the required amortization of the UAL, if any, make up the required contributions.

Pension Actuary: A business professional proficient in mathematics and statistics who performs the calculations necessary to properly fund a pension plan and allow the plan sponsor to disclose its liabilities. A pension actuary must satisfy the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States with regard to pensions.

PEPRA: 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 or expected to be earned in the future for *current* members.

Unfunded Liability (UAL): The Accrued Liability minus the Market Value of Assets. If the UAL for a rate plan is positive, the employer is required to make contributions in excess of the Normal Cost.

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