Judges' Retirement System II
Actuarial Valuation

As of June 30, 2022

CalPERS

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Actuarial Certification

March 2023

To the best of our knowledge, this report is complete and accurate and contains sufficient information to disclose, fully and fairly, the actuarial funded condition of the Judges' Retirement System II. This valuation is based on the member and financial data as of June 30, 2022 provided by the various CalPERS databases and the benefits under the Judges' Retirement System II Law as of the date this report was produced.

It is our opinion that the valuation has been performed in accordance with generally accepted actuarial principles, in accordance with the standards of practice prescribed by the Actuarial Standards Board, and that the assumptions and methods, as prescribed by the CalPERS Board of Administration, are internally consistent and reasonable for this plan.

The undersigned are actuaries who satisfies 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, 2022 for the Judges' Retirement System II (System). The actuarial valuation is used to set the fiscal year 2023-24 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 report documents the results of the actuarial valuation prepared by the CalPERS Actuarial Office using data as of June 30, 2022. The purpose of the valuation is to:

- Set forth the assets and accrued liabilities of this plan as of June 30, 2022.
- Establish the required employer contribution for the System for the fiscal year July 1, 2023 through June 30, 2024; and
- Provide actuarial information as of June 30, 2022, to the CalPERS Board of Administration (board) and other interested parties.

The pension funding information presented in this report should not be used in financial reports subject to Governmental Accounting Standards Board (GASB) Statement No. 68 for an Agent Employer Defined Benefit Pension Plan. A separate accounting valuation report for such purposes is available from CalPERS and details for ordering are available on the CalPERS website (www.calpers.ca.gov). 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.

Required Employer Contribution

This actuarial valuation sets the employer contribution rate for the fiscal year July 1, 2023 through June 30, 2024. 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 2022-23	Fiscal Year 2023-24
1) Contribution in Projected Dollars		
a) Total Normal Cost	$122,202,677	$127,838,313
b) Employee Contribution	36,048,863	38,658,741
c) Employer Normal Cost [(1a) – (1b)]	86,153,814	89,179,572
d) Unfunded Accrued Liability Payment	0	2,516,334
e) Required Employer Contribution [(1c) + (1d)]	**$86,153,814**	**$91,695,906**
Projected Annual Payroll for Contribution Year	$370,873,071	$388,920,939
2) Contribution as a Percentage of Payroll		
a) Total Normal Cost	32.95%	32.87%
b) Employee Contribution[1]	9.72%	9.94%
c) Employer Normal Cost [(2a) – (2b)]	23.23%	22.93%
d) Unfunded Accrued Liability Payment	0.00%	0.65%
e) Required Employer Contribution Rate [(2c) + (2d)][2]	**23.23%**	**23.58%**

(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, 2022.

	June 30, 2021	June 30, 2022
1) Present Value of Projected Benefits	$2,902,440,109	$3,090,505,511
2) Entry Age Normal Accrued Liability	1,964,843,572	2,157,506,377
3) Market Value of Assets (MVA)	2,403,366,317	2,139,223,765
4) Unfunded Accrued Liability [(2) - (3)]	**($438,522,745)**	**$18,282,612**
5) Funded Ratio [(3) / (2)]	**122.3%**	**99.2%**

The Unfunded Accrued Liability and funded ratio are assessments of the need for future employer contributions based on the actuarial cost method used to fund the plan. 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. The funded ratio, on the other hand, is a relative measure of funded status that allows for comparison between plans of different sizes. The funded ratio is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligations.

Changes Since the Prior Year's Valuation

Actuarial Methods & Assumptions

A complete description of the actuarial methods and assumptions used in the June 30, 2022 valuation may be found in Appendix A of this report.

Plan Provisions

On September 25, 2022, the Governor approved Assembly Bill No. 2443 (Section 75522.5), which provides judges in the Judges' Retirement System II the ability to retire and defer receipt of a monthly allowance subject to certain age and service requirements. The bill is effective from January 1, 2024 until January 1, 2029.

A complete description of the principal plan provisions may be found in Appendix B of this report.

Subsequent Events

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

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, 2022.

	Market Value
Beginning Balance as of June 30, 2021	$2,403,366,317
Prior Period Adjustment	0
Adjusted Beginning Balance as of June 30, 2021	2,403,366,317
Member Contributions	36,529,257
Employer Contributions	91,887,114
State of California General Fund Contributions	885,427
Benefit Payments	(66,381,847)
Refunds	(357,334)
Administration Costs	(2,344,053)
Investment Earnings[1]	(324,364,670)
Miscellaneous Income	3,555
Ending Balance as of June 30, 2022	**$2,139,223,765**

(1) Net Fund return for the FY 2021-22 is (13.4%).

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, 2022
Cash	$905,944
Investments at Market Value	
Short-Term Investments	3,110,714
Global Equity Securities	1,299,384,552
Global Debt Securities	827,221,050
Real Assets	0
Private Equity	0
Capital Assets, Net & Other Assets	0
Accounts Receivable	$9,984,664
Total Liabilities	$(1,383,158)
Fund Balance at Market Value on June 30, 2022	**$2,139,223,765**

Liabilities and 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, 2021	June 30, 2022
1) Members Included in the Valuation		
a) Active Members	1,625	1,625
b) Inactive Members	2	3
c) Receiving Payments	374	444
d) Total	**2,001**	**2,072**
2) Payroll		
a) Covered Annual Payroll	$350,945,010	$368,023,114
b) Projected Covered Annual Payroll	$370,873,071	$388,920,939
c) Average Covered Annual Payroll [(2a) / (1a)]	215,966	226,476
3) Age and Service for Actives		
a) Average Attained Age for Actives	59.30	59.14
b) Average Service for Actives	10.23	10.26
4) Present Value of Benefits at Valuation Date		
a) Active Members	$2,327,223,743	$2,383,016,154
b) Inactive Members	189,789	933,708
c) Receiving Benefits	574,818,658	705,762,028
d) Total	**$2,902,440,109**	**$3,090,505,511**
5) Present Value of Future Employee Contributions	**$291,449,585**	**$300,835,071**
6) Present Value of Future Employer Normal Cost	**$646,146,952**	**$632,164,063**
7) Accrued Actuarial Liability		
a) Active Members	$1,389,627,206	$1,450,017,020
b) Inactive Members	189,789	933,708
c) Receiving Benefits	$574,818,658	$705,762,028
d) Total	**$1,964,843,572**	**$2,157,506,377**
8) Assets		
a) Market Value of Assets	2,403,366,317	2,139,223,765
b) Unfunded Accrued Actuarial Liability [(7d) – (8a)]	(438,522,745)	18,282,612
c) Funded Ratio [(8a) / (7d)]	122.3%	99.2%

(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 6/30/2021	($438,522,745)
b) Expected Payment on UAL During FY 2021-22	3,283,020
c) Interest through 6/30/2022 [.065 X 1a - $(1.0650)^{1/2}$ – 1) X 1b]	(26,408,420)
d) Expected UAL Before All Other Changes [1a – 1b + 1c]	(468,214,185)
e) Change Due to Plan Changes	(1,075,516)
f) Change Due to New Actuarial Assumptions	0
g) Expected UAL After All Changes [1d + 1e + 1f]	(469,289,701)
h) Actual Unfunded Accrued Liability as of 6/30/2022	18,282,612
i) Total (Gain)/Loss for FY 2021-22 [1h – 1g]	**487,572,313**
2) Contribution (Gain)/Loss for the Year	
a) Expected Contribution (Employer and Employee)	$123,042,647
b) Interest on Expected Contributions [($(1.0650)^{1/2}$ – 1) x 2a]	3,637,512
c) Actual Contribution	129,301,798
d) Interest on Actual Contributions [($(1.0650)^{1/2}$ – 1) x 2c]	3,822,551
e) Contribution (Gain)/Loss [(2a + 2b) – (2c + 2d)]	**($6,444,190)**
3) Investment (Gain)/Loss for the Year	
a) Market Value of Assets as of 6/30/2021	$2,403,366,317
b) Contributions Received	128,416,371
c) Benefits, Refunds Paid and Administrative Costs	(66,739,181)
d) Transfers, SCP, and Miscellaneous Adjustments	3,555
e) Expected Interest [0.0650 x 3a + (($1.0650)^{1/2}$ – 1) x (3b + 3c + 3d)]	146,051,624
f) Expected Assets as of 6/30/2022 [3a + 3b + 3c + 3d + 3e]	2,611,984,113
g) Actual Market Value of Assets as of 6/30/2022	2,139,223,765
h) Investment (Gain)/Loss [3f - 3g]	**$472,760,347**
4) Liability (Gain)/Loss for the Year	
a) Total (Gain)/Loss (1i)	$487,572,313
b) Contribution (Gain)/Loss (2e)	(6,444,190)
c) Investment (Gain)/Loss (3h)	472,760,347
d) Liability (Gain)/Loss [4a – 4b – 4c]	**$21,256,156**

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: June 30, 2022.
- The required employer contributions determined by the valuation are for the fiscal year beginning one year after the valuation date: fiscal year 2023-24.

This one-year lag is necessary due to the amount of time needed to extract and test the membership and financial data.

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 ten years.

Reason for Base	Date Established	Amortization Period	Balance on 6/30/2022	Expected Payment on UAL 2022-23	Balance on 6/30/2023	Scheduled Payment Fiscal Year 2023-2024	% of Projected Payroll
Fresh Start	6/30/2022	10	$18,282,612	$302,662	$19,067,959	$2,516,334	0.65%
Total			**$18,282,612**	**$302,662**	**$19,067,959**	**$2,516,334**	**0.65%**

The Judges' Retirement System II funded status decreased from 122.3% as of June 30, 2021 to 99.2%% as of June 30, 2022. The funded status decrease was driven by the investment loss.

Reconciliation of Required Employer Contributions

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

	Percentage of Projected Payroll	Estimated $ Based on Projected Payroll
1) FY 2022-23 Required Employer Contribution (from prior year annual report)	23.23%	$86,153,814
2) Effect of Changes Since the Prior Annual Valuation		
a) Effect of Change in Payroll	0.00%	$4,181,972
b) Effect of (Gain)/Loss	2.73%	$10,617,542
c) Effect of Plan Changes	(0.13%)	($517,796)
d) Effect of Method Changes	0.00%	$0
e) Effect of Assumption Changes	0.00%	$0
f) Effect of Fresh Start	(2.25%)	($8,739,626)
g) Net Effect of Changes [Sum of a – f]	0.35%	$5,542,092
3) FY 2023-24 Required Employer Contribution	**23.58%**	**$91,695,906**

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
2023-24	23.58%
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%

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
6/30/22	$2,157,506,377	$2,139,223,765	99.2%	$388,920,939
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

Normal Cost by Benefit Group

The table below displays the Total Normal Cost broken out by benefit group for Fiscal Year 2023-24. The Total Normal Cost is the annual cost of service accrual for the fiscal year for active employees and can be viewed as the long-term contribution rate for the benefits contracted. Generally, the normal cost for a benefit group subject to more generous benefit provisions will exceed the normal cost for a group with less generous benefits. However, based on the characteristics of the members (particularly when the number of actives is small), this may not be the case. Future measurements of 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 2023-24	Number of Actives	Payroll on 6/30/2022
10000	JRS II	32.78%	1,238	$280,430,304
29000	JRS II PEPRA	33.16%	387	$87,592,810
	Plan Total	**32.87%**	**1,625**	**$368,023,114**

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 1% 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, 2023, based on 50% of the Total Normal Cost for each respective plan as of the June 30, 2022 valuation.

		Basis for Current Rate		Rates Effective July 1, 2023			
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%	32.36%	0.26%	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

Future Investment Return Scenarios

Analysis using the investment return scenarios from the Asset Liability Management process completed in 2021 was performed to determine the effects of various future investment returns on required employer contributions. The projected normal cost rates reflect that the rates are anticipated to decline over time as new employees are hired into lower-cost benefit tiers. The projections also assume that all other actuarial assumptions will be realized and that no further changes in assumptions, contributions, benefits, or funding will occur.

The first table shows projected contribution requirements if the fund were to earn either 2.3% or 10.2% annually. These alternate investment returns were chosen because 90% of long-term average returns are expected to fall between them over the 20-year period ending June 30, 2042.

Assumed Annual Return from 2022-23 through 2026-27	Projected Employer Contributions				
	2024-25	2025-26	2026-27	2027-28	2028-29
2.3% (5th Percentile)	23.8%	24.4%	25.4%	26.8%	28.5%
10.2% (95th Percentile)	22.7%	22.5%	22.3%	22.2%	22.0%

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 20-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. The following analysis illustrates the effect of an extreme, single year investment return.

The portfolio has an expected volatility (or standard deviation) of 12.4% per year. Accordingly, in any given year there is a 16% probability that the annual return will be -6.4% or less and a 2.5% probability that the annual return will be -18.8% or less. These returns represent one and two standard deviations below the expected return of 6.0%.

The following table shows the effect of a one or two standard deviation investment loss in FY 2022-23 on the FY 2024-25contribution requirements. Note that a single-year investment gain or loss decreases or increases the required UAL contribution amount incrementally for each of the next five years, not just one, due to the 5-year ramp in the amortization policy. However, the contribution requirements beyond the first year are also impacted by investment returns beyond the first year. Historically, significant downturns in the market are often followed by higher than average returns. Such investment gains would offset the impact of these single year negative returns in years beyond FY 2024-25.

Assumed Annual Return for 2022-23	Required Employer Contributions	Projected Employer Contributions
	2023-24	2024-25
(18.8%) (2 standard deviation loss)	23.58%	26.2%
(6.4%) (1 standard deviation loss)	23.58%	24.8%

- Without investment gains (returns higher than 6.0%) in FY 2023-24 or later, projected contributions rates would continue to rise over the next four years due to the continued phase-in of the impact of the illustrated investment loss in FY 2022-23.

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 4.00% and 2.50%, 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, 2022 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 2023-24 employer contribution rates.

Sensitivity to the Real Rate of Return Assumption

As of June 30, 2022	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%	32.87%	27.87%
b) Accrued Liability	$2,414,477,906	$2,157,506,377	$1,944,651,939
c) Market Value of Assets	2,139,223,765	2,139,223,765	2,139,223,765
d) Unfunded Liability (Surplus) [(b)-(c)]	275,254,141	18,282,612	(194,571,826)
e) Funded Status	88.6%	99.2%	110.0%

Sensitivity to the Price Inflation Assumption

As of June 30, 2022	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	33.26%	32.87%	31.74%
b) Accrued Liability	$2,176,435,672	$2,157,506,377	$2,089,667,068
c) Market Value of Assets	2,139,223,765	2,139,223,765	2,139,223,765
d) Unfunded Liability (Surplus) [(b)-(c)]	37,211,907	18,282,612	(49,556,697)
e) Funded Status	98.3%	99.2%	102.4%

Mortality Rate Sensitivity

The following table looks at the change in the June 30, 2022 plan costs and funded ratio under two different longevity scenarios, namely assuming rates of post-retirement 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, 2022	10% Lower Mortality Rates	Current Mortality	10% Higher Mortality Rates
a) Total Normal Cost	33.61%	32.87%	32.22%
b) Accrued Liability	$2,208,715,228	$2,157,506,377	$2,111,756,956
c) Market Value of Assets	2,139,223,765	2,139,223,765	2,139,223,765
d) Unfunded Liability (Surplus) [(b)-(c)]	69,491,463	18,282,612	(27,466,809)
e) Funded Status	96.9%	99.2%	101.3%

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, 2021	June 30, 2022
1. Retiree Accrued Liability	$574,818,658	$705,762,028
2. Total Accrued Liability	$1,964,843,572	$2,157,506,377
3. Ratio of Retiree AL to Total AL [(1) / (2)]	29.3%	32.7%

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 0.82.

Support Ratio	June 30, 2021	June 30, 2022
1. Number of Actives	1,625	1,625
2. Number of Retirees	374	444
3. Support Ratio [(1) / (2)]	4.3	3.7

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.

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 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 when there is a change in accrued liability, such as when there is a change in actuarial assumptions. It should be noted that this ratio indicates a longer-term potential for contribution volatility, since the AVR, described above, will tend to move closer to the LVR as the funded ratio approaches 100%.

Contribution Volatility	June 30, 2021	June 30, 2022
1. Market Value of Assets without Receivables	$2,403,366,317	$2,139,223,765
2. Payroll	$350,945,010	$368,023,114
3. Asset Volatility Ratio (AVR) [(1) / (2)]	6.8	5.8
4. Accrued Liability	$1,964,843,572	$2,157,506,377
5. Liability Volatility Ratio (LVR) [(4) / (2)]	5.6	5.9

Maturity Measures History	June 30, 2020	June 30, 2021	June 30, 2022
Ratio of Retiree AL to Total AL	23.0%	29.0%	33.0%
Support Ratio	5.4	4.3	3.7
Asset Volatility Ratio	5.4	6.8	5.8
Liability Volatility Ratio	5.4	5.6	5.9

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 – 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 cost 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.

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

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)

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

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

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

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

Exceptions for Plans in Surplus

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.

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.

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 and retirement assumptions, 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. Retirement rates were modified as part of the June 30, 2021 valuation based on 4 years of actual experience ending June 30, 2021, 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 CMAs provided by external investment consultants and CalPERS investment staff in March 2022 along with the change in asset allocation.

Economic Assumptions

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

June 30, 2022	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-Current	6.00%
2016-2020	6.50%
2011-2015	7.00%
2003-2010	7.25%
1998-2002	7.75%
1997	8.50%

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-Current	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-Current	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 from the System pursuant to Section 75522.

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%.

The table below illustrates the assumptions used in the valuation to determine the probability of a judge retiring from the System pursuant to Section 75522.5. Note that these probabilities are only effective from January 1, 2024 until January 1, 2029.

	Years of Service		
Age	10-14	15-19	20 or more
Below 60	0.000	0.000	0.000
60	0.000	0.150	0.150
61-64	0.000	0.050	0.050
65-67	0.100	0.100	0.000
68-69	0.050	0.050	0.000
70	0.000	0.000	0.000

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

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

Pre-Retirement and Post-Retirement Mortality

The mortality assumptions are based on mortality rates resulting from the most recent CalPERS Experience Study adopted by the CalPERS Board in November 2021. For purposes of the mortality rates, the rates incorporate Generational Mortality to capture on-going mortality improvement 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. Post-retirement base rates were determined by weighting experience by benefits. Pre-retirement rates are based on headcount weighting. 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 Rates

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

- The pre-retirement mortality rates above are for 2017 and are projected generationally for future years using 80% of the Society of Actuaries' Scale MP-2020.

Post-Retirement Mortality Rates

	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

- The post-retirement mortality rates above are for 2017 and are projected generationally for future years using 80% of the Society of Actuaries' Scale MP-2020.

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 – 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

Under Section 75522, judges must be (1) at least age 65 with 20 years or more of service or (2) 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.

Effective January 1, 2024 until January 1, 2029, Assembly Bill No. 2443 added Section 75522.5. Section 75522.5 authorizes judges who are (1) at least age 60 with 15 years or more of service or (2) at least age 65 with 10 years or more of service to retire and defer receipt of a monthly allowance. The bill defines 'full retirement age' as the first age at which a judge would have been eligible to retire under Section 75522 had the judge continued to accrue service rather than retire.

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.

Judges retiring pursuant to Section 75522.5 must elect to receive the applicable defined benefit described above with either a 0.07% reduction to the benefit factor for each year of retirement prior to full retirement age, commencing at full retirement age, or to defer the full defined benefit for 0.22 years beyond the full retirement age for each year of retirement prior to full retirement age. The calculation of the retirement allowance includes at most 20 years of service.

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.

Judges retiring pursuant to Section 75522.5 must elect to receive the applicable defined benefit described above with either a 0.07% reduction to the benefit factor for each year of retirement prior to full retirement age, commencing at full retirement age, or to defer the full defined benefit for 0.22 years beyond the full retirement age for each year of retirement prior to full retirement age. The calculation of the retirement allowance includes at most 20 years of service.

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 under Section 75522, 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.

Pre-Retirement Death Benefit

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 members children; or if none, to the designated beneficiary.

If eligible for Service Retirement under Section 75522.5 , but not Section 75522 - Spouses receive either the monthly retirement allowance equal to one-half of the judge's "defined benefit" plan allowance pursuant to 75522.5(f)(1), computed with the reduced benefit factor, or the judge's monetary credits.

If eligible for Service Retirement under Section 75522 - 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.

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 under Section 75522.5 and died prior to commencement of benefits – Spouses receive a monthly allowance equal to 50 percent of the unmodified monthly retirement allowance the deceased judge would have received, beginning the date the judge would have received the allowance.

If the judge elected the Defined Benefit Plan under Section 75522.5 and died after commencement of benefits – Spouses receive a monthly allowance equal to 50 percent of the deceased judge's unmodified monthly retirement allowance.

If the Judge elected the Defined Benefit Plan under Section 75522 - 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 received a benefit for 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, 2021	June 30, 2022
1) Active Members		
a) Counts	1,625	1,625
b) Average Attained Age	59.30	59.14
c) Average Entry Age	49.03	48.85
d) Average Years of Service	10.23	10.26
e) Average Annual Covered Pay	$215,966	$226,476
f) Annual Covered Payroll	$350,945,010	$368,023,114
g) Projected Annual Payroll for Contribution Year	$370,873,071	$388,920,939
h) Present Value of Future Payroll	$2,869,798,309	$2,863,259,514
2) Transferred and Vested Termination Members		
a) Counts	2	3
3) Retired Members and Beneficiaries		
a) Counts	374	444
b) Average Attained Age	73.21	73.85
c) Average Annual Benefits	$117,178	$123,769
4) Active to Retired Ratio [(1a) / (3a)]	4.3	3.7

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, 2022

	Actives	Inactive	Retirees and Beneficiaries	Total
As of June 30, 2021	**1,627**	**2**	**374**	**2,001**
New Entrants	99	—	—	99
Non-Vested Terminations				
Refund Paid	(4)	(1)	—	(5)
Refund Pending	—	—	—	—
Vested Terminations				
Monetary Credit Paid	(22)	—	—	(22)
Monetary Credit Pending	—	2	—	2
Disabilities	(1)	—	1	—
Retirements	(69)	—	69	—
Death with Beneficiary	(2)	—	2	—
Death without Beneficiary	—	—	(1)	(1)
Active Death Beneficiary	(1)	—	1	—
Benefits Ceasing (Beneficiaries)	—	—	(2)	(2)
As of June 30, 2022	**1,625**	**3**	**444**	**2,072**

Distribution of Active Members

The following table displays the number of active participants by age and service as of June 30, 2022.

	Years of Service at Valuation Date							
Attained Age	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	7	-	-	-	-	-	-	7
40 - 44	84	5	-	-	-	-	-	89
45 - 49	122	34	5	-	-	-	-	161
50 - 54	107	90	54	11	-	-	-	262
55 - 59	79	79	100	58	9	-	-	325
60 - 64	53	79	72	88	41	13	-	346
65 - 69	32	61	73	95	30	12	-	303
70 - 74	5	17	32	24	15	4	-	97
75 - 79	2	4	3	2	13	3	-	27
80 - 84	-	1	-	1	2	4	-	8
85+	-	-	-	-	-	-	-	-
Total	**491**	**370**	**339**	**279**	**110**	**36**	**-**	**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, 2022.

	Years of Service at Valuation Date							
Attained Age	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	225,074	-	-	-	-	-	-	225,074
40 - 44	225,074	231,572	-	-	-	-	-	225,439
45 - 49	225,747	228,446	225,074	-	-	-	-	226,296
50 - 54	225,681	227,621	227,481	225,074	-	-	-	226,693
55 - 59	225,485	225,896	225,074	225,634	225,074	-	-	225,474
60 - 64	226,300	225,896	226,428	226,551	227,451	225,074	-	226,389
65 - 69	226,089	227,204	225,519	228,152	233,737	230,489	-	227,755
70 - 74	225,074	225,074	226,089	227,781	227,240	225,074	-	226,414
75 - 79	225,074	233,196	225,074	225,074	225,074	235,903	-	227,481
80 - 84	-	225,074	-	225,074	225,074	233,196	-	229,135
85+	-	-	-	-	-	-	-	-
Average	**$225,638**	**$226,882**	**$225,937**	**$226,937**	**$228,618**	**$228,684**	**$0**	**$226,476**

Distribution of Retired Members and Beneficiaries

The following table displays the number of recipients by age and retirement type as of June 30, 2022.

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	-	-	-	3	3
60 - 64	-	3	1	6	10
65 - 69	68	5	2	6	81
70 - 74	164	5	1	6	176
75 - 79	96	5	-	9	110
80 - 84	45	1	-	5	51
85+	8	-	-	3	11
Total	**381**	**19**	**4**	**40**	**444**

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, 2022 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	-	-	-	50,162	50,162
55 - 59	-	-	-	86,652	86,652
60 - 64	-	138,369	145,489	80,169	104,161
65 - 69	155,481	136,042	135,212	95,675	149,350
70 - 74	123,205	124,124	140,640	90,668	122,221
75 - 79	118,797	116,587	-	68,918	114,616
80 - 84	127,523	50,738	-	99,543	123,274
85+	104,033	-	-	72,078	95,318
Total	127,962	123,664	139,138	82,339	123,769
Average	**$127,962**	**$123,664**	**$139,138**	**$82,339**	**$123,769**

Appendix D – Glossary

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 plan can be segregated by cause. The impact of such individual causes on the UAL are quantified at the time of their occurrence, resulting in new amortization bases. Each base is separately amortized and paid for over a specific period of time. Generally, in an actuarial valuation, the separate bases consist of changes in UAL due to contract amendments, actuarial assumption changes, method changes, and/or gains and losses.

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

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

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

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

Entry Age Actuarial 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 level percentage of payroll, which is designed to remain level throughout the member's career.

Fresh Start: A Fresh Start is when multiple amortization bases are combined to a single base and amortized over a new Amortization period.

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 need only contribute the Normal Cost. A ratio less than 100% means assets are less than the funding target and contributions in addition to Normal Cost are required.

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

New Member (under PEPRA): A new member includes an individual who becomes a member of the Judges Retirement System II 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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