Judges' Retirement System II
Actuarial Valuation
as of
June 30, 2015

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Actuarial Certification

Actuarial Certification

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, 2015 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

Contents

This section contains the following topics:

Introduction

This is the actuarial valuation report as of June 30, 2015 for the Judges' Retirement System II. The actuarial valuation is used to set the 2016-17 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 the Report

This actuarial valuation of the Judges' Retirement System II of the State of California was performed by CalPERS staff actuaries as of June 30, 2015 in order to:

- Set forth the funded status, actuarial assets, and accrued liabilities of this plan as of June 30, 2015.
- Establish the Actuarially Determined Employer Contribution and the Minimum Employer Contribution for the system for the Fiscal Year July 1, 2016 through June 30, 2017.
- Provide actuarial information as of June 30, 2015, to the CalPERS Board of Administration and other interested parties.

The use of this report for other purposes may be inappropriate.

California Actuarial Advisory Panel Recommendations

This report includes all the basic disclosure elements as described in the *Model Disclosure Elements for Actuarial Valuation Reports* recommended in 2011 by the California Actuarial Advisory Panel (CAAP), with the exception of including the original base amounts of the various components of the unfunded liability in the Schedule of Amortization Bases shown on page 14.

Additionally, this report includes the following "Enhanced Risk Disclosures" also recommended by the CAAP in the Model Disclosure Elements document:

- A "Deterministic Stress Test," projecting future results under different investment income scenarios
- A "Sensitivity Analysis," showing the impact on current valuation results using a 1% plus or minus change in the discount rate.

Actuarially Determined Employer Contribution

This actuarial valuation sets forth the employer contribution rate for the fiscal year July 1, 2016 through June 30, 2017. The following table shows the Actuarially Determined Employer Contribution. The Actuarially Determined Employer Contribution is shown in dollars and as a percentage of projected payroll.

	Fiscal Year 2015/2016	Fiscal Year 2016/2017
Actuarially Determined Employer Contribution		
1. Contribution in Projected Dollars		
a) Total Normal Cost	$ 84,129,221	$ 91,478,387
b) Employee Contribution	21,752,955	24,402,916
c) Employer Normal Cost [(1a) – (1b)]	62,376,266	67,075,472
d) Unfunded Contribution	(4,014,288)	(124,268)
e) Actuarially Determined Employer Contribution [(1c) + (1d)]	$ 58,361,978	$ 66,951,203
Projected Annual Payroll for Contribution Year	$ 266,907,427	$ 289,305,463
2. Contribution as a Percentage of Payroll		
a) Total Normal Cost	31.520%	31.620%
b) Employee Contribution[1]	8.150%	8.435%
c) Employer Normal Cost [(2a) – (2b)]	23.370%	23.185%
d) Unfunded Rate	(1.504%)	(0.043%)
e) Actuarially Determined Employer Contribution [(2c) + (2d)]	21.866%	23.142%
Minimum Employer Contribution Rate[2]	**23.370%**	**23.185%**

[1]This is the expected average contribution rate between classic and new members.

[2]The Minimum Employer Contribution Rate under PEPRA is the greater of the Actuarially Determined Employer Contribution or the Employer Normal Cost.

Plan's Funded Status

The tables below summarize the funded status of the Judges' Retirement System II as of June 30.

	June 30, 2014	June 30, 2015
1. Present Value of Projected Benefits	$ 1,526,185,809	$ 1,709,083,961
2. Entry Age Normal Accrued Liability	950,642,328	1,081,824,423
3. Market Value of Assets (MVA)	$ 1,013,839,948	$ 1,084,141,932
4. Unfunded Liability [(2) – (3)]	(63,197,620)	(2,317,510)
5. Funded Ratio [(3) / (2)]	106.6%	100.2%

Changes Since the Prior Year's Valuation

Actuarial Assumptions – No changes were made since the prior valuation. A complete description of the actuarial assumptions used in the June 30, 2015 valuation may be found in Appendix A of this report.

Actuarial Methods – No changes were made since the prior valuation. A complete description of the actuarial methods used in the June 30, 2015 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 used in the June 30, 2015 valuation may be found in Appendix B of this report.

Plan Data – No changes were made to the data since the prior valuation. The changes in data recorded in this valuation are due strictly to demographic experience from June 30, 2014 to June 30, 2015.

Subsequent Events

Plan Data – 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 fiscal years 2008-09, 2009-10, 2010-11 and 2013-14 plus 10% interest per annum for each year that the judicial salaries were not increased within those fiscal years. The increases and amounts owed have not been calculated yet. We anticipate the impact of this lawsuit to be reflected in the June 30, 2016 valuation.

Assets

Contents

This section contains the following topics:

Reconciliation of the Market Value of Assets

The following displays the change in the Market Value of Assets from the prior valuation to the current valuation by type of transaction.

Reconciliation of the Market Value of Assets

		Market Value
1.	Beginning Balance as of June 30, 2014	$ 1,013,839,948
2.	Prior Period Adjustment	0
3.	Adjusted Beginning Balance as of 6/30/2014	$ 1,013,839,948
4.	Member Contributions	22,241,850
5.	Employer Contributions	65,629,490
6.	Benefit Payments	(14,024,225)
7.	Refunds	(16,380)
8.	Administration Costs	(1,127,239)
9.	Investment Earnings*	(2,401,513)
10.	Ending Balance as of June 30, 2015	$ 1,084,141,932

*Net Fund return for the 2014-2015 fiscal year is -0.34%

Asset Allocation

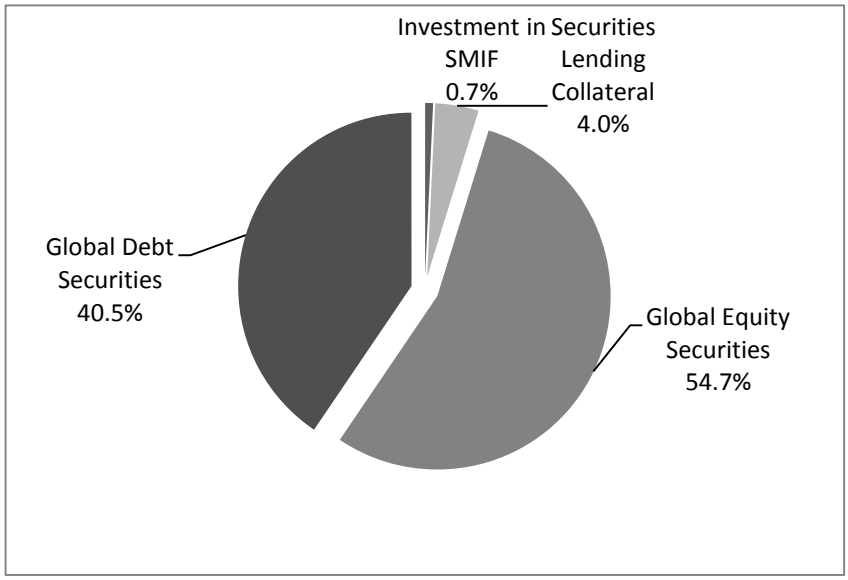
Shown below is the Market Value of Assets, by asset type, as of the valuation date.

Asset Allocation

Cash	$	716
Investments at Market Value		
Investment in SMIF		8,302,000
Short-Term Investments at Cost		7,405
Securities Lending Collateral		45,465,505
Global Equity Securities		614,392,671
Global Debt Securities		455,046,291
Subtotal of Investments	$	1,123,213,872
Accounts Receivable		
Member, Agency, State, School		7,145,204
Investment Sales and Other		79,202
Accrued Interest Receivable		6,496
Due From PERF		64,396
Other Program Receivables		25,677
Subtotal of Accounts Receivable	$	7,320,974
Liabilities (Including Security Lending Collateral)		(46,393,630)
Fund Balance at Market Value on 6/30/2015	$	1,084,141,932

Asset Allocation (continued)

This is the graphical representation of how the assets contained in the Judges' Retirement II Fund are allocated for investment. This information is also disclosed in the June 30, 2015 CAFR.



Receivables and Liabilities are not included

Liabilities and Rates

Contents

This section contains the following topics:

Comparison of Current and Prior Year Results

Shown below is the comparison of key valuation results for the current valuation date to the corresponding values from the prior valuation date.

	June 30, 2014	June 30, 2015
1. Members Included in the Valuation		
a. Active Members	1,392	1,470
b. Deferred Vested Terminated Members & QDRO's	3	1
c. Receiving Payments	71	96
d. Total	1,466	1,567
2. Payroll		
a. Covered Annual Payroll	251,585,849	272,698,146
b. Projected Covered Annual Payroll	266,907,427	289,305,463
c. Average Covered Annual Payroll [(2a /(1a)]	180,737	185,509
3. Age and Service for Actives		
a. Average Attained Age for Actives	58.20	58.38
b. Average Service for Actives	8.89	9.07
4. Present Value of Benefits at Valuation Date		
a. Active Members	1,446,623,018	1,598,439,357
b. Inactive Members	786,116	900,963
c. Receiving Benefits	78,776,675	109,162,856
d. Total	$ 1,526,185,809	$ 1,709,083,961
5. Present Value of Future Employee Contributions	$ 155,161,867	$ 176,411,195
6. Present Value of Future Employer Normal Cost	$ 420,381,614	$ 450,848,343
7. Accrued Actuarial Liability		
a. Active Members	871,079,537	971,179,819
b. Inactive Members	786,116	900,963
c. Receiving Benefits	78,776,675	109,162,856
d. Total	$ 950,642,328	$ 1,081,824,423
8. Assets		
a. Market Value of Assets	$ 1,013,839,948	$ 1,084,141,932
b. Unfunded Accrued Actuarial Liability [(7d) - (8a)]	$ (63,197,620)	$ (2,317,510)
c. Funded Ratio [(8a)/(7d)]	106.6%	100.2%

Gain/Loss Analysis

Shown below is an analysis of the (Gain)/Loss for the fiscal year ending on the valuation date. The Gain or Loss is shown separately for assets, contributions, and liabilities.

A. Total (Gain)/Loss for the Year

1. Unfunded Accrued Liability (UAL) as of 6/30/14	$ (63,197,620)
2. Expected Payment on UAL during 2014/2015	2,998,756
3. Interest through 6/30/15 [0.0700 x A1 – $(1.0700^{½} - 1)$ x A2]	(4,527,015)
4. Expected UAL before all other changes[A1 - A2 + A3]	$ (70,723,391)
5. Change due to revised actuarial methods	0
6. Change due to new actuarial assumptions	0
7. Expected UAL after all changes [A4 + A5 + A6]	(70,723,391)
8. Actual Unfunded Accrued Liability as of 6/30/15	(2,317,510)
9. Total (Gain)/Loss for 2014/2015 [A8 – A7]	$ 68,405,881

B. Contribution (Gain)/Loss for the Year

1. Expected Contribution (Employer and Employee)	$ 84,676,555
2. Interest on Expected Contributions [$(1.0700^{1/2} – 1)$ x B1]	2,913,555
3. Actual Contribution	87,871,341
4. Interest on Actual Contributions [$((1.0700)^{1/2} – 1)$ x B3]	3,023,481
5. Contribution (Gain)/Loss [(B1 + B2) – (B3 + B4)]	$ (3,304,712)

C. Asset (Gain)/Loss for the Year

1. Market Value of Assets as of 6/30/14	$ 1,013,839,948
2. Contributions Received	87,871,341
3. Benefits, Refunds Paid and Administrative Costs	(15,167,844)
4. Expected Interest [0.0700 x C1 + $((1.0700)^{½} - 1)$ x (C2 + C3)]	73,470,381
5. Expected Assets as of 6/30/14 [C1 + C2 + C3 + C4]	$ 1,160,013,826
6. Actual Market Value of Assets as of 6/30/15	1,084,141,932
7. Asset (Gain)/Loss [C5 - C6]	$ 75,871,894

D. Liability (Gain)/Loss for the Year

1. Total (Gain)/Loss (A9)	$ 68,405,881
2. Contribution (Gain)/Loss (B5)	(3,304,712)
3. Asset (Gain)/Loss (C7)	75,871,984
4. Liability (Gain)/Loss [D1 - D2 - D3]*	$ (4,161,300)

* Liability gain is mostly due to salary increase lower than projected

Schedule of Amortization Bases

The schedule below shows the development of the proposed payment on the Amortization Bases. The rate smoothing method requires that gains and losses be combined into a single base and amortized over 30 years. Please refer to Appendix A for an explanation of how amortization periods are determined.

Reason For Base	Date Established	Period	Balance on 6/30/15	Expected Payment on UAL 15-16	Balance on 6/30/16	Scheduled Payment Fiscal Year 2016-2017
Fresh Start	6/30/2015	30	$ (2,317,511)	$(281,156)	$ (2,188,906)	$ (124,268)
Total		**30**	**$ (2,317,511)**	**$(281,156)**	**$ (2,188,906)**	**$ (124,268)[1]**

[1]The rate of -0.043% is the amortized funding surplus of $(124,268) divided by the projected payroll for the 2016-17 fiscal year. Due to PEPRA, the surplus cannot used to offset pension contributions for the current year.

Reconciliation of Actuarially Determined Employer Contribution

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

	Percentage of Projected Payroll	Estimated $ Based on Projected Payroll
1. 2015-16 Actuarially Determined Employer Contribution (from prior year annual report)	21.866%	$ 58,361,978
2. Effect of changes since the prior annual valuation		
a) Effect of Change in payroll	-	5,234,412
b) Effect of (Gain)/Loss	1.276%	3,354,681
c) Effect of Plan changes	-	0
d) Effect of Method Changes	-	0
e) Effect of Assumption Changes	-	0
f) Net effect of changes [Sum of a - e]	1.276%	8,589,093
3. 2016-17 Actuarially Determined Employer Contribution	23.142%	66,951,071

[1]The rate of 23.142% is the Actuarially Determined Employer Contribution. The Minimum Employer Contribution Rate under PEPRA is the greater of the Actuarially Determined Employer Contribution or the Employer Normal Cost. The Minimum Employer Contribution Rate is therefore 23.185%

Actuarially Determined Employer Contribution Rate History

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

Fiscal Year	Actuarially Determined Employer Contribution	Minimum Employer Contribution Rate
2007-08	19.916%	N/A
2008-09	20.227%	N/A
2009-10	20.358%	N/A
2010-11	24.041%	N/A
2011-12	23.441%	N/A
2012-13	22.837%	N/A
2013-14	22.687%	22.687%
2014-15	24.615%	24.615%
2015-16	21.866%	23.370%
2016-17	23.142%	23.185%

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. The funded ratio based on the Market Value of Assets is an indicator of the short-term solvency of the plan.

Valuation Date	Entry Age Normal Accrued Liability	Market Value of Assets (MVA)	Funded Ratio (MVA)	Projected Annual Covered Payroll
6/30/06	220,134,685	218,986,736	99.5%	136,602,126
6/30/07	294,982,560	290,733,043	98.6%	174,473,271
6/30/08	366,513,989	325,451,000	88.8%	190,413,674
6/30/09	450,547,115	315,576,578	70.0%	211,942,734
6/30/10	520,687,470	422,100,782	81.1%	226,710,927
6/30/11	609,562,110	575,978,052	94.5%	243,635,717
6/30/12	702,732,271	655,383,900	93.3%	244,788,249
6/30/13	837,197,578	795,966,486	95.1%	256,724,949
6/30/14	950,642,328	1,013,839,948	106.6%	266,907,427
6/30/15	1,081,824,423	1,084,141,932	100.2%	289,305,463

Total Normal Cost by Group

The Public Employees' Pension Reform Act of 2013 requires that new employees pay at least 50 percent of the total annual normal cost and that current employees approach the same goal through collective bargaining. Please refer to the CalPERS website for more details.

The following table illustrates the normal cost by employee group. The employee contribution for the PEPRA group will change if the Total Normal Cost for the PEPRA group changes by 1% or more from the Baseline Normal Cost Rate.

	Fiscal Year 2015/2016	**Fiscal Year 2016/2017**
Total Classic Normal Cost	31.500%	31.558%
Classic Employee Contribution	8.00%	8.00%
Total PEPRA Normal Cost	30.652%	30.727%
PEPRA Employee Contribution	15.25%	15.25%

The baseline normal cost for PEPRA members is 30.702%.

Risk Analysis

Contents

This section contains the following topics:

Volatility Ratios

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

Asset Volatility Ratio

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

Liability Volatility Ratio

Plans that have higher liability to payroll ratios produce more volatile employer rates due to investment return and changes in liability. For example, a plan with a liability to payroll ratio of 8 is expected to have twice the contribution volatility of a plan with a liability to payroll ratio of 4. The liability volatility ratio is also included in the table below. It should be noted that this ratio indicates a longer-term potential for contribution volatility and the asset volatility ratio, described above, will tend to move closer to this ratio as the plan matures.

Rate Volatility		**As of June 30, 2015**
1. Market Value of Assets	$	1,084,141,932
2. Payroll		272,698,146
3. Asset Volatility Ratio (1. / 2.)		4.0
4. Accrued Liability	$	1,081,824,423
5. Liability Volatility Ratio (4. / 2.)		4.0

The ratios for this plan indicate this plan has a lower risk of large changes to employer rates when it comes to investment returns and changes in liability.

Analysis of Future Investment Return Scenarios

As of December 31, 2015, the investment return for fiscal year 2015-16 was estimated to be -3.4%. Note that this return is before the close of the fiscal year and does not take into account administrative expenses that must be paid from the fund. The final return information for the fund will not be available until October 2016. The preliminary -3.4% return for the 2015-16 fiscal year is lower than the assumed rate of return. The lower return is anticipated to increase the employer contribution rate for 2017-18. For purposes of projecting future employer rates, this report assumes a -3.4% investment return for fiscal year 2015-16.

The investment return realized during a fiscal year first affects the contribution rate for the fiscal year one year later. Specifically, the investment return for 2015-16 will first be reflected in the June 30, 2016 actuarial valuation that will be used to set the 2017-18 employer contribution rates, the 2016-17 investment return will first be reflected in the June 30, 2017 actuarial valuation that will be used to set the 2018-19 employer contribution rates and so forth.

Based on a -3.4% investment return for fiscal year 2015-16 and assuming that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur between now and the beginning of the fiscal year 2017-18, the effect on the 2017-18 Employer Rate is as follows:

Estimated 2017-18 Employer Rate	Estimated Increase in Employer Rate between 2016-17 and 2017-18[1]
23.7%	0.5%

[1] The estimated increase in Employer Rate between 2016-17 and 2017-18 is the difference in Minimum Employer Contribution Rates.

As part of this report, a sensitivity analysis was performed to determine the effects of various investment returns during fiscal years 2016-17, 2017-18, and 2018-19 on the 2018-19, 2019-20, and 2020-21 Minimum Employer Contribution Rates. Once again, the projected rate increases assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur.

Analysis of Future Investment Return Scenarios (continued)

Five different investment return scenarios were selected.

- The first scenario is what one would expect if the markets were to give us a 5th percentile return from July 1, 2016 through June 30, 2019. The 5th percentile return corresponds to a -3.75% return for each of the 2016-17, 2017-18, and 2018-19 fiscal years.
- The second scenario is what one would expect if the markets were to give us a 25th percentile return from July 1, 2016 through June 30, 2019. The 25th percentile return corresponds to a 2.25% return for each of the 2016-17, 2017-18, and 2018-19 fiscal years.
- The third scenario assumed the return for 2016-17, 2017-18, and 2018-19 would be our assumed 7.00% investment return which represents about a 50th percentile event.
- The fourth scenario is what one would expect if the markets were to give us a 75th percentile return from July 1, 2016 through June 30, 2019. The 75th percentile return corresponds to a 10.50% return for each of the 2016-17, 2017-18, and 2018-19 fiscal years.
- Finally, the last scenario is what one would expect if the markets were to give us a 95th percentile return from July 1, 2016 through June 30, 2019. The 95th percentile return corresponds to a 16.50% return for each of the 2016-17, 2017-18, and 2018-19 fiscal years.

The table below shows the estimated changes in the Employer rate for 2018-19, 2019-20, and 2020-21 fiscal years under the five different scenarios.

2016-2019 Investment Return Scenario	**Estimated Actuarially Determined Employer Contribution/Minimum Employer Rate**			**Total Estimated Increase in Minimum Employer Rate between 2018-19 and 2020-21**
	2018-19	**2019-20**	**2020-21**	
-3.75% (5th percentile)	24.8%	26.5%	28.8%	4.0%
2.25% (25th percentile)	24.5%	25.6%	26.9%	2.4%
7.00%	24.3%	24.8%	25.4%	1.1%
10.5% (75th percentile)	24.1%	24.2%	23.2%	-0.9%
16.5% (95th percentile)	23.7%	23.2%	23.2%	-0.5%

For the 75th and 95th percentile, the plan would be in surplus. The projected rates reflect the Minimum Employer Contribution Rate according to PEPRA.

Analysis of Discount Rate Sensitivity

The following analysis looks at the 2016-17 employer contribution rates under two different discount rate scenarios. Shown below are the employer contribution rates assuming discount rates that are 1% lower and 1% higher than the current valuation discount rate. This analysis gives an indication of the potential required employer contribution rates if the fund were to realize investment returns of 6.00% or 8.00% over the long-term.

This type of analysis gives the reader a sense of the long-term risk to the employer contribution rates.

2016-17 Employer Contribution Rate			
As of June 30, 2015	**6.00% Discount Rate (-1%)**	**7.00% Return (assumed rate)**	**8.00% Discount Rate (+1%)**
Total Normal Cost	37.598%	31.620%	27.010%
UAL Payment	2.785%	(0.043%)	(2.791%)
Actuarially Determined Employer Contribution	40.383%	31.577%	24.219%
Minimum Employer Contribution Rate	40.383%	31.620%	27.010%

The table above includes the impact of G.C. Section 7522.22 (PEPRA). The minimum contribution shown is equal to the normal cost shown for each discount rate in the table above where the UAL payment is negative.

The following presents the funded status of the Judges Retirement System II calculated using the discount rate of 7 percent, as well as what the Judges Retirement System II's funded status would be if it were calculated using a discount rate that is 1-percentage-point lower (6 percent) or 1-percentage-point higher (8 percent) than the current rate:

Funded Status			
As of June 30, 2015	**6.00% Discount Rate (-1%)**	**7.00% Return (assumed rate)**	**8.00% Discount Rate (+1%)**
AL	1,218,173,285	1,081,824,423	978,420,773
MVA	1,084,141,932	1,084,141,932	1,084,141,932
UAL	134,031,352	(2,317,510)	(105,721,159)
Funded Status	89.0%	100.2%	110.8%

Appendices

Contents

This section contains the following topics:

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 Funding 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, for active members beyond the assumed retirement age, 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 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 an amortization of the unfunded liability as a level percentage of assumed future payrolls. Commencing with the June 30, 2013 valuation all new gains or losses are tracked and 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, changes in actuarial assumptions, or changes in actuarial methodology are amortized separately 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.

An exception to the funding rules above is used whenever the application of such rules results in inconsistencies. In these cases a "fresh start" approach is used. This simply means that the current unfunded actuarial liability is projected and amortized over a set number of years. A fresh start is needed in the following situations:

- When a positive payment would be required on a negative unfunded actuarial liability (or conversely a negative payment on a positive unfunded actuarial liability); or

- When there are excess assets, rather than an unfunded liability. In this situation a 30-year fresh start is used, unless a longer fresh start is needed to avoid a negative total rate.

It should be noted that the actuary may choose to use a fresh start under other circumstances. In all cases, the fresh start period is set by the actuary at what they deem appropriate, and will not be less than five years nor greater than 30 years.

Asset Valuation Method

It is the policy of the CalPERS Board of Administration to use professionally accepted amortization methods to eliminate unfunded accrued liabilities or surpluses in a manner that maintains benefit security for the members of the System while minimizing substantial variations in employer contribution rates. On April 17, 2013, the CalPERS Board of Administration approved a recommendation to change the CalPERS amortization and rate smoothing policies. Beginning with the June 30, 2014 valuation that sets the 2015-16 rates, CalPERS employs an amortization and smoothing policy that pays for all gains and losses over a fixed 30-year period with the increases or decreases in the rate spread directly over a 5-year period. CalPERS no longer uses an actuarial value of assets and only uses the market value of assets. This direct rate smoothing method is equivalent to a method using a 5 year asset smoothing period with no actuarial value of asset corridor and a 25 year amortization period for gains and losses.

Actuarial Assumptions

The actuarial assumptions used in the valuation are shown below. These assumptions are based upon recommendations from both CalPERS actuarial staff and outside consulting actuaries.

Economic Assumptions

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

June 30, 2015	
Gross Investment Return:	7.15%
Less Administrative Expense:	0.15%
Net Investment Return, compounded annually:	7.00%
Individual Salary Increases, compounded annually:	3.00%
Overall Payroll Growth, compounded annually*	3.00%
Inflation:	2.75%

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

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	0.750
66	0.400
67	0.300
68	0.350
69	0.500
70*	1.000

*For Judges age 70 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.

Entry Age	Years of Service					
	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	Non-Industrial Disability	
	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

Demographic Assumptions (continued)

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 revised rates include 20 years of projected on-going mortality improvement using Scale BB published by the Society of Actuaries.

Pre-Retirement Mortality

Attained Age	Pre-Retirement Mortality	
	Male	Female
35	0.00057	0.00035
40	0.00075	0.00050
45	0.00106	0.00071
50	0.00155	0.00100
55	0.00228	0.00138
60	0.00308	0.00182
65	0.00400	0.00257
70	0.00524	0.00367

Post-Retirement Mortality

Attained Age	Standard		Non-Industrial Disability	
	Male	Female	Male	Female
35	0.00060	0.00046	0.00788	0.00492
40	0.00110	0.00091	0.00949	0.00605
45	0.00227	0.00200	0.01221	0.00804
50	0.00501	0.00466	0.01680	0.01158
55	0.00599	0.00416	0.01973	0.01149
60	0.00710	0.00436	0.02289	0.01235
65	0.00829	0.00588	0.02451	0.01607
70	0.01305	0.00993	0.02875	0.02211
75	0.02205	0.01722	0.03990	0.03037
80	0.03899	0.02902	0.06083	0.04725
85	0.06969	0.05243	0.09731	0.07762
90	0.12974	0.09887	0.14804	0.12890
95	0.22444	0.18489	0.22444	0.21746
100	0.32536	0.30017	0.32536	0.30017
105	0.58527	0.56093	0.58527	0.56093
110	1.00000	1.00000	1.00000	1.00000

Demographic Assumptions (continued)

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. The effect of these limitations has been deemed immaterial on the overall results of 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. It was determined that this change generally had minimal impact on the employer rates and no special amortization base has been created.

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 percent 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.

Member Contributions

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

New members: Members of the system contribute ½ the total normal cost calculated on January 1, 2013. The percentage will only change in any given year once the change to the total normal cost is greater than 1 percent from the original percentage determined.

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. 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 5 years of service), the member is paid the amount of his or her 8% of salary contributions to the system, but not the full Monetary Credit Account. After 5 years of service however, the Monetary Credit Account becomes the property of the member upon withdrawal.

Service Retirement

Eligibility - Judges must be at least age 65 with 20 years or more of service or age 70 with a minimum of 5 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.

New 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 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 the their average monthly salary during the 12 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.

Non-Industrial 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.

Industrial Pre-Retirement Death Benefit

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 allowance paid to the judge had he or she retired immediately preceding death.

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 Statistics. No adjustment shall be made unless the cost-of-living increase equals or exceeds one percent (1%). Further, the allowance shall not be increased more than three percent (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, 2014	June 30, 2015
1. **Active Members**		
a) Counts	1,392	1,470
b) Average Attained Age	58.20	58.38
c) Average Entry Age to Rate Plan	49.31	49.31
d) Average Years of Service	8.89	9.07
e) Average Annual Covered Pay	180,737	185,509
f) Annual Covered Payroll	251,585,849	272,698,146
g) Projected Annual Payroll for Contribution	266,907,427	289,305,146
h) Present Value of Future Payroll	1,892,896,229	2,055,459,003
2. **Transferred and Vested Termination Members**		
a) Counts	3	1
3. **Retired Members and Beneficiaries**		
a) Counts	71	96
b) Average Attained Age	71.20	72.06
c) Average Monthly Benefits	7,253	7,581
4. **Active to Retired Ratio** [(1a) / (3)]	19.61	15.31

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, 2015

	Actives	Inactive	Retirees and Beneficiaries	Total
As of June 30, 2014	1,392	3	71	1,466
1. New Entrants	115	0	0	115
2. Non-Vested Terminations				
• Refund Paid	(1)	(1)	0	(2)
• Refund Pending	0	0	0	0
3. Vested Terminations				
• Monetary Credit Paid	(10)	(2)	0	(12)
• Monetary Credit Pending	(1)	1	0	0
4. Disabilities	0	0	0	0
5. Retirements	(22)	0	22	0
6. Death with Beneficiary	(3)	0	3	0
7. Active Death Benefit	0	0	0	0
8. Benefits Ceasing (Beneficiaries)	0	0	0	0
As of June 30, 2015	**1,470**	**1**	**96**	**1,567**

Distribution of Active Members

The following table displays the number of active participants by age and service as of June 30, 2015.

	Years of Service at Valuation Date					
Attained Age	**0-4**	**5-9**	**10-14**	**15-19**	**20+**	**Total**
15-34	0	0	0	0	0	0
35-39	2	0	0	0	0	2
40-44	51	5	0	0	0	56
45-49	88	64	2	0	0	154
50-54	83	102	50	10	0	245
55-59	87	111	78	44	6	326
60-64	58	107	108	77	6	356
65+	47	67	104	104	9	331
All Ages	416	456	342	235	21	1470

Distribution of Average Annual Salaries

The following table displays the average salaries of active participants by age and service as of June 30, 2015.

	Years of Service at Valuation Date					
Attained **Age**	**0-4**	**9-May**	**14-Oct**	**15-19**	**20+**	**Average**
<35	0	0	0	0	0	0
35-39	$204,976	0	0	0	0	$204,976
40-44	$185,409	$184,610	0	0	0	$185,337
45-49	$185,981	$185,026	$184,610	0	0	$185,567
50-54	$184,610	$184,871	$185,143	$184,610	0	$184,828
55-59	$185,835	$185,090	$185,635	$186,427	$189,051	$185,673
60-64	$184,610	$185,108	$186,091	$185,648	$184,610	$185,433
65+	$185,177	$185,008	$184,866	$187,173	$190,532	$185,818
Average	$185,416	$185,019	$185,467	$186,424	$188,417	$185,509

Distribution of Retired Members and Beneficiaries

The following table displays the number of recipients by age and retirement type as of June 30, 2015.

Attained Age	Service Retirement	Non-Industrial Disability	Industrial Disability	Total
40-44	0	0	0	0
45-49	1	0	0	1
50-54	1	0	0	1
55-59	2	2	1	5
60-64	1	1	1	3
65-69	7	4	0	11
70-74	40	2	1	43
75-79	20	1	1	22
80-84	6	0	0	6
85 and Over	2	0	0	2
All Ages	80	10	3	94*

*Does not include 2 beneficiaries receiving 36 month pre-retirement death benefit

Appendix D – Glossary of Actuarial Terms

Glossary of Actuarial Terms

Accrued Liability

The total dollars needed as of the valuation date to fund all benefits earned in the past for *current* members.

Actuarial Assumptions

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

Actuarial Methods

Procedures employed by actuaries to achieve certain goals of a pension plan. These may include things such as funding method, setting the length of time to fund the past service liability and determining the actuarial value of assets.

Actuarial Valuation

The determination, as of a valuation date of the normal cost, actuarial accrued liability, actuarial value of assets 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 liability. The total unfunded liability (or side fund) can be segregated by "cause," creating "bases" and each such base will be separately amortized and paid for over a specific period of time. This can be likened to a home mortgage that has 24 years of remaining payments and a second on that mortgage that has 10 years left. Each base or each mortgage note has its own terms (payment period, principal, etc.)

Generally in an actuarial valuation, the separate bases consist of changes in liability (principal) due to amendments, actuarial assumption changes, or methodology changes and gains and losses. Payment periods are determined by Board policy and vary based on the cause of the change.

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)

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

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

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 is designed to produce stable employer contributions in amounts that increase at the same rate as the employer's payroll (i.e. level % of payroll).

Fresh Start When multiple amortization bases are collapsed into one base and amortized over a new funding period. At CalPERS, fresh starts are used to avoid inconsistencies that would otherwise occur.

Funded Status A measure of how well funded a plan or risk pool is. Or equivalently, how "on track" a plan or risk pool is with respect to assets vs. accrued liabilities. We calculate a funded ratio by dividing the actuarial value of assets by the accrued liabilities. A ratio greater than 100% means the plan or risk pool has more assets than liabilities and a ratio less than 100% means liabilities are greater than assets.

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 annual cost of service accrual for the upcoming fiscal year for active employees. The normal cost plus surcharges should be viewed as the long-term contribution rate.

Pension Actuary A person who is responsible for the calculations necessary to properly fund a pension plan.

PEPRA The California Public Employees' Pension Reform Act of 2013

Prepayment Contribution A payment made by the employer to reduce or eliminate the current year required employer contribution.

Present Value of Benefits

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

When a plan or pool's actuarial value of assets is less than its accrued liability, the difference is the plan or pool's unfunded liability. If the unfunded liability is positive, the plan or pool will have to temporarily increase contributions.