CalPERS Asset Liability Management & Experience Study

Municipal Finance Institute

December 11, 2025

CalPERS

Financial Position – Where We Stand

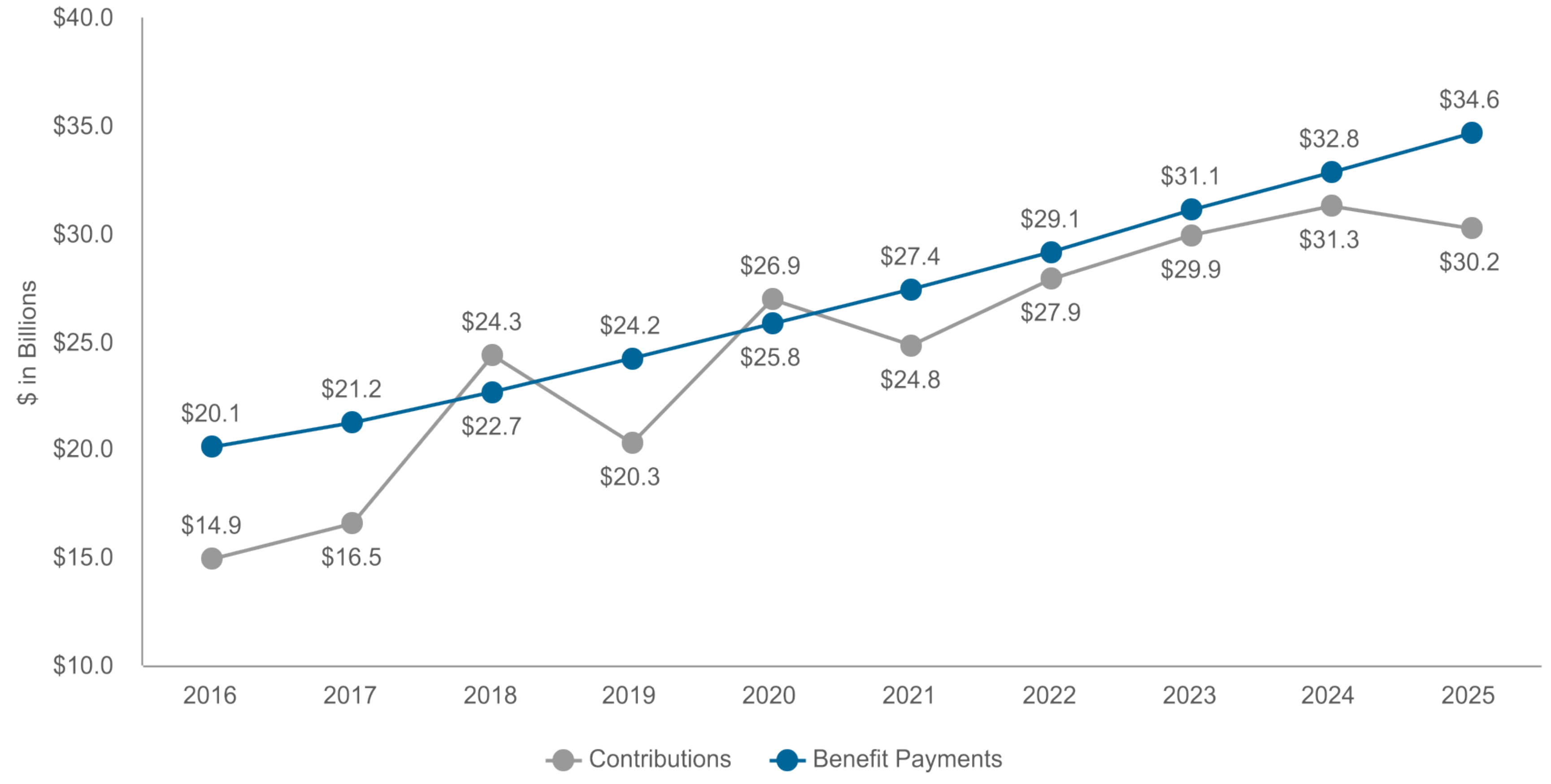
12.1%
Annual
Money-Weighted Rate
of Return

79%
Funded Status
(estimated)

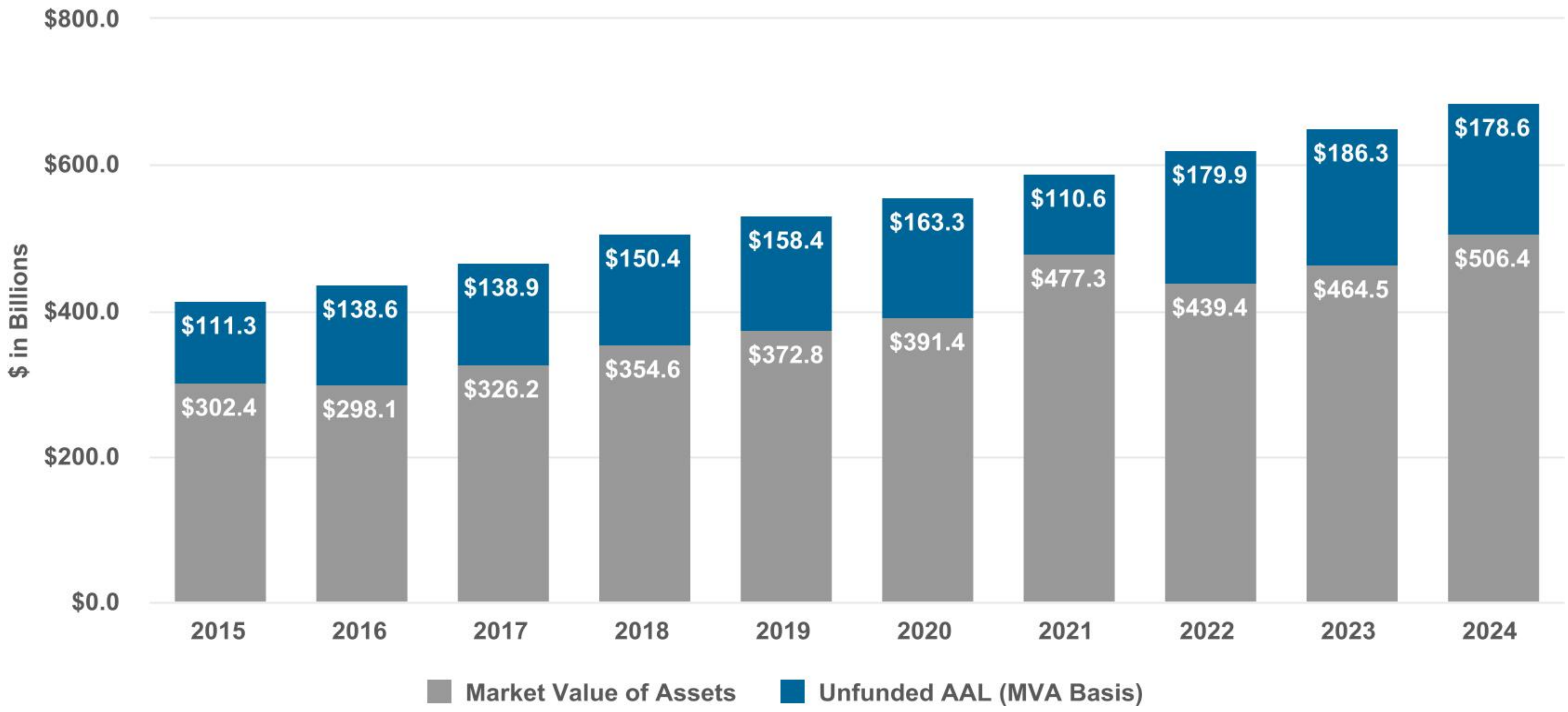
$563.0
Billion
(total net position)

As of June 30, 2025

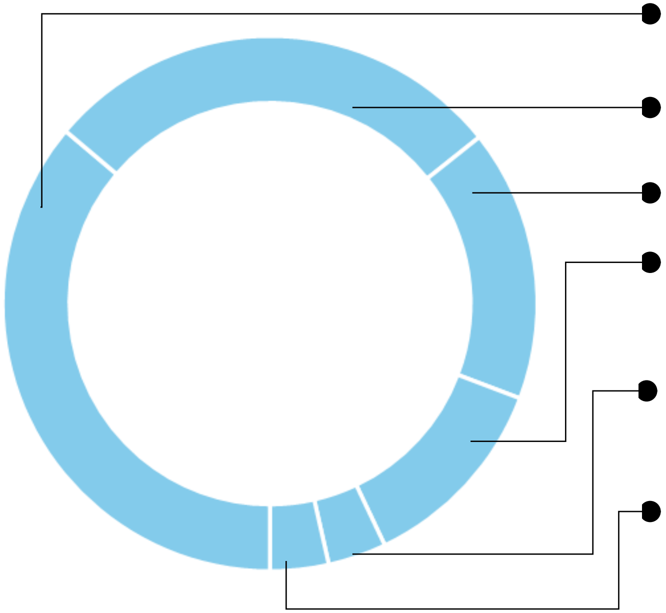
PERF Contributions & Benefit Payments



PERF Unfunded Actuarial Liability & Market Value of Assets



Fiscal Year End Asset Allocation and Returns*



Asset Classes	SAA Targets	Allocation on June 30, 2025	Net Rate of Return
Public Equity	37%	38.9%	16.8%
Fixed Income	28%	30.3%	6.5%
Private Equity*	17%	17.7%	14.3%
Real Assets*	15%	13.1%	2.8%
Private Debt	8%	3.8%	12.8%
Leverage & Other Financing	-5%	-6.1%	-
	100%	**Total Fund**	11.6%

*Data based on time-weighted returns.

Retirement Plan Members By Employer Type

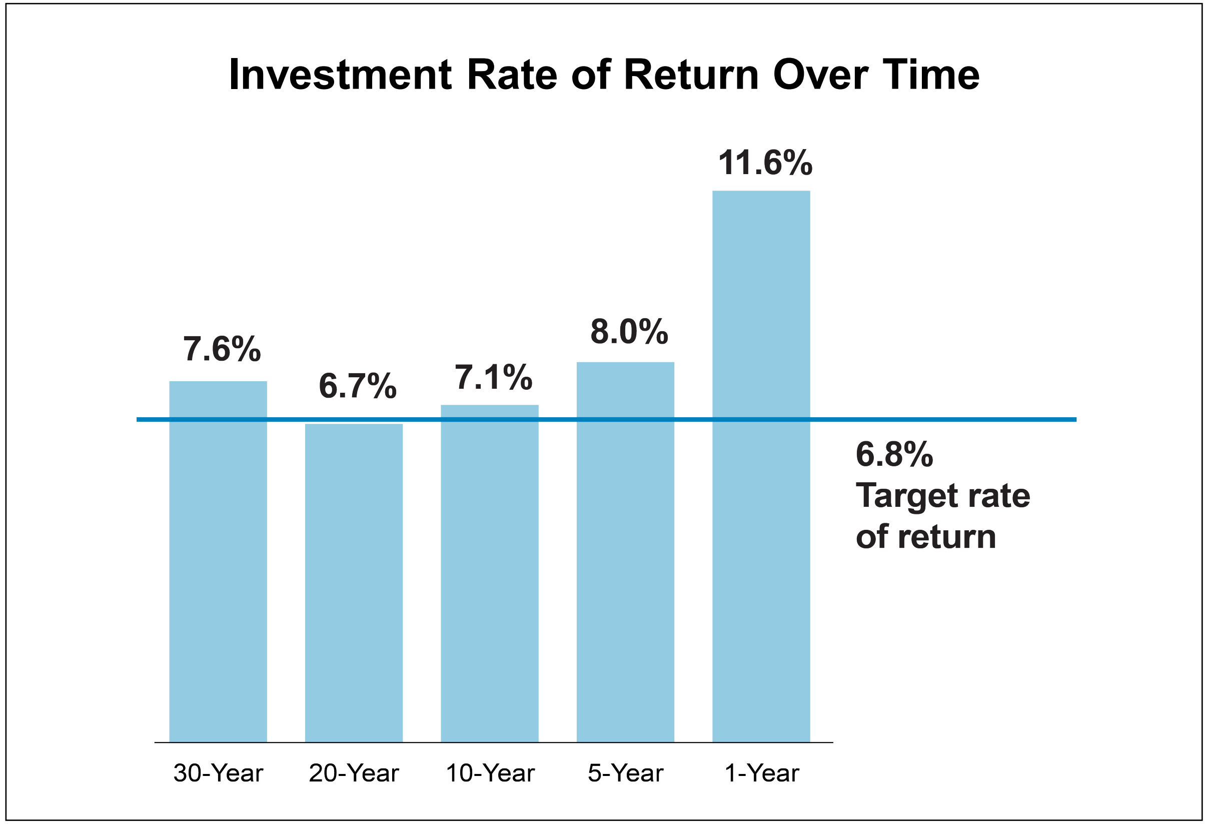
(FY 2024-25)

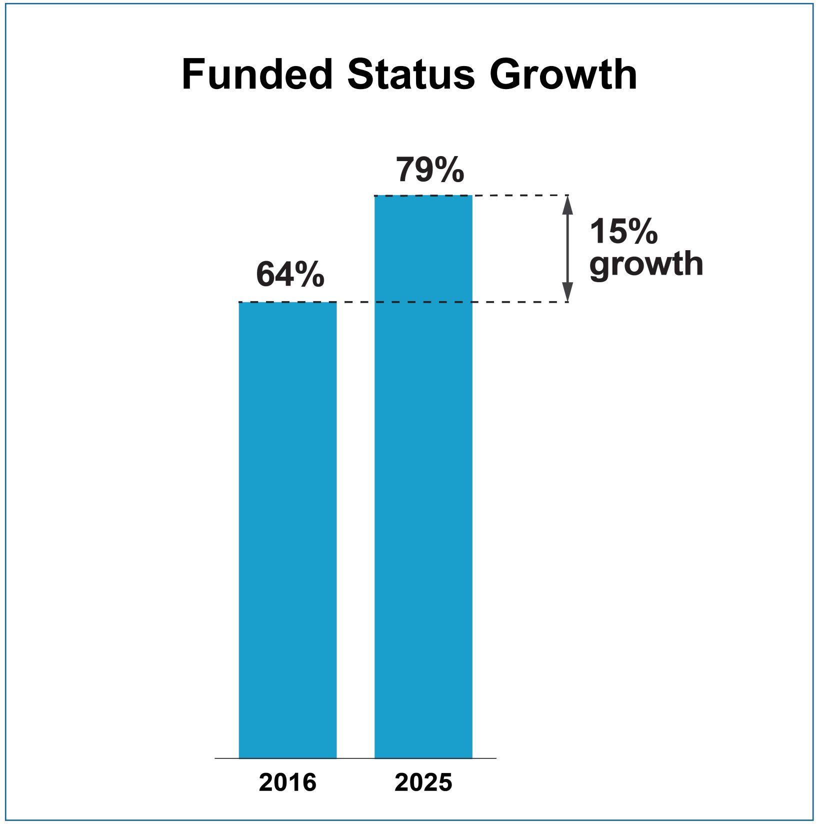
	Members*	Retirees**
State	705,565	246,886
School	937,935	227,853
Public Agency	741,677	239,957
Total	**2,385,177**	**714,696**

*A member can be counted more than once (e.g., having multiple appointments in the same FY, receiving multiple benefit payments, etc.).
**Includes service, disability, and industrial disability retirements, but does not include beneficiaries and survivors. Retirees are counted by the employer from which they retired, regardless if they had service with other employers.

A Healthier Fund

Fiscal Year Investment Returns *(as of June 30, 2025)*





ALM Timeline

Stakeholder Engagement Throughout Cycle

September 2025	October 2025	November 2025
First Read: PERF Recommended Reference Portfolio, Active Risk Limits, Expected Rate of Return, Experience Study, Actuarial Assumptions, Discount Rate *ALM Strategy Closed Session*	Ed Forum State of the System Session	Board Vote: PERF Recommended Reference Portfolio, Active Risk Limits, Expected Rate of Return, Experience Study, Actuarial Assumptions, Discount Rate

December 2025	March 2026	June 2026	July 1, 2026
Stakeholder Webinar December 4	Affiliate Funds ALM First Read: PERF Policy Updates Closed Session: PERF Implementation Strategy	Affiliate Funds ALM Board Action: PERF Policy Updates Closed Session: PERF Implementation Strategy	**PERF ALM Effective Date**

What is ALM?

Asset
Liability
Management

Four Year Cycle with a Mid-Cycle Review

Public Employees Retirement Fund and Affiliate Funds

Connecting How We Invest With What We Owe in Pension Liabilities

Purpose of ALM

The Tool For Achieving our Strategic Goal of:

Pension Sustainability

Strengthen the Long-term Sustainability of the Pension Fund

Ensure Contributions, Plus Investment Returns, Are Enough to Pay the Benefits and Expenses of the Pension System Now and Into the Future

PERF Board Decisions

Adopted a Total Portfolio Approach With:

- Capital Market Assumptions
- Formal Total Fund Risk:
  - 75/25 Equity-Bonds Reference Portfolio (RP)
  - Active Risk Limit of 400 Basis Points

No Change to the Current 6.8% Discount Rate

Adopted New Actuarial Assumptions

Adopting a Total Portfolio Approach Means…

No Changes To:

Board authority for setting investment risk and governance model

ALM process:

- 4-year cycle, mid-point review
- Board deliverables of capital market assumptions and expected returns analysis
- Actuarial assumptions and deliverables

Changes Under TPA:

The Board adopted a new investment governance model that sets formal Total Fund Risk via:

- **A Reference Portfolio**
- **Active Risk Limit**

This replaces adopting a target strategic asset allocation and policy ranges for management discretion

In ALM years, the Board will review its formal Total Fund Risk

ALM Member and Employer Impacts

Plan Funded Status, Employer and PEPRA Contribution Rates

Plan Annual Actuarial Valuation

- **Plan Funded Status**
- **Required Contribution Rates**
- **PEPRA Member Contribution Rates**
- **Retirement Options/Service Credit Purchases**

Actuarial Assumptions

Experience Study

Economic Assumptions

- Long-term Investment Return
- Discount Rate
- Inflation

Non-Economic Assumptions

- Pay Increases
- Longevity
- Retirement
- Termination
- Disability
- Others

The discount rate assumption is discussed in Investment Committee

Economic Assumption Changes

Economic Assumption	Adopted Change
Discount Rate	No Change, Stays 6.8%
Price Inflation	Increase From 2.3% to 2.5%
Wage Growth Assumption	Increase From 2.8% to 3.0%
Amortization Payment Growth Rate (for Older UAL Bases)	No Change, Stays 2.8%

Demographic Assumption Changes

Demographic Assumption	Adopted Change
Retirement Rates	
Service Retirement	Some retirement rates increasing while others are decreasing
Industrial Disability Retirement (IDR)	IDR rates declining for Sheriffs, minimal changes for others
Non-Industrial Disability Retirement	Minimal changes; disability rates were consolidated into 3 sets
Mortality Rates	
Post-retirement Mortality – Male	Slight reduction in the projected mortality rates
Post-retirement Mortality – Female	Slight reduction in the base and projected mortality rates
Pre-retirement Mortality – Male	Slight reduction in the projected mortality rates
Pre-retirement Mortality – Female	Slight reduction in the base and projected mortality rates

More Demographic Assumption Changes

Demographic Assumption	Adopted Change
Termination Rates	
Termination with Refund	Minimal changes
Termination without Refund	Minimal changes for some, no change for others
Salary Scale (excluding inflation)	Moderate to higher merit increases for most plans Moderate decreases for State Industrial and Schools
% Married and Spouse Age Difference	No change

Overall Cost Impacts

Impact of Proposed Assumptions on Contribution Rates - Public Agencies

	Min	Max	Median
Classic Formulas			
2% @ 60 Miscellaneous	0.1%	0.9%	*0.3%*
2% @ 55 Miscellaneous	0.1%	3.8%	*0.7%*
2.5% @ 55 Miscellaneous	0.0%	3.0%	*0.3%*
2.7% @ 55 Miscellaneous	-0.1%	3.0%	*0.3%*
3% @ 60 Miscellaneous	0.2%	3.1%	*0.3%*
2% @ 50 Safety	3.0%	3.1%	*3.1%*
3% @ 55 Safety	-0.6%	2.2%	*1.8%*
3% @ 50 Safety	-1.1%	7.5%	*1.6%*
PEPRA Formulas			
2% @ 62 Miscellaneous	-0.5%	2.7%	*0.1%*
2.7% @ 57 Safety	-2.0%	6.0%	*1.3%*

Note: Inflation and resulting salary scales had the largest impact driving the changes

PEPRA Member Impacts

Affected PEPRA Member Contribution Rates

	Miscellaneous Plans		Safety Plans	
	Plan Count	Active Member Count	Plan Count	Active Member Count
Not Affected	1,413	155,404	227	10,620
Increase	9	1,738	551	16,431
Decrease	0	0	4	86

Implementation

Next Steps: Implementation

Members

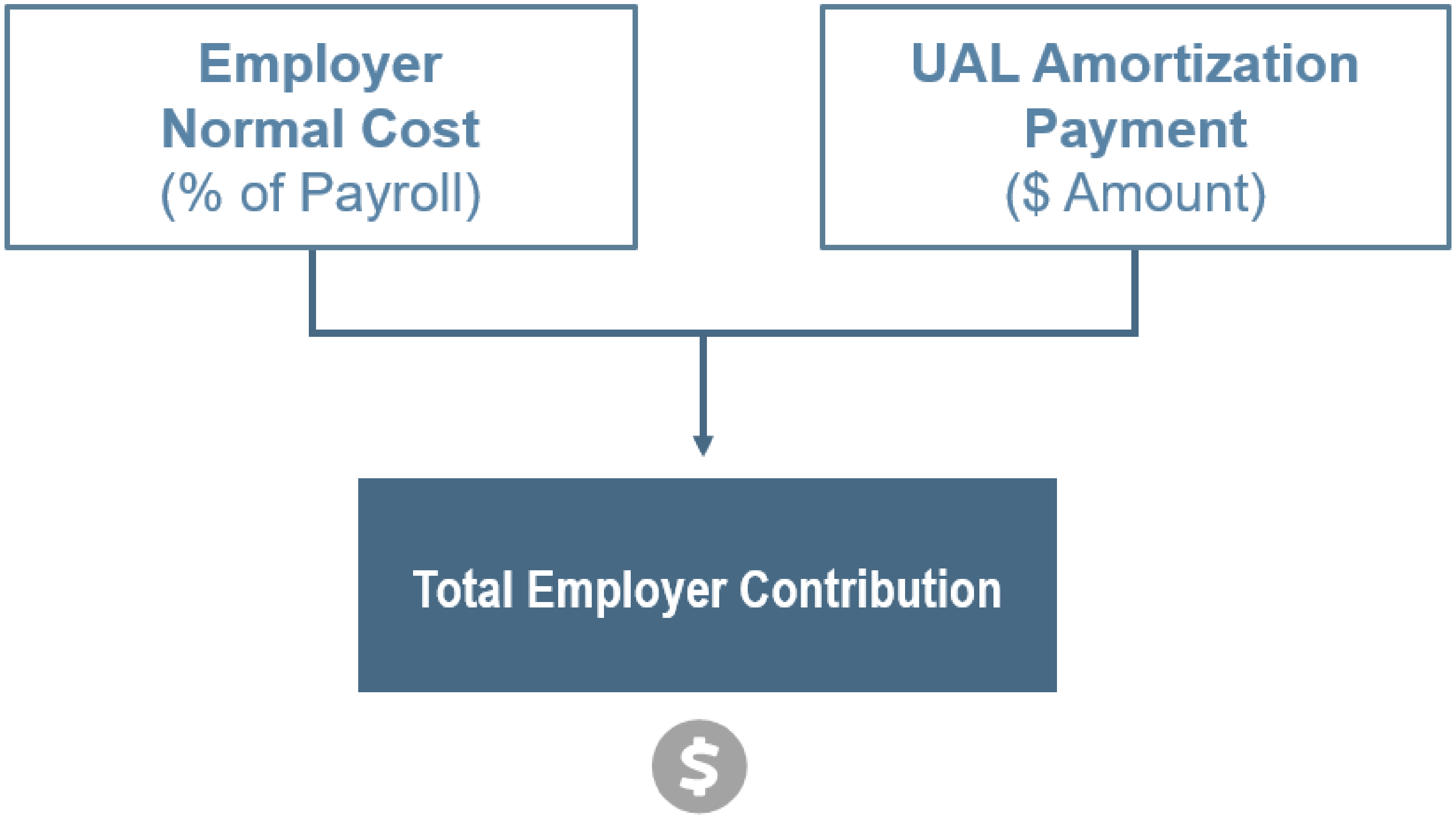
- All retirements effective on or after November 20, 2025 will use the new assumptions

Employers

- New actuarial assumptions used for the June 30, 2025 actuarial valuations
- Public Agency contribution rates first impacted in FY 2027-2028
- PEPRA member rate changes first impacted in FY 2027-2028

Managing Your Unfunded Accrued Liability (UAL)

Components of an Employer Rate



Understanding Your UAL (Page 19 for NP, page 15 for pooled) 1 of 2

Schedule of Amortization Bases

Reason for Base	Date Est.	Ramp Level 2026-27	Ramp Shape	Escala-tion Rate	Amort. Period	Balance 6/30/24	Expected Payment 2024-25	Balance 6/30/25	Expected Payment 2025-26	Balance 6/30/26	Minimum Required Payment 2026-27
Investment (Gain)/Loss	6/30/13	100%	Up/Dn	2.80%	19	3,448,485	276,432	3,397,306	264,984	3,354,478	272,404
Non-Investment (Gain)/Loss	6/30/13	100%	Up/Dn	2.80%	19	(36,465)	(2,740)	(36,113)	(2,817)	(35,657)	(2,896)
Share of Pre-2013 Pool UAL	6/30/13	No Ramp		2.80%	10	3,437,510	362,046	3,297,108	372,184	3,136,681	382,605
Assumption Change	6/30/14	100%	Up/Dn	2.80%	10	1,657,145	202,770	1,560,280	208,448	1,450,960	214,285
Investment (Gain)/Loss	6/30/14	100%	Up/Dn	2.80%	19	(2,995,752)	(225,105)	(2,966,830)	(231,408)	(2,929,428)	(237,887)
Non-Investment (Gain)/Loss	6/30/14	100%	Up/Dn	2.80%	19	3,536	266	3,502	273	3,458	281
Investment (Gain)/Loss	6/30/15	100%	Up/Dn	2.80%	19	1,934,280	145,344	1,915,607	149,414	1,891,458	153,598
Non-Investment (Gain)/Loss	6/30/15	100%	Up/Dn	2.80%	19	(168,313)	(12,647)	(166,688)	(13,001)	(164,587)	(13,365)
Assumption Change	6/30/16	100%	Up/Dn	2.80%	12	712,677	75,250	683,373	77,357	649,898	79,522
Investment (Gain)/Loss	6/30/16	100%	Up/Dn	2.80%	19	2,539,345	190,810	2,514,830	196,152	2,483,127	201,645
Non-Investment (Gain)/Loss	6/30/16	100%	Up/Dn	2.80%	19	(329,357)	(24,748)	(326,178)	(25,441)	(322,066)	(26,154)
Assumption Change	6/30/17	100%	Up/Dn	2.80%	13	843,631	83,662	814,538	86,005	781,046	88,413
Investment (Gain)/Loss	6/30/17	100%	Up/Dn	2.80%	19	(1,332,447)	(100,122)	(1,319,583)	(102,925)	(1,302,948)	(105,807)
Non-Investment (Gain)/Loss	6/30/17	100%	Up/Dn	2.80%	19	(71,734)	(5,390)	(71,042)	(5,541)	(70,147)	(5,696)
Assumption Change	6/30/18	100%	Up/Dn	2.80%	14	1,465,242	137,275	1,423,013	141,119	1,373,940	145,070
Investment (Gain)/Loss	6/30/18	100%	Up/Dn	2.80%	19	(428,140)	(32,171)	(424,007)	(33,072)	(418,662)	(33,998)
Method Change	6/30/18	100%	Up/Dn	2.80%	14	408,425	38,264	396,654	39,336	382,975	40,437
Non-Investment (Gain)/Loss	6/30/18	100%	Up/Dn	2.80%	19	219,755	16,513	217,633	16,975	214,889	17,450
Investment (Gain)/Loss	6/30/19	100%	Up Only	0.00%	15	196,885	15,692	194,056	19,615	186,981	19,615
Non-Investment (Gain)/Loss	6/30/19	No Ramp		0.00%	15	183,374	17,923	177,321	17,923	170,856	17,923
Investment (Gain)/Loss	6/30/20	100%	Up Only	0.00%	16	948,055	57,003	953,614	76,004	939,914	95,006
Non-Investment (Gain)/Loss	6/30/20	No Ramp		0.00%	16	156,503	14,838	151,811	14,838	146,800	14,838
Assumption Change	6/30/21	No Ramp		0.00%	17	194,381	17,926	189,073	17,926	183,405	17,926
Net Investment (Gain)	6/30/21	80%	Up Only	0.00%	17	(4,702,390)	(193,302)	(4,822,386)	(289,953)	(4,850,659)	(386,604)
Non-Investment (Gain)/Loss	6/30/21	No Ramp		0.00%	17	(221,412)	(20,419)	(215,366)	(20,419)	(208,909)	(20,419)
Fresh Start	6/30/22	No Ramp		0.00%	18	294,797	26,509	287,448	26,509	279,599	26,509
Investment (Gain)/Loss	6/30/22	60%	Up Only	0.00%	18	6,466,621	138,998	6,762,705	277,996	6,935,277	416,994
Non-Investment (Gain)/Loss	6/30/22	No Ramp		0.00%	18	880,517	79,180	858,564	79,180	835,119	79,179
Partial Fresh Start	6/30/22	60%	Up Only	0.00%	18	302,410	6,500	316,257	13,000	324,328	19,501
Investment (Gain)/Loss	6/30/23	40%	Up Only	0.00%	19	325,532	0	347,668	7,473	363,587	14,946
Non-Investment (Gain)/Loss	6/30/23	No Ramp		0.00%	19	1,059,616	0	1,131,670	101,763	1,103,458	101,764
Investment (Gain)/Loss	6/30/24	20%	Up Only	0.00%	20	(1,279,076)	0	(1,366,053)	0	(1,458,945)	(31,360)
Non-Investment (Gain)/Loss	6/30/24	No Ramp		0.00%	20	846,170	0	903,710	0	965,162	86,791
Total						**16,959,806**	**1,286,557**	**16,783,495**	**1,479,897**	**16,395,388**	**1,642,516**

CalPERS

Understanding Your UAL (Page 19 for NP, page 15 for pooled) 2 of 2

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CalPERS

Multiple Ways To Accelerate Funding

- Additional Discretionary Payment on an ad hoc basis
- Fresh Start over a reduced period
- Section 115 Trust

Modeling Tools

Pension Outlook Tool

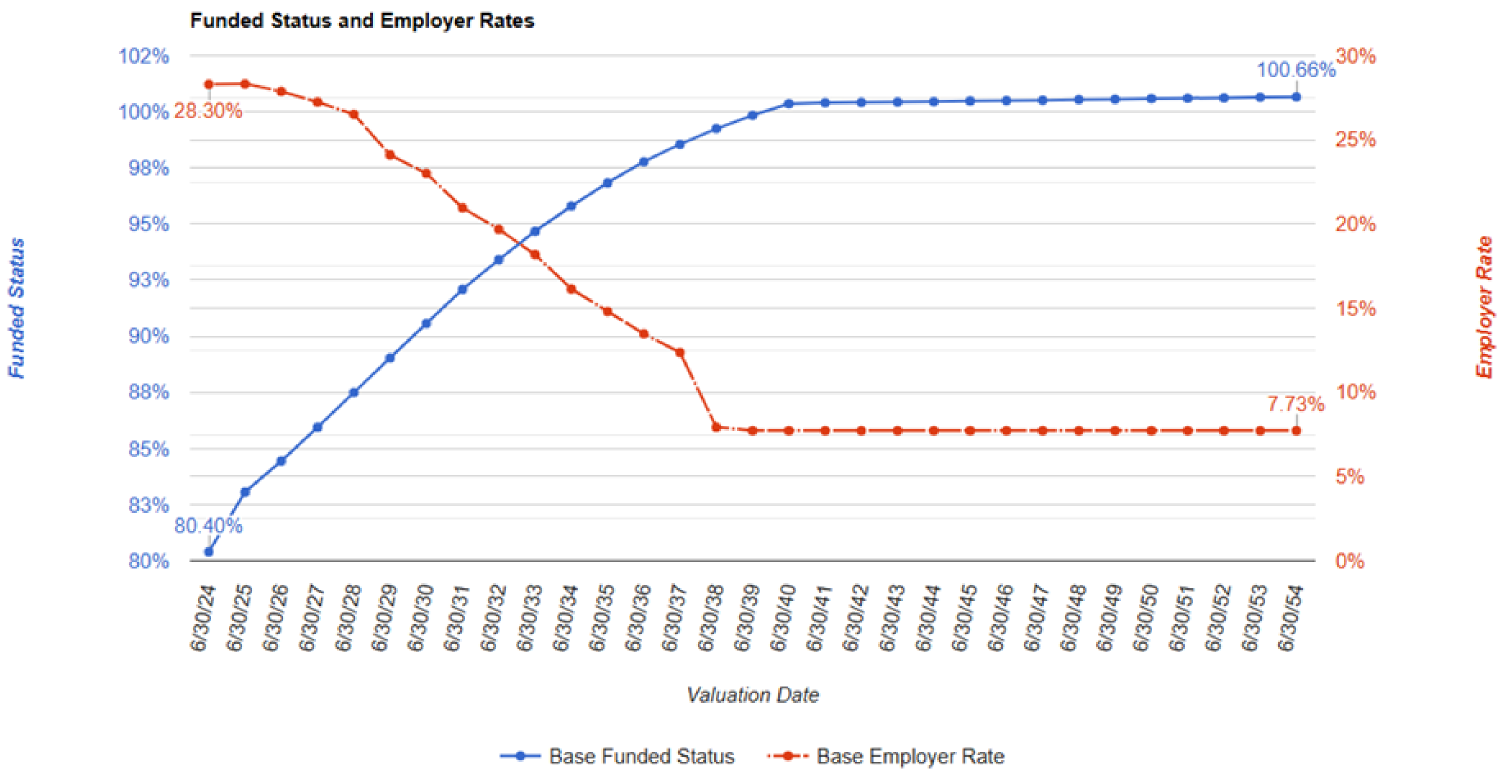
- Resides on CalPERS website
- Available for anyone to use
- Updated annually with new valuation results (September)
- Projects funded status and employer contribution requirements
- User can select plan(s) and various assumptions for future experience
- User can reflect estimate of 2024-25 investment return

Pension Outlook Tool – Populated With 6/30/24 Valuation Results

30 Year Budget

Download the Fiscal Year Cost and Annual Relative Increase in Cost (XLSX).

Summary | Funding | Cash Flow | Section 115 Trust | Glossary



Pension Outlook Tool – Reflecting Actual Investment Returns

Employer View at 06/30/2024

Terms & Conditions | Log Out

Select View (required)

Employer

Employer Name

City of Beverly Hills

Valuation Rate Plan

1 - Miscellaneous Plan

Modeling Assumptions

Years to Project
- ○ 10
- ○ 20
- ● 30

Discount Rate % (required)

6.800

PEPRA
- ● Yes
- ○ No

PEPRA Transition Years
- ○ 10
- ● 15
- ○ 20

Additional Discretionary Payment
- ○ Yes
- ● No

Random Investment Scenario
- ○ Yes
- ● No

Return % (required)	Number of Years (required)
12.1	2024-25
6.800	2025-26
6.800	1
6.800	7
6.800	20

Section 115 Trust
- ○ Yes
- ● No

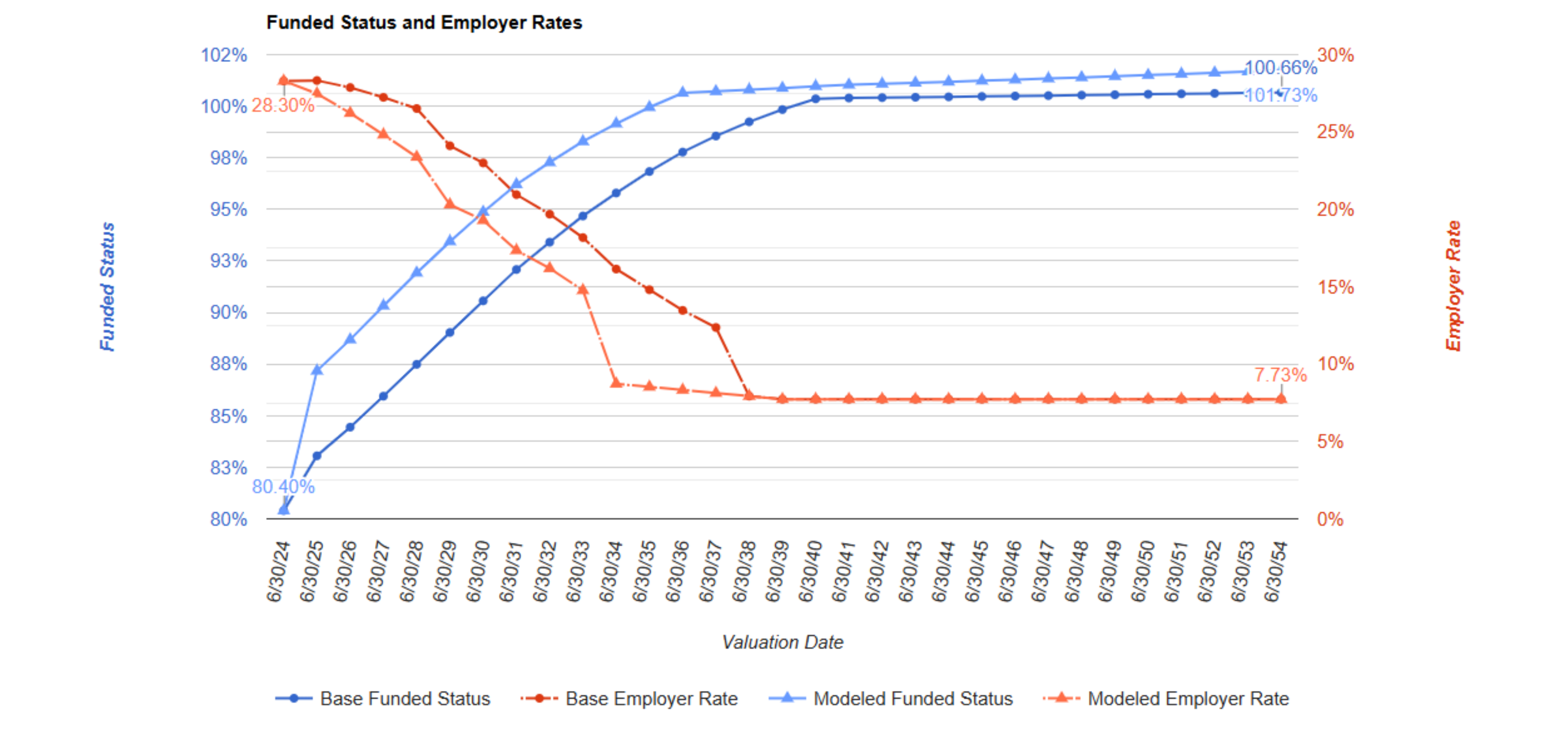
Submit | Reset Modeling Criteria

Pension Outlook Tool – Updated Results

30 Year Budget

Download the Fiscal Year Cost and Annual Relative Increase in Cost (XLSX).

Summary | Funding | Cash Flow | Section 115 Trust | Glossary



Pension Outlook Tool – Reflecting Experience Study

Employer View at 06/30/2024

Terms & Conditions | Log Out

Select View (required)
Employer

Employer Name
City of Beverly Hills

Valuation Rate Plan
1 - Miscellaneous Plan

Modeling Assumptions

Years to Project
- ( ) 10
- ( ) 20
- (•) 30

Discount Rate % (required)
6.8

PEPRA
- (•) Yes
- ( ) No

PEPRA Transition Years
- ( ) 10
- (•) 15
- ( ) 20

Additional Discretionary Payment
- ( ) Yes
- (•) No

Random Investment Scenario
- ( ) Yes
- (•) No

Return % (required)	Number of Years (required)
12.1	2024-25
6.8	2025-26
6.8	1
6.8	7
6.8	20

Section 115 Trust
- ( ) Yes
- (•) No

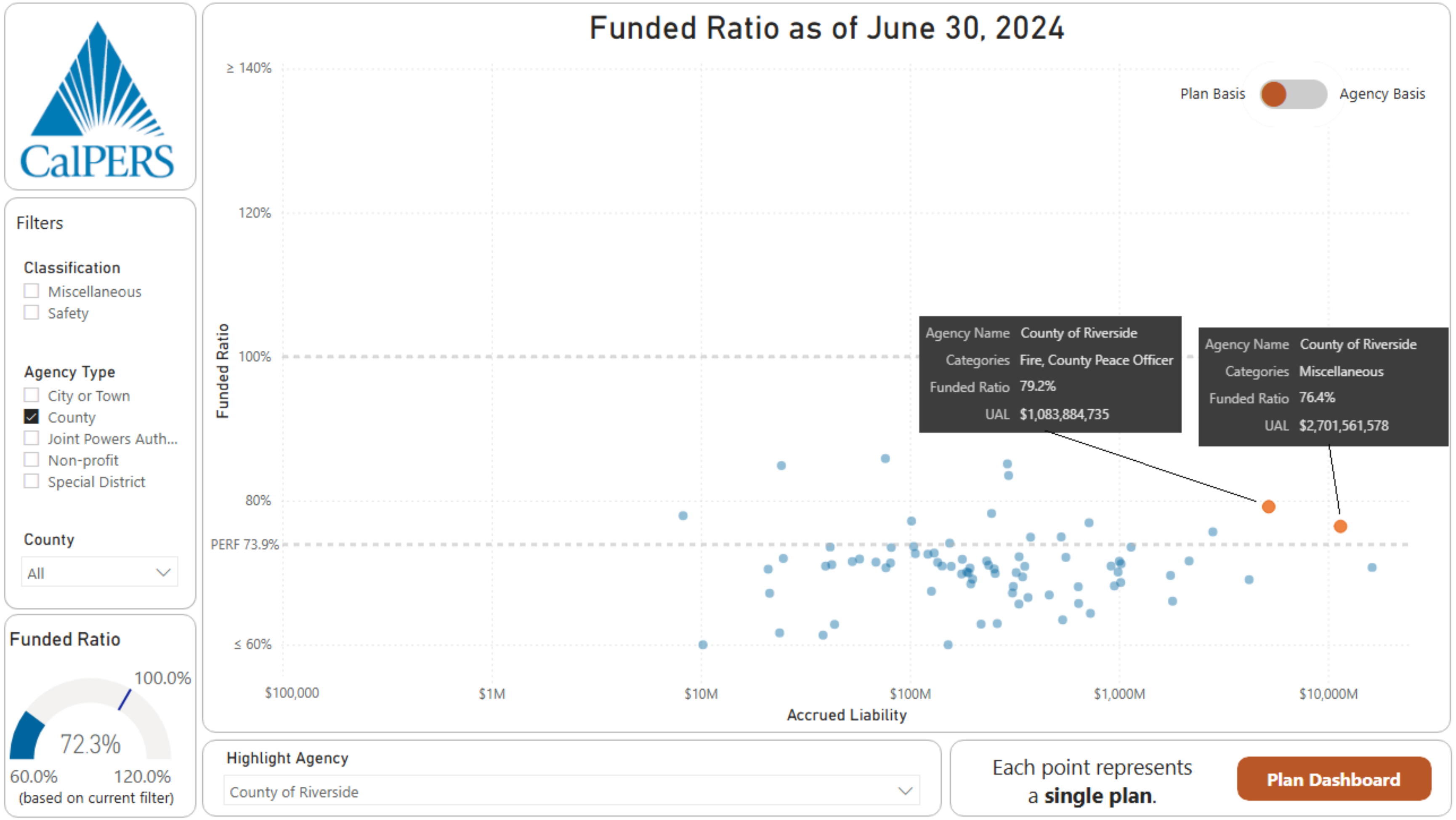
[x] Use Experience Assumption changes at 6/30/2025

Submit | Reset Modeling Criteria

MEC tool Capabilities

- Accurate dollar results from ADPs
- UAL projections
- Fresh start scenarios
- Funding targets
- Other strategy modeling

2024 Pension Analytics Dashboard 1 of 2



2024 Pension Analytics Dashboard 2 of 2

County of Riverside

Plan Dashboard | PA Funded Ratios • Plan Basis | PA Funded Ratios ◆ Agency Basis

Plans

Rate Plan	Plan	Accrued Liability	Assets	Funded Ratio	2024 Report
62	Miscellaneous Plan	$11,465,592,386	$8,764,030,808	76.4%	
63	Fire, County Peace Officer Plan	$5,201,084,096	$4,117,199,361	79.2%	

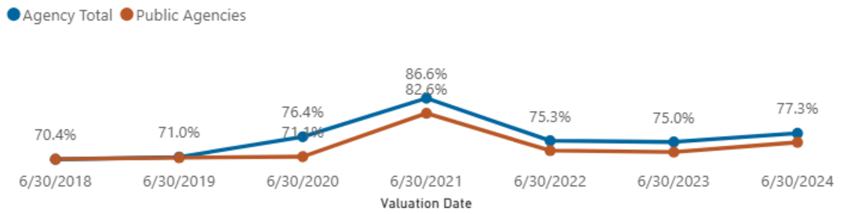
Employer Normal Cost Rate

Rate Plan	Plan Name	FY 2025-26	FY 2026-27
62	Miscellaneous Plan	10.93%	10.65%
63	Safety Plan	20.75%	20.31%

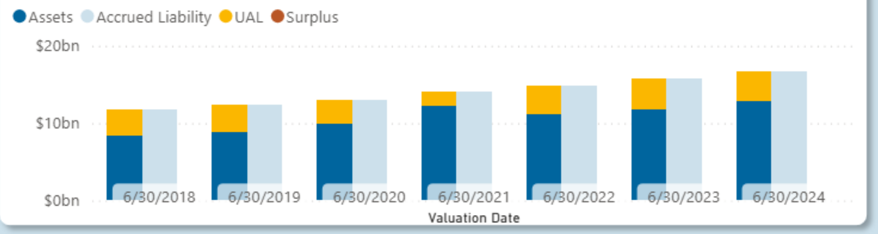
Member Contribution Rate

Rate Plan	Plan Name	FY 2026-27
62	Miscellaneous First Level	8.00%
63	Safety County Peace Officer First Level	9.00%
25051	Safety County Peace Officer PEPRA Level	13.50%
25052	Safety Fire PEPRA Level	13.50%
26035	Miscellaneous PEPRA Level	7.75%
30192	Miscellaneous Second Level	8.00%
30193	Miscellaneous Third Level	7.00%

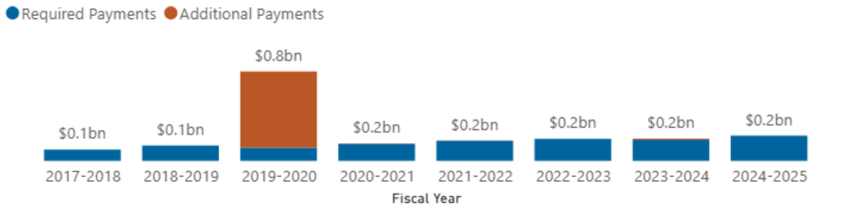
Agency and Public Agency Funded Ratio History



Funded Status History



UAL Payments by Fiscal Year



ALM Resources and Who To Contact

Webpage

https://www.calpers.ca.gov/about/organization/facts-at-a-glance/asset-liability-management

Policy

https://www.calpers.ca.gov/sites/default/files/spf/docs/asset-liability-management-policy.pdf

Frequently Asked Questions

https://www.calpers.ca.gov/about/organization/facts-at-a-glance/asset-liability-management/alm-faqs

Questions

CalPERS_Stakeholder_Relations@calpers.ca.gov

Q & A