California Public Employees' Retirement System

Actuarial Valuation for the Miscellaneous Plan of the Mountain-Valley Library System

as of June 30, 2023

(CalPERS ID: 1035483646)
(Rate Plan ID: 1693)

Required Contributions for Fiscal Year

July 1, 2025 — June 30, 2026

CalPERS

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Section 1

California Public Employees' Retirement System

Plan Specific Information
for the
Miscellaneous Plan
of the
Mountain-Valley Library System

(CalPERS ID: 1035483646)
(Rate Plan ID: 1693)

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Actuarial Certification

It is our opinion that the valuation has been performed in accordance with generally accepted actuarial principles as well as the applicable Standards of Practice promulgated by the Actuarial Standards Board. While this report, consisting of Section 1 and Section 2, is intended to be complete, our office is available to answer questions as needed. All of the undersigned are actuaries who satisfy the *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* of the American Academy of Actuaries with regard to pensions.

Actuarial Methods and Assumptions

It is our opinion that the assumptions and methods, as recommended by the Chief Actuary and adopted by the CalPERS Board of Administration, are internally consistent and reasonable for this plan.

Randall Dziubek, ASA, MAAA
Deputy Chief Actuary, Valuation Services, CalPERS

Scott Terando, ASA, EA, MAAA, FCA, CFA
Chief Actuary, CalPERS

Actuarial Data and Rate Plan Results

To the best of my knowledge and having relied upon the attestation above that the actuarial methods and assumptions are reasonable as well as the information in Section 2 of this report, this report is complete and accurate and contains sufficient information to disclose, fully and fairly, the funded condition of the Miscellaneous Plan of the Mountain-Valley Library System and satisfies the actuarial valuation requirements of Government Code section 7504. This valuation and related validation work was performed by the CalPERS Actuarial Office. The valuation was based on the member and financial data as of June 30, 2023, provided by the various CalPERS databases and the benefits under this plan with CalPERS as of the date this report was produced. Section 1 of this report is based on the member and financial data for Mountain-Valley Library System, while Section 2 is based on the corresponding information for all agencies participating in the Miscellaneous Risk Pool to which the plan belongs.

May Shuang Yu, ASA, MAAA
Senior Actuary, CalPERS

Highlights and Executive Summary

Introduction

This report presents the results of the June 30, 2023, actuarial valuation of the Miscellaneous Plan of the Mountain-Valley Library System of the California Public Employees' Retirement System (CalPERS). This actuarial valuation sets the minimum required contributions for fiscal year (FY) 2025-26.

Purpose of Section 1

This Section 1 report for the Miscellaneous Plan of the Mountain-Valley Library System of CalPERS was prepared by the Actuarial Office using data as of June 30, 2023. The purpose of the valuation is to:

- Set forth the assets and accrued liabilities of this rate plan as of June 30, 2023;
- Determine the minimum required employer contributions for this rate plan for FY July 1, 2025, through June 30, 2026;
- Determine the required member contribution rate for FY July 1, 2025, through June 30, 2026, for employees subject to the California Public Employees' Pension Reform Act of 2013 (PEPRA); and
- Provide actuarial information as of June 30, 2023, 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 a Cost Sharing Employer Defined Benefit Pension Plan. A separate accounting valuation report for such purposes is available on the CalPERS website (www.calpers.ca.gov).

The measurements shown in this actuarial valuation may not be applicable for other purposes. The agency should contact a CalPERS actuary before disseminating any portion of this report for any reason that is not explicitly described above.

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; changes in plan provisions or applicable law; and differences between the required contributions determined by the valuation and the actual contributions made by the agency.

Assessment and Disclosure of Risk

This report includes the following risk disclosures consistent with the guidance 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 5.8% and 7.8%.
- A "Sensitivity Analysis," showing the impact on current valuation results assuming rates of mortality are 10% lower or 10% higher than our current post-retirement mortality assumptions adopted in 2021.
- Plan maturity measures indicating how sensitive a plan may be to the risks noted above.

Summary of Key Valuation Results

Below is a brief summary of key valuation results along with page references where more detailed information can be found.

Required Employer Contributions — page 8

	Fiscal Year 2024-25	Fiscal Year 2025-26
Employer Normal Cost Rate	0.00%	0.00%
Unfunded Accrued Liability (UAL) Contribution Amount	$12,162	$8,955
Paid either as		
Option 1) 12 Monthly Payments of	$1,013.50	$746.25
Option 2) Annual Prepayment in July	$11,768	$8,665

Member Contribution Rates — page 9

	Fiscal Year 2024-25	Fiscal Year 2025-26
Member Contribution Rate	N/A	N/A

Projected Employer Contributions — page 14

Fiscal Year	Normal Cost (% of payroll)	Annual UAL Payment
2026-27	0.0%	$9,000
2027-28	0.0%	$9,000
2028-29	0.0%	$0
2029-30	0.0%	$0
2030-31	0.0%	$0

Funded Status — Funding Policy Basis — page 12

	June 30, 2022	June 30, 2023
Entry Age Accrued Liability (AL)	$1,041,290	$993,785
Market Value of Assets (MVA)	973,036	932,371
Unfunded Accrued Liability (UAL) [AL – MVA]	$68,254	$61,414
Funded Ratio [MVA ÷ AL]	93.4%	93.8%

Summary of Valuation Data — Page 26

	June 30, 2022	June 30, 2023
Active Member Count	0	0
Annual Covered Payroll	$0	$0
Transferred Member Count	0	0
Separated Member Count	0	0
Retired Members and Beneficiaries Count	6	5

Changes Since the Prior Year's Valuation

Benefits

The standard actuarial practice at CalPERS is to recognize mandated legislative benefit changes in the first annual valuation following the effective date of the legislation. For pooled rate plans, voluntary benefit changes by plan amendment are generally included in the first valuation with a valuation date on or after the effective date of the amendment.

Please refer to the Plan's Major Benefit Options in this report and Appendix B of the Section 2 Report for a summary of the plan provisions used in this valuation.

Actuarial Methods and Assumptions

There are no significant changes to the actuarial methods or assumptions for the June 30, 2023, actuarial valuation.

New Disclosure Items

In December 2021, the Actuarial Standards Board issued a revision of Actuarial Standard of Practice No. 4 (ASOP 4) requiring actuaries to disclose a low-default-risk obligation measure (LDROM) of the benefits earned. This information is shown in a new exhibit, Funded Status – Low-Default-Risk Basis.

Subsequent Events

This actuarial valuation report reflects fund investment return through June 30, 2023, as well as statutory changes, regulatory changes and board actions through January 2024.

During the time period between the valuation date and the publication of this report, inflation has been 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, 2024, valuation. The actual impact of higher inflation on future valuation results will depend on, among other factors, how long higher inflation persists.

The 2023 annual benefit limit under Internal Revenue Code (IRC) section 415(b) and annual compensation limits under IRC section 401(a)(17) and Government Code section 7522.10 were used for this valuation and are assumed to increase 2.3% per year based on the price inflation assumption. The actual 2024 limits, determined in October 2023, are not reflected.

On April 16, 2024, the board took action to modify the Funding Risk Mitigation Policy to remove the automatic change to the discount rate when the investment return exceeds various thresholds. Rather than an automatic change to the discount rate, a board discussion would be placed on the calendar. The 95th percentile return in the Future Investment Return Scenarios exhibit in this report has not been modified and still reflects the projected contribution requirements associated with a reduction in the discount rate.

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

Liabilities and Contributions

Determination of Required Contributions

Contributions to fund the plan are determined by an actuarial valuation performed each year. The valuation employs complex calculations based on a set of actuarial assumptions and methods. See Appendix A in Section 2 for information on the assumptions and methods used in this valuation. The valuation incorporates all plan experience through the valuation date and sets required contributions for the fiscal year that begins two years after the valuation date.

Contribution Components

Two components comprise required contributions:

- Normal Cost — expressed as a percentage of pensionable payroll
- Unfunded Accrued Liability (UAL) Contribution — expressed as a dollar amount

Normal Cost represents the value of benefits allocated to the upcoming year for active employees. If all plan experience exactly matched the actuarial assumptions, normal cost would be sufficient to fully fund all benefits. The employer and employees each pay a share of the normal cost with contributions payable as part of the regular payroll reporting process. The contribution rate for Classic members is set by statute based on benefit formula whereas for PEPRA members it is based on 50% of the total normal cost.

When plan experience differs from the actuarial assumptions, unfunded accrued liability (UAL) emerges. The new UAL may be positive or negative. If the total UAL is positive (i.e., accrued liability exceeds assets), the employer is required to make contributions to pay off the UAL over time. This is called the Unfunded Accrued Liability Contribution component. There is an option to prepay this amount during July of each fiscal year, otherwise it is paid monthly.

In measuring the UAL each year, plan experience is split by source. Common sources of UAL include investment experience different than expected, non-investment experience different than expected, assumption changes and benefit changes. Each source of UAL (positive or negative) forms a base that is amortized, or paid off, over a specified period of time in accordance with the CalPERS Actuarial Amortization Policy. The Unfunded Accrued Liability Contribution is the sum of the payments on all bases. See the Schedule of Amortization Bases section of this report for an inventory of existing bases and Appendix A in Section 2 for more information on the amortization policy.

Required Employer Contributions

The required employer contributions in this report do not reflect any cost sharing arrangement between the agency and the employees.

Required Employer Contributions	Fiscal Year 2025-26
Employer Normal Cost Rate	**0.00%**
Plus	
Unfunded Accrued Liability (UAL) Contribution Amount[1]	**$8,955**
Paid either as	
1) Monthly Payment	**$746.25**
Or	
2) Annual Prepayment Option*	**$8,665**

The total minimum required employer contribution is the sum of the Plan's Employer Normal Cost Rate (expressed as a percentage of payroll and paid as payroll is reported) and the Unfunded Accrued Liability (UAL) Contribution Amount (billed monthly (1) or prepaid annually (2) in dollars).

* Only the UAL portion of the employer contribution can be prepaid **(which must be received in full no later than July 31)**.

For Member Contribution Rates see the following page.

Development of Normal Cost as a Percentage of Payroll	Fiscal Year 2024-25	Fiscal Year 2025-26
Base Total Normal Cost for Formula	0.00%	0.00%
Surcharge for Class 1 Benefits[2]		
None	0.00%	0.00%
Plan's Total Normal Cost	0.00%	0.00%
Offset Due to Employee Contributions[3]	0.00%	0.00%
Employer Normal Cost	0.00%	0.00%

[1] The required payment on amortization bases does not take into account any additional discretionary payment made after April 30, 2024.

[2] Section 2 of this report contains a list of Class 1 benefits and corresponding surcharges.

[3] This is the expected employee contributions, taking into account individual benefit formula and any offset from the use of a modified formula, divided by projected annual payroll. For member contribution rates above the breakpoint for each benefit formula, see Member Contribution Rates.

Member Contribution Rates

The required member contributions in this report do not reflect any cost sharing arrangement between the agency and the employees.

Each member contributes toward their retirement based upon the retirement formula. The standard Classic member contribution rate above the breakpoint, if any, is as described below.

Benefit Formula	Percent Contributed above the Breakpoint
Miscellaneous, 1.5% at age 65	2%
Miscellaneous, 2% at age 60	7%
Miscellaneous, 2% at age 55	7%
Miscellaneous, 2.5% at age 55	8%
Miscellaneous, 2.7% at age 55	8%
Miscellaneous, 3% at age 60	8%

Auxiliary organizations of the CSU system may elect reduced contribution rates for Miscellaneous members, in which case the contribution rate above the breakpoint is 6% if members are not covered by Social Security and 5% if they are.

Other Pooled Miscellaneous Risk Pool Rate Plans

All of the results presented in this Section 1 report, except those shown on this page, correspond to rate plan 1693. In many cases, employers have additional rate plans within the same risk pool. For cost analysis and budgeting it is useful to consider contributions for these rate plans as a whole rather than individually. The estimated contribution amounts and rates for all of the employer's rate plans in the Miscellaneous Risk Pool are shown below and assume that the total employer payroll within the Miscellaneous Risk Pool will grow according to the overall payroll growth assumption of 2.80% per year for three years. Classic members who are projected to terminate employment are assumed to be replaced by PEPRA members.

Estimated Employer Contributions for all Pooled Miscellaneous Rate Plans	Fiscal Year 2024-25	Fiscal Year 2025-26
Projected Payroll for the Contribution Year	$0	$0
Estimated Employer Normal Cost	$0	$0
Required Payment on Amortization Bases	$12,162	$8,955
Estimated Total Employer Contributions	$12,162	$8,955
Estimated Total Employer Contribution Rate (illustrative only)	N/A	N/A

Breakdown of Entry Age Accrued Liability

Active Members	$0
Transferred Members	0
Separated Members	0
Members and Beneficiaries Receiving Payments	993,785
Total	$993,785

Allocation of Plan's Share of Pool's Experience

It is the policy of CalPERS to ensure equity within the risk pools by allocating the pool's experience gains/losses and assumption changes in a manner that treats each employer equitably and maintains benefit security for the members of the System while minimizing substantial variations in employer contributions. The pool's experience gains/losses and impact of assumption/method changes is allocated to the plan as follows:

1.	Plan's Accrued Liability	$993,785
2.	Projected UAL Balance at 6/30/2023	40,043
3.	Other UAL Adjustments (Golden Handshake, Prior Service Purchase, etc.)	0
4.	Adjusted UAL Balance at 6/30/2023 for Asset Share	40,124
5.	Pool's Accrued Liability[1]	23,349,910,053
6.	Sum of Pool's Individual Plan UAL Balances at 6/30/2023[1]	5,227,602,209
7.	Pool's 2022-23 Investment (Gain)/Loss[1]	114,855,623
8.	Pool's 2022-23 Non-Investment (Gain)/Loss[1]	360,116,330
9.	Plan's Share of Pool's Investment (Gain)/Loss: [(1) - (4)] ÷ [(5) - (6)] × (7)	6,044
10.	Plan's Share of Pool's Non-Investment (Gain)/Loss: (1) ÷ (5) × (8)	15,327
11.	Plan's New (Gain)/Loss as of 6/30/2023: (9) + (10)	21,371
12.	Increase in Pool's Accrued Liability due to Change in Assumptions[1]	0
13.	Plan's Share of Pool's Change in Assumptions: (1) ÷ (5) × (12)	0
14.	Increase in Pool's Accrued Liability due to Funding Risk Mitigation[1]	0
15.	Plan's Share of Pool's Change due to Funding Risk Mitigation: (1) ÷ (5) × (14)	0
16.	Offset due to Funding Risk Mitigation	0
17.	Plan's Investment (Gain)/Loss: (9) – (16)	6,044

[1] Does not include plans that transferred to the pool on the valuation date.

Development of the Plan's Share of Pool's Assets

18.	Plan's UAL: (2) + (3) + (11) + (13) + (15)	$61,414
19.	Plan's Share of Pool's Market Value of Assets (MVA): (1) - (18)	$932,371

For a reconciliation of the pool's Market Value of Assets (MVA), information on the fund's asset allocation and a history of CalPERS investment returns, see Section 2, which can be found on the CalPERS website (www.calpers.ca.gov).

Funded Status – Funding Policy Basis

The table below provides information on the current funded status of the plan under the funding policy. The funded status for this purpose is based on the market value of assets relative to the funding target produced by the entry age actuarial cost method and actuarial assumptions adopted by the board. The actuarial cost method allocates the total expected cost of a member's projected benefit (Present Value of Benefits) to individual years of service (the Normal Cost). The value of the projected benefit that is not allocated to future service is referred to as the Accrued Liability and is the plan's funding target on the valuation date. The Unfunded Accrued Liability (UAL) equals the funding target minus the assets. The UAL is an absolute measure of funded status and can be viewed as employer debt. The funded ratio equals the assets divided by the funding target. The funded ratio is a relative measure of the funded status and allows for comparisons between plans of different sizes.

	June 30, 2022	**June 30, 2023**
1. Present Value of Benefits	$1,041,290	$993,785
2. Entry Age Accrued Liability	1,041,290	993,785
3. Market Value of Assets (MVA)	973,036	932,371
4. Unfunded Accrued Liability (UAL) [(2) – (3)]	$68,254	$61,414
5. Funded Ratio [(3) ÷ (2)]	93.4%	93.8%

A funded ratio of 100% (UAL of $0) implies that the funding of the plan is on target and that future contributions equal to the normal cost of the active plan members will be sufficient to fully fund all retirement benefits if future experience matches the actuarial assumptions. A funded ratio of less than 100% (positive UAL) implies that in addition to normal costs, payments toward the UAL will be required. Plans with a funded ratio greater than 100% have a negative UAL (or surplus) but are required under current law to continue contributing the normal cost in most cases, preserving the surplus for future contingencies.

Calculations for the funding target reflect the expected long-term investment return of 6.8%. If it were known on the valuation date that future investment returns will average something greater/less than the expected return, calculated normal costs and accrued liabilities provided in this report would be less/greater than the results shown. Therefore, for example, if actual average future returns are less than the expected return, calculated normal costs and UAL contributions will not be sufficient to fully fund all retirement benefits. Under this scenario, required future normal cost contributions will need to increase from those provided in this report, and the plan will develop unfunded liabilities that will also add to required future contributions. For illustrative purposes, funded statuses based on a 1% lower and higher average future investment return (discount rate) are as follows:

	1% Lower Average Return	**Current Assumption**	**1% Higher Average Return**
Discount Rate	5.8%	6.8%	7.8%
1. Entry Age Accrued Liability	$1,086,753	$993,785	$913,959
2. Market Value of Assets (MVA)	932,371	932,371	932,371
3. Unfunded Accrued Liability (UAL) [(1) – (2)]	$154,382	$61,414	($18,412)
4. Funded Ratio [(2) ÷ (1)]	85.8%	93.8%	102.0%

The Risk Analysis section of the report provides additional information regarding the sensitivity of valuation results to the expected investment return and other factors. Also provided in that section are measures of funded status that are appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities.

Additional Employer Contributions

The minimum required employer contribution towards the Unfunded Accrued Liability (UAL) for this rate plan for FY 2025-26 is $8,955. CalPERS allows agencies to make additional discretionary payments (ADPs) at any time. These optional payments serve to reduce the UAL and future required contributions and can result in significant long-term savings. Agencies can also use ADPs to stabilize annual contributions as a fixed dollar amount, percent of payroll or percent of revenue.

Provided below are select ADP options for consideration. Making such an ADP during FY 2025-26 does not require an ADP be made in any future year, nor does it change the remaining amortization period of any portion of unfunded liability. For information on permanent changes to amortization periods, see Amortization Schedule and Alternatives. Agencies considering making an ADP should contact CalPERS for additional information.

Fiscal Year 2025-26 Employer Contributions — Illustrative Scenarios

Funding Approach	Estimated Normal Cost	Minimum UAL Contribution	ADP[1]	Total UAL Contribution	Estimated Total Contribution
Minimum required only	$0	$8,955	0	$8,955	$8,955
5 year funding horizon	N/A	N/A	N/A	N/A	N/A

[1] The ADP amounts are assumed to be made in the middle of the fiscal year. A payment made earlier or later in the fiscal year would have to be less or more than the amount shown to have the same effect on the UAL amortization.

The calculations above are based on the projected UAL as of June 30, 2025, as determined in the June 30, 2023, actuarial valuation. New unfunded liabilities can emerge in future years due to assumption or method changes, changes in plan provisions, and actuarial experience different than assumed. Making an ADP illustrated above for the indicated number of years will not result in a plan that is exactly 100% funded in the indicated number of years. Valuation results will vary from one year to the next and can diverge significantly from projections over a period of several years.

Additional Discretionary Payment History

The following table provides a recent history of actual ADPs made to the plan.

Fiscal Year	ADP	Fiscal Year	ADP
2019-20	$300,952	2022-23	$27,137
2020-21	$782	2023-24[2]	$41,844
2021-22	$0		

[2] Excludes payments made after April 30, 2024

Projected Employer Contributions

The table below shows the required and projected employer contributions (before cost sharing) for the next six fiscal years. The projection assumes that all actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period. In particular, the investment return beginning with FY 2023-24 is assumed to be 6.80% per year, net of investment and administrative expenses. Future contribution requirements may differ significantly from those shown below. The actual long-term cost of the plan will depend on the actual benefits and expenses paid and the actual investment experience of the fund.

	Required Contribution	**Projected Future Employer Contributions (Assumes 6.80% Return for Fiscal Year 2023-24 and Beyond)**				
Fiscal Year	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
	Rate Plan 1693 Results					
Normal Cost %	0.00%	0.0%	0.0%	0.0%	0.0%	0.0%
UAL Payment	$8,955	$9,000	$9,000	$0	$0	$0

For ongoing plans, investment gains and losses are amortized using a 5-year ramp up. For more information, please see Amortization of Unfunded Actuarial Accrued Liability in Appendix A of the Section 2 Report. This method phases in the impact of the change in UAL over a 5-year period in order to reduce employer cost volatility from year to year. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years when there is a large investment loss, the relatively small amortization payments during the ramp up period could result in contributions that are less than interest on the UAL (i.e. negative amortization) while the contribution impact of the increase in the UAL is phased in.

For projected contributions under alternate investment return scenarios, please see the Future Investment Return Scenarios exhibit. Our online pension plan projection tool, Pension Outlook, is available in the Employers section of the CalPERS website. Pension Outlook can help plan and budget pension costs under various scenarios.

Schedule of Amortization Bases

Below is the schedule of the plan's amortization bases. Note that there is a two-year lag between the valuation date and the start of the contribution year.

- The assets, liabilities and funded status of the plan are measured as of the valuation date: June 30, 2023.
- The required employer contributions determined by the valuation are for the fiscal year beginning two years after the valuation date: FY 2025-26.

This two-year lag is necessary due to the amount of time needed to extract and test the membership and financial data, and the need to provide public agencies with their required employer contribution well in advance of the start of the fiscal year.

The Unfunded Accrued Liability (UAL) is used to determine the employer contribution and therefore must be rolled forward two years from the valuation date to the first day of the fiscal year for which the contribution is being determined. The UAL is rolled forward each year by subtracting the expected payment on the UAL for the fiscal year and adjusting for interest. The expected payment on the UAL for FY 2023-24 is based on the actuarial valuation two years ago, adjusted for additional discretionary payments made on or before April 30, 2024, if necessary, and the expected payment for FY 2024-25 is based on the actuarial valuation one year ago.

Reason for Base	Date Est.	Ramp Level 2025-26	Ramp Shape	Escala-tion Rate	Amort. Period	Balance 6/30/23	Expected Payment 2023-24	Balance 6/30/24	Expected Payment 2024-25	Balance 6/30/25	Minimum Required Payment 2025-26
Fresh Start	6/30/23	No	Ramp	0.00%	3	61,414	41,382	22,824	0	24,376	8,955
Total						**61,414**	**41,382**	**22,824**	**0**	**24,376**	**8,955**

The (gain)/loss bases are the plan's allocated share of the risk pool's (gain)/loss for the fiscal year as disclosed in Allocation of Plan's Share of Pool's Experience earlier in this report. These (gain)/loss bases will be amortized in accordance with the CalPERS amortization policy in effect at the time the base was established.

Amortization Schedule and Alternatives

The amortization schedule on the previous page(s) shows the minimum contributions required according to the CalPERS amortization policy. Many agencies have expressed a desire for a more stable pattern of payments or have indicated interest in paying off the unfunded accrued liabilities more quickly than required. As such, we have provided alternative amortization schedules to help analyze the current amortization schedule and illustrate the potential savings of accelerating unfunded liability payments.

Shown on the following page are future year amortization payments based on 1) the current amortization schedule reflecting the individual bases and remaining periods shown on the previous page, and 2) alternative "fresh start" amortization schedules using two sample periods that would both result in interest savings relative to the current amortization schedule. To initiate a fresh start, please contact a CalPERS actuary.

The current amortization schedule typically contains both positive and negative bases. Positive bases result from plan changes, assumption changes, method changes or plan experience that increase unfunded liability. Negative bases result from plan changes, assumption changes, method changes, or plan experience that decrease unfunded liability. The combination of positive and negative bases within an amortization schedule can result in unusual or problematic circumstances in future years, such as:

- 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.

In any year when one of the above scenarios occurs, the actuary will consider corrective action such as replacing the existing unfunded liability bases with a single "fresh start" base and amortizing it over an appropriate period.

The current amortization schedule on the following page may appear to show that, based on the current amortization bases, one of the above scenarios will occur at some point in the future. It is impossible to know today whether such a scenario will in fact arise since there will be additional bases added to the amortization schedule in each future year. Should such a scenario arise in any future year, the actuary will take appropriate action based on guidelines in the CalPERS Actuarial Amortization Policy.

Amortization Schedule and Alternatives (continued)

	Current Amortization Schedule		Alternative Schedules			
			0 Year Amortization		0 Year Amortization	
Date	**Balance**	**Payment**	**Balance**	**Payment**	**Balance**	**Payment**
6/30/2025	24,376	8,955	N/A	N/A	N/A	N/A
6/30/2026	16,779	8,955				
6/30/2027	8,666	8,956				
6/30/2028						
6/30/2029						
6/30/2030						
6/30/2031						
6/30/2032						
6/30/2033						
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6/30/2045						
6/30/2046						
6/30/2047						
6/30/2048						
6/30/2049						
Total		**26,866**		**N/A**		**N/A**
Interest Paid		**2,490**		**N/A**		**N/A**
Estimated Savings				**N/A**		**N/A**

Employer Contribution History

The table below provides a recent history of the employer contribution requirements for the plan, as determined by the annual actuarial valuation. Changes due to prepayments or plan amendments after the valuation report was finalized are not reflected.

Valuation Date	Contribution Year	Employer Normal Cost Rate	Unfunded Liability Payment
06/30/2014	2016 - 17	0.000%	$12,955
06/30/2015	2017 - 18	0.000%	22,786
06/30/2016	2018 - 19	0.000%	28,506
06/30/2017	2019 - 20	0.000%	29,876
06/30/2018	2020 - 21	0.000%	33,268
06/30/2019	2021 - 22	0.00%	95
06/30/2020	2022 - 23	0.00%	3,751
06/30/2021	2023 - 24	0.00%	0
06/30/2022	2024 - 25	0.00%	12,162
06/30/2023	2025 - 26	0.00%	8,955

Funding History

The table below shows the recent history of the actuarial accrued liability, share of the pool's market value of assets, unfunded accrued liability, funded ratio and annual covered payroll.

Valuation Date	Accrued Liability (AL)	Share of Pool's Market Value of Assets (MVA)	Unfunded Accrued Liability (UAL)	Funded Ratio	Annual Covered Payroll
06/30/2014	$929,526	$740,105	$189,421	79.6%	$0
06/30/2015	945,521	715,042	230,479	75.6%	0
06/30/2016	935,937	645,445	290,492	69.0%	0
06/30/2017	1,013,685	724,852	288,833	71.5%	0
06/30/2018	1,039,341	721,927	317,414	69.5%	0
06/30/2019	1,037,480	719,792	317,688	69.4%	0
06/30/2020	1,031,547	1,003,858	27,689	97.3%	0
06/30/2021	1,030,086	1,122,472	(92,386)	109.0%	0
06/30/2022	1,041,290	973,036	68,254	93.4%	0
06/30/2023	993,785	932,371	61,414	93.8%	0

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 projections below reflect the impact of the CalPERS Funding Risk Mitigation Policy. 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 3.0% or 10.8% 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, 2043.

Assumed Annual Return FY 2023-24 through FY 2042-43	Projected Employer Contributions				
	2026-27	2027-28	2028-29	2029-30	2030-31
3.0% (5th percentile)					
Discount Rate	6.80%	6.80%	6.80%	6.80%	6.80%
Normal Cost Rate	0.0%	0.0%	0.0%	0.0%	0.0%
UAL Contribution	$24,000	$39,000	$45,000	$47,000	$48,000
10.8% (95th percentile)					
Discount Rate	6.75%	6.70%	6.65%	6.60%	6.55%
Normal Cost Rate	0.0%	0.0%	0.0%	0.0%	0.0%
UAL Contribution	$0	$0	$0	$0	$0

Required contributions outside of this range are also possible. In particular, whereas it is unlikely that investment returns will average less than 3.0% or greater than 10.8% over a 20-year period, the likelihood of a single investment return less than 3.0% or greater than 10.8% 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 12.0% per year. Accordingly, in any given year there is a 16% probability that the annual return will be -5.2% or less and a 2.5% probability that the annual return will be -17.2% or less. These returns represent one and two standard deviations below the expected return of 6.8%.

The following table shows the effect of one and two standard deviation investment losses in FY 2023-24 on the FY 2026-27 contribution 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 2026-27.

Assumed Annual Return for Fiscal Year 2023-24	Required Employer Contributions	Projected Employer Contributions
	2025-26	2026-27
(17.2%) (2 standard deviation loss)		
Discount Rate	6.80%	6.80%
Normal Cost Rate	0.00%	0.0%
UAL Contribution	$8,955	$102,000
(5.2%) (1 standard deviation loss)		
Discount Rate	6.80%	6.80%
Normal Cost Rate	0.00%	0.0%
UAL Contribution	$8,955	$56,000

- Without investment gains (returns higher than 6.8%) in FY 2024-25 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 2023-24.
- The Pension Outlook Tool can be used to model projected contributions for these scenarios beyond FY 2026-27 as well as to model other investment return scenarios.

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 4.5% and 2.3%, 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, 2023, assuming alternate discount rates by changing the two components independently. Results are shown using the current discount rate of 6.8% as well as alternate discount rates of 5.8% and 7.8%. The rates of 5.8% and 7.8% were selected since they illustrate the impact of a 1.0% increase or decrease to the 6.8% assumption.

Sensitivity to the Real Rate of Return Assumption

As of June 30, 2023	1% Lower Real Return Rate	Current Assumptions	1% Higher Real Return Rate
Discount Rate	**5.8%**	**6.8%**	**7.8%**
Price Inflation	2.3%	2.3%	2.3%
Real Rate of Return	**3.5%**	**4.5%**	**5.5%**
a) Total Normal Cost	0.00%	0.00%	0.00%
b) Accrued Liability	$1,086,753	$993,785	$913,959
c) Market Value of Assets	$932,371	$932,371	$932,371
d) Unfunded Liability/(Surplus) [(b) - (c)]	$154,382	$61,414	($18,412)
e) Funded Ratio	85.8%	93.8%	102.0%

Sensitivity to the Price Inflation Assumption

As of June 30, 2023	1% Lower Price Inflation	Current Assumptions	1% Higher Price Inflation
Discount Rate	**5.8%**	**6.8%**	**7.8%**
Price Inflation	**1.3%**	**2.3%**	**3.3%**
Real Rate of Return	4.5%	4.5%	4.5%
a) Total Normal Cost	0.00%	0.00%	0.00%
b) Accrued Liability	$1,019,767	$993,785	$934,912
c) Market Value of Assets	$932,371	$932,371	$932,371
d) Unfunded Liability/(Surplus) [(b) - (c)]	$87,396	$61,414	$2,541
e) Funded Ratio	91.4%	93.8%	99.7%

Mortality Rate Sensitivity

The following table looks at the change in the June 30, 2023, plan costs and funded status under two different longevity scenarios, namely assuming rates of post-retirement mortality are 10% lower or 10% higher than our current mortality assumptions adopted in 2021. This type of analysis highlights the impact on the plan of a change in the mortality assumption.

As of June 30, 2023	10% Lower Mortality Rates	Current Assumptions	10% Higher Mortality Rates
a) Total Normal Cost	0.00%	0.00%	0.00%
b) Accrued Liability	$1,019,112	$993,785	$970,637
c) Market Value of Assets	$932,371	$932,371	$932,371
d) Unfunded Liability/(Surplus) [(b) - (c)]	$86,741	$61,414	$38,266
e) Funded Ratio	91.5%	93.8%	96.1%

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 sponsor to tolerate risk is important in understanding how the pension plan is impacted by investment return volatility, other economic variables and changes in longevity or other demographic assumptions.

Since it is the employer that bears the risk, it is appropriate to perform this analysis on a pension plan level considering all rate plans. The following measures are for one rate plan only. 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, 2022	June 30, 2023
1. Retiree Accrued Liability	$1,041,290	$993,785
2. Total Accrued Liability	$1,041,290	$993,785
3. Ratio of Retiree AL to Total AL [(1) ÷ (2)]	100%	100%

Another measure of the maturity level of CalPERS and its plans is the ratio of actives to retirees, also called the support ratio. A pension plan in its infancy will have a very high ratio of active to retired members. As the plan matures and members retire, the ratio declines. A mature plan will often have a ratio near or below one.

To calculate the support ratio for the rate plan, retirees and beneficiaries receiving a continuance are each counted as one, even though they may have only worked a portion of their careers as an active member of this rate plan. For this reason, the support ratio, while intuitive, may be less informative than the ratio of retiree liability to total accrued liability above.

For comparison, the support ratio for all CalPERS public agency plans as of June 30, 2022, was 0.77 and was calculated consistently with how it is for the individual rate plan. Note that to calculate the support ratio for all public agency plans, a retiree with service from more than one CalPERS agency is counted as a retiree more than once.

Support Ratio	June 30, 2022	June 30, 2023
1. Number of Actives	0	0
2. Number of Retirees	6	5
3. Support Ratio [(1) ÷ (2)]	0.00	0.00

Maturity Measures (continued)

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 increases, 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

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 an AVR of 8 may experience twice the contribution volatility due to investment return volatility than a plan with an 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

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 an LVR of 8 is expected to have twice the contribution volatility of a plan with an 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, 2022	June 30, 2023
1. Market Value of Assets	$973,036	$932,371
2. Payroll	$0	$0
3. Asset Volatility Ratio (AVR) [(1) ÷ (2)]	N/A	N/A
4. Accrued Liability	$1,041,290	$993,785
5. Liability Volatility Ratio (LVR) [(4) ÷ (2)]	N/A	N/A

Maturity Measures History

Valuation Date	Ratio of Retiree Accrued Liability to Total Accrued Liability	Support Ratio	Asset Volatility Ratio	Liability Volatility Ratio
06/30/2017	100%	0.00	N/A	N/A
06/30/2018	100%	0.00	N/A	N/A
06/30/2019	100%	0.00	N/A	N/A
06/30/2020	100%	0.00	N/A	N/A
06/30/2021	100%	0.00	N/A	N/A
06/30/2022	100%	0.00	N/A	N/A
06/30/2023	100%	0.00	N/A	N/A

Funded Status – Termination Basis

The funded status measured on a termination basis is an estimate of the financial position of the plan had the contract with CalPERS been terminated as of June 30, 2023. The accrued liability on a termination basis (termination liability) is calculated differently from the plan's ongoing funding liability. For the termination liability calculation, both compensation and service are frozen as of the valuation date and no future pay increases or service accruals are assumed. This measure of funded status is not appropriate for assessing the need for future employer contributions in the case of an ongoing plan, that is, for an employer that continues to provide CalPERS retirement benefits to active employees. Unlike the actuarial cost method used for ongoing plans, the termination liability is the present value of the benefits earned through the valuation date.

A more conservative investment policy and asset allocation strategy was adopted by the board for the Terminated Agency Pool. The Terminated Agency Pool has limited funding sources since no future employer contributions will be made. Therefore, expected benefit payments are secured by risk-free assets and benefit security for members is increased while limiting the funding risk. However, this asset allocation has a lower expected rate of return than the remainder of the PERF and consequently, a lower discount rate assumption. The lower discount rate for the Terminated Agency Pool results in higher liabilities for terminated plans.

The discount rate used for actual termination valuations is a weighted average of the 10-year and 30-year Treasury yields where the weights are based on matching asset and liability durations as of the termination date. The discount rates used in the following analysis is based on 20-year Treasury bonds, which is a good proxy for most plans. The discount rate upon contract termination will depend on actual Treasury rates on the date of termination, which varies over time, as shown below.

Valuation Date	20-Year Treasury Rate	Valuation Date	20-Year Treasury Rate
06/30/2014	3.08%	06/30/2019	2.31%
06/30/2015	2.83%	06/30/2020	1.18%
06/30/2016	1.86%	06/30/2021	2.00%
06/30/2017	2.61%	06/30/2022	3.38%
06/30/2018	2.91%	06/30/2023	4.06%

As Treasury rates are variable, the table below shows a range for the termination liability using discount rates 1% below and above the 20-year Treasury rate on the valuation date. The price inflation assumption is the 20-year Treasury breakeven inflation rate, that is, the difference between the 20-year inflation indexed bond and the 20-year fixed-rate bond.

The Market Value of Assets (MVA) also varies with interest rates and will fluctuate depending on other market conditions on the date of termination. Since it is not possible to approximate how the MVA will change in different interest rate environments, the results below use the MVA as of the valuation date.

	Discount Rate: 3.06% Price Inflation: 2.50%	Discount Rate: 5.06% Price Inflation: 2.50%
1. Termination Liability[1]	$1,509,014	$1,224,528
2. Market Value of Assets (MVA)	932,371	932,371
3. Unfunded Termination Liability [(1) – (2)]	$576,643	$292,157
4. Funded Ratio [(2) ÷ (1)]	61.8%	76.1%

[1] The termination liabilities calculated above include a 5% contingency load. The contingency load and other actuarial assumptions can be found in Appendix A of the Section 2 report.

In order to terminate the plan, first contact our Pension Contract Services unit to initiate a Resolution of Intent to Terminate. The completed Resolution will allow a CalPERS actuary to provide a preliminary termination valuation with a more up-to-date estimate of the plan's assets and liabilities. Before beginning this process, please consult with a CalPERS actuary.

Funded Status – Low-Default-Risk Basis

Actuarial Standard of Practice (ASOP) No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, requires the disclosure of a low-default-risk obligation measure (LDROM) of benefit costs accrued as of the valuation date using a discount rate based on the yields of high quality fixed income securities with cash flows that replicate expected benefit payments. Conceptually, this measure represents the level at which financial markets would value the accrued plan costs, and would be approximately equal to the cost of a portfolio of low-default-risk bonds with similar financial characteristics to accrued plan costs.

As permitted in ASOP No. 4, the Actuarial Office uses the Entry Age Actuarial Cost Method to calculate the LDROM. This methodology is in line with the measure of "benefit entitlements" calculated by the Bureau of Economic Analysis and used by the Federal Reserve to report the indebtedness due to pensions of plan sponsors and, conversely, the household wealth due to pensions of plan members.

As shown below, the discount rate used for the LDROM is 4.82%, which is the Standard FTSE Pension Liability Index[1] discount rate as of June 30, 2023, net of assumed administrative expenses.

Selected Measures on a Low-Default-Risk Basis	June 30, 2023
Discount Rate	4.82%
1. Accrued Liability[2] – Low-Default-Risk Basis (LDROM)	
a) Active Members	$0
b) Transferred Members	0
c) Separated Members	0
d) Members and Beneficiaries Receiving Payments	1,193,492
e) Total	$1,193,492
2. Market Value of Assets (MVA)	932,371
3. Unfunded Accrued Liability – Low-Default-Risk Basis [(1e) – (2)]	$261,121
4. Unfunded Accrued Liability – Funding Policy Basis	61,414
5. Present Value of Unearned Investment Risk Premium [(3) – (4)]	$199,707

The difference between the unfunded liabilities on a low-default-risk basis and on the funding policy basis represents the present value of the investment risk premium that must be earned in future years to keep future contributions for currently accrued plan costs at the levels anticipated by the funding policy.

Benefit security for members of the plan relies on a combination of the assets in the plan, the investment income generated from those assets, and the ability of the plan sponsor to make necessary future contributions. If future returns fall short of 6.8%, benefit security could be at risk without higher than currently anticipated future contributions.

The funded status on a low-default-risk basis is not appropriate for assessing the sufficiency of plan assets to cover the cost of settling the plan's benefit obligations (see Funded Status – Termination Basis), nor is it appropriate for assessing the need for future contributions (see Funded Status – Funding Policy Basis).

1 This index is based on a yield curve of hypothetical AA-rated zero coupon corporate bonds whose maturities range from 6 months to 30 years. The index represents the single discount rate that would produce the same present value as discounting a standardized set of liability cash flows for a fully open pension plan using the yield curve. The liability cash flows are reasonably consistent with the pattern of benefits expected to be paid from the entire Public Employees' Retirement Fund for current and former plan members. A different index, hence a different discount rate, may be needed to measure the LDROM for a subset of the fund, such as a single rate plan or a group of retirees.

2 If plan assets were invested entirely in the AA fixed income securities used to determine the discount rate of 4.82%, the CalPERS discount rate could, at various times, be below 4.5% or 5.25%, and some automatic annual retiree COLAs could be suspended (Gov. Code sections 21329 and 21335). Since there is currently no proposal to adopt an asset allocation entirely comprised of fixed income securities, the automatic COLAs have been fully valued in the measures above based on the assumptions used for plan funding. Removing future COLAs from the measurement would understate the statutory obligation.

Summary of Valuation Data

The table below shows a summary of the plan's member data upon which this valuation is based:

	June 30, 2022	June 30, 2023
Active Members		
Counts	0	0
Average Attained Age	0.0	0.0
Average Entry Age to Rate Plan	0.0	0.0
Average Years of Credited Service	0.0	0.0
Average Annual Covered Pay	$0	$0
Annual Covered Payroll	$0	$0
Present Value of Future Payroll	$0	$0
Transferred Members	0	0
Separated Members	0	0
Retired Members and Beneficiaries*		
Counts	6	5
Average Annual Benefits	$14,894	$16,534
Total Annual Benefits	$89,367	$82,670

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

* Values include community property settlements.

List of Class 1 Benefit Provisions

This plan has the following Class 1 Benefit Provisions:

- None

Plan's Major Benefit Options

Shown below is a summary of the major optional benefits for which the agency has contracted. A description of principal standard and optional plan provisions is in Section 2.

	Benefit Group	
Member Category	**Misc**	
Demographics		
Actives	No	
Transfers/Separated	No	
Receiving	Yes	
Benefit Provision		
Benefit Formula		
Social Security Coverage		
Full/Modified		
Employee Contribution Rate		
Final Average Compensation Period		
Sick Leave Credit		
Non-Industrial Disability		
Industrial Disability		
Pre-Retirement Death Benefits		
Optional Settlement 2		
1959 Survivor Benefit Level		
Special		
Alternate (firefighters)		
Post-Retirement Death Benefits		
Lump Sum	$2,000	
Survivor Allowance (PRSA)	No	
COLA	2%	

Section 2

California Public Employees' Retirement System

Risk Pool Actuarial Valuation Information

Section 2 may be found on the
CalPERS website (www.calpers.ca.gov)
in the Forms & Publications section