California Public Employees' Retirement System

Parallel Valuation and Certification Report
1959 Survivor Benefit Program Valuation

as of June 30, 2022

December 2023

110 West Berry Street
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December 29, 2023

Board of Administration
California Public Employees' Retirement System (CalPERS)
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Members of the Board:

As provided in Contract 2021-9096, we have reviewed valuations prepared by the CalPERS professional actuarial staff in order to certify that such work satisfies applicable standards of the actuarial profession. In the following pages, we report the results of our review of the June 30, 2022, actuarial valuation prepared for the 1959 Survivor Benefit Program (SBP).

We reviewed the assumptions, methods and procedures used by CalPERS staff to perform the 1959 Survivor Benefit Program valuation, and we confirm that they generally conform to applicable Actuarial Standards of Practice (ASOPs).

In addition, we completed a parallel actuarial valuation of the 1959 Survivor Benefit Program using the same assumptions and census, asset and benefit provision data that were used by CalPERS staff to prepare their June 30, 2022, valuation of the plan. We compared the key results of our parallel valuations to those in the valuation report published by CalPERS.

Each actuarial organization has its own valuation model and applies actuarial assumptions and methods in its preferred way. There is rarely a single “right” answer when it comes to actuarial calculations. For a pension or retiree group benefits actuarial valuation, we consider one actuary’s calculations to reasonably match another actuary’s calculations when the present values (liabilities), normal cost contributions, and total employer contributions computed by the two actuaries are within 5% of each other.

For the 1959 Survivor Benefit Program, our key calculations matched those prepared by CalPERS staff within 5%, which was the target tolerance level specified by CalPERS. We view the differences as not material.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions, applicable law, or regulations. An analysis of the potential range of such future differences is beyond the scope of this study.

This report was prepared for the Board and professional staff of CalPERS for their use in evaluating the preparation of actuarial valuations by the System. Use of this report for any other purpose or by other parties may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for other purposes. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advance review of any statement, document, or filing to be based on information contained in this report. Buck will accept no liability for any such statement, document, or filing made without its prior review.

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of each plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to internally developed models that apply applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal models are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal models, extra checking and review are completed. Significant changes to the internal models that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

The undersigned are Fellows of the Society of Actuaries, Members of the American Academy of Actuaries, and Enrolled Actuaries. We each meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

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Section I - Introduction

Under the California Constitution, the Board of Administration has plenary authority and fiduciary responsibility to provide for actuarial services. The CalPERS Chief Actuary advises the Board and directs the activities of the CalPERS professional actuarial staff. The Board also retains the services of an outside actuarial firm to review the work of the CalPERS professional actuarial staff and to certify that such work satisfies actuarial professional standards.

Buck was contracted to provide parallel valuation and certification services to the Board.

This report summarizes our review of the 1959 Survivor Benefit Program's actuarial valuation results as of June 30, 2022, under Task #3 of our contract. We did not audit or review the final valuation data provided to us by CalPERS for this parallel valuation, as review of the data is explicitly excluded from the scope of this assignment.

We first reviewed the actuarial assumptions and methods used for the June 30, 2022, 1959 Survivor Benefit Program valuation. Our review is based on Actuarial Standards of Practice (ASOPs) applicable to the selection of economic assumptions (ASOP 27) and the selection of demographic assumptions (ASOP 35). The results of our review are discussed in Section II.

Next, we completed parallel actuarial valuations for the 1959 Survivor Benefit Program in order to compare our key valuation results with those published in the valuation report prepared for the plan. CalPERS requested that we reconcile any differences of more than 5% between the two sets of valuation results. Section III contains a summary of our parallel valuation methodology. The results of our analysis are summarized in Section IV.

We also reviewed the report with regards to the sufficiency of information communicated under applicable ASOPs. The results of this review are summarized in Section V.

Lastly, we reviewed the general content of the valuation report for the 1959 Survivor Benefit Program and have formulated some recommendations for changes in the report. These are presented in Section VI.

We did not audit or review the final valuation data provided to us by CalPERS for this parallel valuation, as review of the data is explicitly excluded from the scope of this assignment. Generally speaking, our review has indicated that the actuarial process followed by CalPERS is thorough, complete, and complies with applicable Actuarial Standards of Practice.

Section II - Review of Actuarial Assumptions and Methods

We have reviewed the actuarial assumptions and methods used in the 1959 Survivor Benefit Program valuation. Actuarial Standard of Practice (ASOP) 27 discusses the selection of economic assumptions for the measurement of pension liabilities. Similarly, ASOP 35 discusses the selection of demographic assumptions for the measurement of pension liabilities. The key valuation assumptions include the following:

Assumption	Detail	Basis and Rationale	Commentary
Discount Rate	6.80%	Described as a prescribed assumption.	We have reviewed the assumed long-term annual rate of return on plan assets using our own economic modeling tool and determined that it is reasonable. **However, we recommend the actuary examine the determination that the assumption is prescribed (based on definitions provided in ASOP 27) and, if applicable, disclose the information and analysis used to support the actuary's determination that the assumption does not significantly conflict with what, in the actuary's professional judgment, is reasonable for the purpose of the measurement.**
Mortality assumption	The mortality assumption is comprised of customized base rates projected from 2017 using 80% of Scale MP-2020.	Pre-retirement rates for Miscellaneous plans and industrial death rates for Safety plans are documented in the 2021 experience study report. Non-industrial rates for Safety plans are absent from the experience study.	We agree with the documented basis and rationale for the assumptions. **We recommend that the basis for the non-industrial rates for Safety plans be explicitly documented since the 2021 experience study did not include the Safety rates.**

Section II - Review of Actuarial Assumptions and Methods (continued)

Assumption	Detail	Basis and Rationale	Commentary
Decrement assumptions, including rates of termination, disability, and retirement	Rates that vary by gender, age, and/or service.	Not disclosed	**We recommend disclosure of the basis and rationale for these assumptions.**
Weights for historical data to calculate expected claims		Not disclosed	**We recommend disclosure of the basis and rationale for these assumptions.**
Eligible survivor status for the Indexed Level claims assumption	Age-based	Not disclosed	**We recommend disclosure of the basis and rationale for these assumptions.**

In our opinion, the assumptions used in the SBP valuation are reasonable, and the methodology used to select these assumptions is appropriate and consistent with the guidance provided in ASOP 27 and ASOP 35. We do recommend improvements in the disclosure of assumptions used in the valuations in accordance with ASOP 27 and 35 sections 4.1.1 – please refer to our comments in Section V.

Notes on the actuarial methods employed in the 1959 Survivor Benefit Program valuation are as follows:

Concept	Method Employed	Commentary
Actuarial Cost Method for Public Agency 1st, 2nd, 3rd and 4th, and State and Schools 5th Level Pool	Term Insurance Method, which establishes a normal cost for the year equal to the present value of benefits arising from deaths that are expected to occur in the coming fiscal year.	This is an acceptable method.
Actuarial Cost Method for Public Agency Indexed Level Pool	The SBP valuation uses the entry age actuarial cost method, in which projected benefits are determined for all members and the associated liabilities are allocated in a manner that produces level annual cost as a percentage of pay in each year from the member's entry age to their assumed retirement age on the valuation date.	Described as a "Model Practice" in the Conference of Consulting Actuaries' 2014 report titled "Actuarial Funding Policies and Practices for Public Pension Plans", commonly referred to as the "White Paper." The guidance offered in the White Paper is not binding but provides a sense of the actuarial profession's beliefs about the relative merits of different approaches to funding public retirement systems.

Section II - Review of Actuarial Assumptions and Methods (continued)

Concept	Method Employed	Commentary
Asset Valuation Method	Market value of assets plus accounts receivable.	This is an acceptable method.
Amortization of Unfunded Actuarial Accrued Liability (UAL) for Public Agency 1st, 2nd, 3rd and 4th, and State and Schools 5th Level Pool	The report specifically addresses amortization of excess assets for all but State 5th Level Pool. Excess assets are amortized over an open 30-year period.	30-year amortization of surplus is listed as a Model Practice in the White Paper. **The report does not explicitly describe the amortization period for the State 5th Level Pool, though the schedule of amortization bases does indicate that in the June 30, 2022, valuation, the entire UAL was amortized over 15 years. See additional commentary in Section VI.**
Amortization of Unfunded Actuarial Accrued Liability for Public Agency Indexed Level Pool	The report specifically addresses amortization of excess assets. Excess assets are amortized over an open 30-year period.	30-year amortization of surplus is listed as a Model Practice in the White Paper.

Section III – Parallel Actuarial Valuation Methodology

The steps followed in our parallel actuarial valuation are described below.

The 1959 Survivor Benefit Program consists of seven groups:

State 5th Level Pool
Schools 5th Level Pool
PA 1st Level Pool
PA 2nd Level Pool
PA 3rd Level Pool
PA 4th Level Pool
PA Indexed Level Pool

We requested a copy of the final June 30, 2022, valuation report for the 1959 Survivor Benefit Program, and completed the following steps:

1. For each group we requested:
   a) The complete decrement tables used by CalPERS to prepare the valuation
   b) The final participant data used in generating the valuation report
   c) The key actuarial results presented in each valuation report (normal cost, actuarial accrued liability, present value of benefits, etc.).
2. Using the information provided in the valuation report and in 1(a) and 1(b) above, we produced a valuation for active participants in the PA Indexed Level Pool using ProVal®, a commercially available valuation system used worldwide by actuaries and investment professionals. As is the practice at CalPERS, due to the nature of the 1959 Survivor Program calculations, we valued the remainder of the members using Excel. We generated the key actuarial results for comparison to results published in the actuarial valuation report.
3. We have communicated preliminary results to CalPERS via email and telephone discussions.
4. In the following section, we provide the following:
   - Results of the actuarial review
   - A description of our parallel actuarial valuation findings, with differences attributable to either “Differences in valuation system” or “Areas for Refinement”

Section IV - Parallel Actuarial Valuation Findings

In our parallel valuation and review, we compared present values of future benefits, actuarial accrued liabilities, and total normal costs. We then used these key valuation results to compute and compare the total employer contribution rate. We are pleased to report that our calculation of the employer contribution rates differed by less than 5% from the corresponding results reported by CalPERS.

The table in Schedule B summarizes the results for the 1959 Survivor Benefit Program. This schedule indicates that we were able to closely replicate CalPERS' results. We generally categorize differences in results between our valuations and CalPERS valuations in one of two areas:

1. Differences in valuation system. No two valuation systems will produce identical results due to differing approaches to age- and service-rounding, adjustments for mid-year timing, consideration of monthly-vs.- annual payments, etc. These differences generally will not produce materially different results.
2. Areas for which refinement of calculation would be advisable.

Differences in valuation system

None of significance.

Areas for refinement

None.

Section V – Additional ASOP Considerations

ASOP 41 (Actuarial Communications) Checklist

Key Information	Included in Report	Not Included in Report	Not Applicable
Identification of Responsible Actuary (ASOP 41, 4.1.1)	✓		
Identification of Actuarial Documents (ASOP 41, 4.1.2)	✓		
Intended users of the actuarial report	✓		
Scope and intended purpose of the engagement or assignment	✓		
Acknowledgement of qualification as specified in the Qualification Standards	✓		
Any cautions about risk and uncertainty	✓		
Any limitations or constraints on the use or applicability of the actuarial findings contained within the actuarial communication including, if appropriate, a statement that the communication should not be relied upon for any other purpose	✓		
Any conflict of interest			✓
Any information on which the actuary relied that has a material impact on the actuarial findings and for which the actuary does not assume responsibility	✓		
Information Date of Report	✓		
Subsequent Events	✓		
If appropriate, the documents comprising the actuarial report			✓

Section V – Additional ASOP Considerations (continued)

ASOP 56 Compliance

The Actuarial Standards Board issued ASOP 56, Modeling, in December 2019, which provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. This ASOP is effective for work performed on or after October 1, 2020, and is effective for these actuarial valuation report. Since a valuation model is used for these reports, which fall under the context of ASOP 56, CalPERS is required to disclose and describe their model.

A description of the valuation model does not appear to be included in the report.

Section VI – Additional Comments and Recommendations

Recommendations

1. Explicitly disclose the amortization policy for the State 5th Level Pool.

   The June 30, 2021, valuation report indicated that the amortization period used for the State 5th Level Pool was five years. The June 30, 2022, valuation report shows that the period used was 15 years. Page 5 of the June 30, 2022, valuation states that there were no significant changes to the actuarial methods and assumptions for the June 30, 2022, actuarial valuation. We recommend expanding the description of the amortization method to explain that the change in periods from 2021 to 2022 was not a significant change in method. Alternatively, if it there was a change in method, the impact of the change should be disclosed. Also, we suggest that a rationale for the fresh-start approach be included in the report.

2. Consider including a more detailed breakdown of the participant counts by status such as average age and service for current active participants in the Public Agency Indexed Level Pool, average age and benefit for those currently receiving benefits, and average age and service for those included in the normal cost determination (at least in the most recent year) for those in Public Agency 1st, 2nd, 3rd and 4th, and State and Schools 5th Level Pool.

3. ASOP 6 Compliance

   Actuarial Standard of Practice 6 (ASOP 6) provides guidance for measuring retiree group benefits obligations and determining retiree group benefits plan costs or contributions. We have noted the following items that may be considered for inclusion in future reports to more completely fulfill the requirements of the current versions of these ASOPs:

   a) A statement regarding the impact of the funding policy on future contributions and funded status; i.e., an explanation that the impact on funding associated with a current-year gain or loss will be increasing over the next five years before leveling out. (4.1(p) of ASOP 6)

   b) Some additional comments about the appropriateness of reported measures of the funded status of the plan for various purposes. (4.1(t) of ASOP 6)

   c) In accordance with 4.1(w), a statement about future measurements and the fact that they may differ from current measurements. While some analysis was included in the report regarding the impact of potential variations in discount rate, mortality assumptions, and future investment returns on contributions in near-term future years, a more general statement about the potential effect of experience differing from assumptions may be needed in light of this requirement of ASOP 6.

Schedule A – Comparison of Active Member Data[1]

Plan		Number of Actives	Average Age	Average Service
PA Index Level Pool – Misc.	CalPERS	5,833	43.3	7.7
	Buck	5,833	43.3	7.7
PA Index Level Pool – Safety	CalPERS	5,953	39.6	11.1
	Buck	5,953	39.6	11.1

[1] Detailed active demographic information is not published in the actuarial valuation report. Active member data shown for CalPERS above is from the data furnished by CalPERS.

Schedule B – Comparison of Key Valuation Results

Plan		Present Value of Benefits	Accrued Liability	Projected Normal Cost (ER+EE)[2]	Employer Contribution Monthly Premium[2]
State 5th Level Pool	CalPERS	154,319,353	154,319,353	n/a	$6.35
	Buck	152,962,016	152,962,016	n/a	$6.25
	Difference	-0.88%	-0.88%	-	-1.57%
Schools 5th Level Pool	CalPERS	14,198,856	14,198,856	n/a	$0.00
	Buck	14,134,092	14,134,092	n/a	$0.00
	Difference	-0.46%	-0.46%	-	-
PA 1st Level Pool	CalPERS	2,731,767	2,731,767	n/a	$0.00
	Buck	2,711,122	2,711,122	n/a	$0.00
	Difference	-0.76%	-0.76%	-	-
PA 2nd Level Pool	CalPERS	2,217,975	2,217,975	n/a	$0.00
	Buck	2,171,735	2,171,735	n/a	$0.00
	Difference	-2.08%	-2.08%	-	-
PA 3rd Level Pool	CalPERS	30,753,269	30,753,269	n/a	$0.00
	Buck	30,539,956	30,539,956	n/a	$0.00
	Difference	-0.69%	-0.69%	-	-
PA 4th Level Pool	CalPERS	148,619,003	148,619,003	n/a	$5.20
	Buck	147,680,786	147,680,786	n/a	$5.20
	Difference	-0.63%	-0.63%	-	0.00%
PA Indexed Level Pool	CalPERS	30,777,864	20,822,002	1,390,185	$2.75
	Buck	30,967,733	20,422,454	1,419,452	$2.75
	Difference	0.62%	-1.92%	2.11%	0.00%

[2] Normal cost and employer contribution are projected to fiscal year 2023-24.