Sensitivity to Assumptions

As noted in this report, the costs are based on the CalSTRS valuation assumptions. To the extent these assumptions are not met, it will affect the ultimate long-term costs, possibly significantly. For example, if the costs were measured using a 6.75% investment return rather than 7.00%, it would increase the UAO for Option 1 by approximately $17 million from $500 million to $517 million, as well as increasing the expected value of benefits to be earned in the future.

Impact of Longer Amortization Period

CalSTRS funds its current UAO over a closed period ending 2046, a longer period than used in this analysis. For comparison, we have shown the level percent funding rate (including both the increased Normal Cost rate and UAO contribution rate) if it were measured over the 26-year period CalSTRS is using to fund its UAO. Note that the length of the amortization period does not impact the estimated present value of the cost in dollar terms, but it does impact the rate at which the increased cost is funded.

	Cost of Increase	
	10-/15-Year Amort	26-Year Amort
Option 1 (Full Adjustment)	0.183%	0.103%
Option 2 (1% Increase)	0.004%	0.002%
Option 3 (1-Year CPI Increase)	0.006%	0.003%

Risk Discussion

The results of any actuarial valuation or study are based on a set of assumptions. Although we believe the current assumptions provide a reasonable estimate of future expectations, it is almost certain that future experience will differ from the assumptions to some extent. To the extent actual experience varies from the assumptions, this will likely cause either increases or decreases in the plan’s future funding level and calculated contribution rates.

In particular, the ultimate cost of increasing the lump sum death benefit level, as discussed in this letter, is highly dependent on how closely actual experience follows the assumptions. If actual demographic experience or future demographic assumptions are different than assumed in this study, then the cost of the lump sum death benefit scenarios may be significantly different than shown in this report.

Examples of factors that can have a significant impact on the study results are:

- Demographic experience (primarily mortality, but also termination, disability, retirement from employment, etc.)
- Investment return
- Payroll variation

Variations in mortality and the investment return assumption are most likely to have the greatest impact on the ultimate cost of the lump sum death benefit.

We have provided a simplified analysis showing the sensitivity to potentially lower investment returns in the Sensitivity to Assumptions section. This analysis shows a future annual investment return of just 0.25% lower than the 7.0% assumption would increase the anticipated cost of the Option 1 increase in the lump sum death benefit by 3% to 4%. Therefore, if future investment returns fall significantly short of 7.0%, this could significantly increase the cost of the various options. Conversely, if investment returns exceed 7.0%, this would reduce the cost.

Risks specific to the DB Program are discussed in Milliman's 2020 DB Program valuation report and the "Review of Funding Level and Risks" produced each fall by CalSTRS actuarial staff. If CalSTRS wants additional analysis on these risks, Milliman can provide a more detailed analysis.

Assumptions and Methods

All data, methods and assumptions are the same as those used in our June 30, 2020 actuarial valuation of the DB Program, except where noted. Please refer to that report for further details.

It should be noted that we have not made any changes in the demographic assumptions, as it is difficult to anticipate how plan changes will impact participant behavior, but changes in behavior could result. However, we do not expect that increasing the lump sum death benefit would significantly impact member behavior.

Actuarial Certification

The cost estimates presented in this letter reflect the benefit provisions in effect as of June 30, 2020, except where noted. These cost estimates are subject to the uncertainties of a regular actuarial valuation; the costs are inexact because they are based on assumptions that are themselves necessarily inexact, even though we consider them reasonable. Thus, the emerging costs may vary from those presented in this letter to the extent actual experience differs from that projected by the actuarial assumptions.

In preparing the June 30, 2020 actuarial valuation upon which this letter is based, we relied, without audit, on information (some oral and some in writing) supplied by CalSTRS staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for CalSTRS have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of CalSTRS and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting CalSTRS. Further, in our opinion, each actuarial assumption used is reasonably related to the experience of the Plan and to reasonable expectations which, in combination, represent a reasonable estimate of anticipated experience under CalSTRS. The results were developed using models intended for valuations that use standard actuarial techniques.

Future actuarial measurements may differ significantly from the current measurements presented in this letter 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; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The Teachers' Retirement Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix B of the June 30, 2020 valuation report for the DB Program.

Actuarial computations presented in this letter are for purposes of determining the estimated cost of increasing the lump sum death benefit. The calculations in this letter have been made on a basis consistent with our understanding of CalSTRS current funding requirements. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this letter. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the internal business use of CalSTRS. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

(a) CalSTRS may provide a copy of Milliman's work, in its entirety, to CalSTRS professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit CalSTRS.

(b) CalSTRS may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are retirement actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States promulgated by the American Academy of Actuaries. We are members of the American

Academy of Actuaries and meet its Qualification Standards to render the actuarial opinion contained herein.

We respectfully submit this letter report, and we look forward to discussing it with you. If you have any questions, please contact us.

Sincerely,

Nick J. Collier, ASA, EA, MAAA
Principal and Consulting Actuary

Mark C. Olleman, FSA, EA, MAAA
Principal and Consulting Actuary

Julie D. Smith, FSA, EA, MAAA
Consulting Actuary

NJC/MCO/JDS/nlo

cc: Rick Reed
David Lamoureux

RESOLUTION
OF THE
TEACHERS' RETIREMENT BOARD

SUBJECT: Adoption of Lump-Sum Death Benefits for 2021-22 Fiscal Year

RESOLUTION NO. XX-XX

WHEREAS, Sections 23801, 23851 and 23880 of the Education Code permit the Teachers' Retirement Board to adjust the death payment amounts for members of the California State Teachers' Retirement System (CalSTRS) following each actuarial valuation, based upon changes in the All Urban California Consumer Price Index; and

WHEREAS, the Teachers' Retirement Board adopted a policy that the lump-sum death benefit amounts shall be adopted annually based on the latest actuarial valuation and a recommendation from its consulting actuary; and

WHEREAS, Milliman, CalSTRS consulting actuary, has completed an actuarial valuation of the Defined Benefit Program as of June 30, 2020 determined that an inflationary adjustment to the death payment amounts at this time would have an immaterial impact on the funding of the Defined Benefit Program. However, considering current funding levels of the Defined Benefit Program and the significant increases in contribution rates experienced by members, employers and the state; therefore, be it

RESOLVED that the Teachers' Retirement Board maintains the lump-sum death payment payable pursuant to Section 23801 of the Education Code on account of the death of an eligible member under Coverage A at $6,372; that the death payment payable pursuant to Section 23851 of the Education Code on account of the death of an eligible member under Coverage B at $25,488; and that the death payment payable pursuant to Section 23880 of the Education Code on account of the death of an eligible retired member at $6,372.

Adopted by:
Teachers' Retirement Board
On June 9, 2021

____
Jack Ehnes
Chief Executive Officer

Reviewed by:

____
Brian J. Bartow
General Counsel