

Legislators' Retirement System Actuarial Valuation

As of June 30, 2019



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Actuarial Certification



February 2020

To the best of our knowledge, this report is complete and accurate and contains sufficient information to fully and fairly disclose the actuarial funded condition of the Legislators' Retirement System. This valuation is based on the member and financial data as of June 30, 2019 provided by the various CalPERS databases and the benefits under this plan with CalPERS as of the date this report was produced. In our opinion, this valuation has been performed in accordance with generally accepted actuarial principles, and in accordance with the standards of practice prescribed by the Actuarial Standards Board. The assumptions and methods are internally consistent and reasonable for this plan, as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employee's Retirement Law.

The undersigned are actuaries for CalPERS, who are members of the American Academy of Actuaries and the Society of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

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Highlights and Executive Summary

Introduction

This is the actuarial valuation report as of June 30, 2019 for the Legislators' Retirement System. This actuarial valuation is used to set fiscal year 2020-21 required employer contribution rates. This report provides information regarding retirement and ancillary benefits for Senators and Members of the Assembly (first elected prior to November 7, 1990), Constitutional Officers (first elected prior to December 31, 2012), and Legislative Statutory Officers (first appointed prior to December 31, 2012).

Effective January 1, 2013, the system is closed to new members. The system was partially closed as a result of the Political Reform Act of 1990 (to Senators and Members of the Assembly first elected after November 7, 1990). As a result of Assembly Bill 340 which was signed by the Governor on September 12, 2012, the Legislators' Retirement System is also closed to Constitutional and Statutory Officers effective January 1, 2013.

Section 7522.52 of the California Public Employees' Retirement Law requires that a public employer's contribution to a defined benefit plan, in combination with employee contributions to that defined benefit plan, shall not be less than the normal cost rate. This requirement impacts the results of this valuation.

Effective December 7, 2009, elected officials' salaries were reduced 18%. For the purposes of determining the present value of benefits, salaries prior to the reduction were used. However, actual salaries were used to calculate employer contribution rates.

Purpose of Report

This actuarial valuation of the Legislators' Retirement System was performed by the CalPERS Actuarial Office using data as of June 30, 2019 in order to:

- Set forth the assets, accrued liabilities, and funded status of this plan as of June 30, 2019.
- Establish the Required Employer Contribution for fiscal year July 1, 2020 through June 30, 2021.
- Provide actuarial information as of June 30, 2019 to the CalPERS Board of Administration 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. A separate accounting valuation report for such purposes is available from CalPERS. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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; and changes in plan provisions or applicable law.

Assessment and Disclosure of Risk

This report includes the following risk disclosures consistent with the recommendations 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 4 percent and 6 percent and inflation rates of 1.5 percent and 3.5 percent.
- A "Sensitivity Analysis," showing the impact on current valuation results assuming rates of mortality are 10 percent lower or 10 percent higher than our current mortality assumptions adopted in 2017.
- Plan maturity measures indicating how sensitive a plan may be to the risks noted above.

Highlights and Executive Summary

Required Employer Contribution

This actuarial valuation sets forth the employer contribution rate for the fiscal year July 1, 2020 through June 30, 2021. The Required Employer Contribution is shown below as a percentage of projected payroll and as an estimated dollar amount. The table also includes comparison of previous year valuation.

Required Employer Contribution

	FY 2019-20	FY 2020-21
1) Contribution in Projected Dollars		
a) Total Normal Cost	\$122,577	\$107,264
b) Employee Contribution	21,315	22,956
c) Employer Normal Cost [(1a) – (1b)]	\$101,262	\$84,308
d) Unfunded Accrued Liability Payment ¹	0	0
e) Required Employer Contribution [(1c) + (1d)]	\$101,262	\$84,308
Projected Annual Payroll for Contribution Year ²	\$287,089	\$286,956
2) Contribution as a Percentage of Payroll		
a) Total Normal Cost	42.697%	37.38%
b) Employee Contribution	7.425%	8.00%
c) Employer Normal Cost [(2a) – (2b)]	35.272%	29.38%
d) Unfunded Accrued Liability Payment ¹	0.000%	0.00%
e) Required Employer Contribution [(2c) + (2d)]	35.272%	29.38%

(1) Under the Public Employee Pension Reform Act (PEPRA), the minimum required contribution cannot be less than the plan's normal cost. Therefore, any surplus cannot be used to lower the required contribution amount.

(2) Due to the closed nature of the Legislators' Retirement System and term limits met by a majority of the June 30, 2018 active members during fiscal year 2018-19, the projected payroll for fiscal year 2019-20 was adjusted to reflect expected active members. The assumed payroll growth rate assumption of 2.75% was used to project payroll for expected remaining actives.

Plan's Funded Status

The table below summarizes the funded status of the Legislators' Retirement System as of June 30.

	June 30, 2018	June 30, 2019
1) Present Value of Projected Benefits	\$99,556,131	\$99,474,395
2) Entry Age Normal Accrued Liability	98,926,634	99,130,181
3) Market Value of Assets (MVA)	115,484,165	115,795,760
4) Unfunded Accrued Liability [(2) - (3)]	(\$16,557,531)	(16,665,579)
5) Funded Ratio [(3) / (2)]	116.7%	116.8%

This measure of funded status is an assessment of the need for future employer contributions. The Unfunded Accrued Liability, if positive, is the present value of future employer contributions for service that has already been earned and is in addition to future normal cost contributions for active members. This measure of funded status is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligations.

Highlights and Executive Summary

Changes Since Prior Year's Valuation

Actuarial Methods and Assumptions

The CalPERS Board of Administration adopted a new amortization policy effective with this actuarial valuation. The new policy shortens the period over which actuarial gains and losses are amortized from 30 years to 20 years with the payments computed as a level dollar amount. In addition, the new policy does not utilize a 5-year ramp-up and ramp-down on UAL bases attributable to assumption changes and non-investment gains/losses. The new policy also does not utilize a 5-year ramp-down on investment gains/losses. These changes will apply only to new UAL bases established on or after June 30, 2019.

A complete description of the actuarial methods and assumptions used in the June 30, 2019 valuation may be found in Appendix A of this report.

Plan Provisions

No changes were made since the prior valuation. A complete description of the principal plan provisions used in the June 30, 2019 valuation may be found in Appendix B of this report.

Subsequent Events

The contribution requirements determined in this actuarial valuation report are based on demographic and financial information as of June 30, 2019. Changes in the value of assets subsequent to that date are not reflected. Investment returns below the assumed rate of return may increase future required contributions while investment returns above the assumed rate of return may decrease future required contributions.

This actuarial valuation report reflects statutory changes, regulatory changes and CalPERS Board actions through January 2020. Any subsequent changes or actions are not reflected.

Assets

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Assets

Reconciliation of the Market Value of Assets

The following displays the change in the Market Value of Assets from the prior valuation date to June 30, 2019.

	Market Value
Beginning Balance as of June 30, 2018	\$115,484,165
Member Contributions	91,231
Employer Contributions	249,883
Benefit Payments and Refunds	(7,349,724)
Administration Costs	(539,236)
Investment Earnings ¹	7,859,441
Ending Balance as of June 30, 2019	\$115,795,760

(1) Net Fund return for the FY 2018-19 is 7.0%

Asset Allocation

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

Asset Type	Market Value
Cash	\$1,200,550
Investments at Market Value	
Global Equity Securities	\$39,991,915
Global Debt Securities	74,445,973
Short Term Investments	768,760
Securities Lending Collateral	—
Accounts Receivable	80,675
Subtotal of Investments	\$116,487,872
Liabilities	
Accounts Payable	(\$692,112)
Securities Lending Obligation	—
Subtotal of Accounts Receivable	(692,112)
Fund Balance at Market Value on June 30, 2019	\$115,795,760

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Liabilities and Required Employer Contributions

Comparison of Current and Prior Year Results

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

	June 30, 2018	June 30, 2019
1) Members Included in the Valuation		
a) Active Members	7	2
b) Deferred Vested Terminated Members and QDRO's	8	6
c) Receiving Payments	212	214
d) Total	227	222
2) Payroll		
a) Covered Annual Payroll	\$1,097,953	\$271,801
b) Projected Covered Annual Payroll	287,089	286,956
c) Average Covered Annual Payroll [(2a) / (1a)]	\$156,850	\$135,901
3) Age and Service for Actives		
a) Average Attained Age for Actives	66.07	68.30
b) Average Service for Actives	11.98	10.30
4) Present Value of Benefits at Valuation Date		
a) Active Members	\$5,991,587	\$1,494,694
b) Inactive Members	3,292,497	3,061,831
c) Receiving Benefits	90,272,047	94,917,870
d) Total	\$99,556,131	\$99,474,395
5) Present Value of Future Employee Contributions	\$123,040	\$73,645
6) Present Value of Future Employer Normal Cost	\$506,457	\$270,569
7) Accrued Actuarial Liability		
a) Active Members	\$5,362,090	\$1,150,480
b) Inactive Members	3,292,497	3,061,831
c) Receiving Benefits	90,272,047	94,917,870
d) Total	\$98,926,634	\$99,130,181
8) Assets		
a) Market Value of Assets	\$115,484,165	\$115,795,760
b) Unfunded Accrued Actuarial Liability [(7d) - (8a)]	(\$16,557,531)	(\$16,665,579)
c) Funded Ratio [(8a) / (7d)]	116.7%	116.8%

Liabilities and Required Employer Contributions (continued)

(Gain)/Loss Analysis

To calculate the cost requirements of the plan, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year, actual experience is compared to the expected experience based on the actuarial assumptions. This results in actuarial gains or losses, as shown below.

1) Total (Gain)/Loss for the Year	
a) Unfunded Accrued Liability (UAL) as of 6/30/2018	(\$16,557,531)
b) Expected Payment on UAL During FY 2018-2019	8,996
c) Interest through 6/30/2019 $[(0.05 \times 1a) - (1.05^{1/2} - 1) \times 1b]$	(828,099)
d) Expected UAL Before All Other Changes $[1a - 1b + 1c]$	(\$17,394,626)
e) Change Due to Revised Actuarial Methods	—
f) Change Due to New Actuarial Assumptions	—
g) Expected UAL After All Changes $[1d + 1e + 1f]$	(\$17,394,626)
h) Actual Unfunded Accrued Liability as of 6/30/2019	(16,665,579)
i) Total (Gain)/Loss for FY 2018-2019 $[1h - 1g]$	\$729,046
2) Contribution (Gain)/Loss for the Year	
a) Expected Contribution (Employer and Employee)	\$298,523
b) Interest on Expected Contributions $[(1.05^{1/2} - 1) \times 2a]$	7,372
c) Actual Contribution	341,114
d) Interest on Actual Contributions $[(1.05^{1/2} - 1) \times 2c]$	8,424
e) Contribution (Gain)/Loss $[2a + 2b) - (2c + 2d)]$	(\$43,643)
3) Asset (Gain)/Loss for the Year	
a) Market Value of Assets as of 6/30/2018	\$115,484,165
b) Contributions Received	341,114
c) Benefits, Refunds Paid and Administrative Costs	(7,349,724)
d) Expected Interest $[0.05 \times 3a + (1.05^{1/2} - 1) \times (3b + 3c)]$	5,601,130
e) Expected Assets as of 6/30/2019 $[3a + 3b + 3c + 3d]$	114,076,685
f) Market Value of Assets as of 6/30/2019	115,795,760
g) Asset (Gain)/Loss $[3e - 3f]$	(\$1,719,075)
4) Liability (Gain)/Loss for the Year	
a) Total (Gain)/Loss (1i)	\$729,046
b) Contribution (Gain)/Loss (2e)	(\$43,643)
c) Asset (Gain)/Loss (3g)	(1,719,075)
d) Liability (Gain)/Loss $[4a - 4b - 4c]$	\$2,491,765

Liabilities and Required Employer Contributions (continued)

Schedule of Amortization Bases

There is a one-year lag between the valuation date and the start of the contribution fiscal year.

- The assets, liabilities, and funded status of the plan are measured as of the valuation date: June 30, 2019.
- The required employer contributions determined by the valuation are for the fiscal year beginning one year after the valuation date: fiscal year 2020-21.

This one-year lag is necessary due to the amount of time needed to extract and test the membership and financial data.

The Unfunded Accrued Liability (UAL) is used to determine the employer contribution and therefore must be rolled forward one year from the valuation date to the first day of the fiscal year for which the contribution is being determined. The UAL is rolled forward one year by subtracting the expected payment on the UAL for the prior fiscal year and adjusting for interest. The expected payment on the UAL for the prior fiscal year is equal to the Expected Employer Contribution for that fiscal year minus the Expected Normal Cost for the year. The Employer Contribution for the prior fiscal year is determined by the actuarial valuation one year ago. The Normal Cost Rate for the prior fiscal year is assumed to be the same as the rate determined by the current valuation. All expected dollar amounts are determined by multiplying the rate by the expected payroll for the applicable fiscal year, based on payroll as of the valuation date.

The schedule below shows the development of the payment on the Amortization Bases. Please refer to Appendix A for an explanation of how amortization periods are determined.

Reason for Base	Date Established	Remaining Period	Balance on 6/30/19	Expected Payment on UAL 2019-20	Balance on 6/30/20	Scheduled Payment Fiscal Year 2020-2021
Actuarially Determined Surplus	6/30/2019	N/A ¹	(\$16,665,579)	\$14,848	(\$17,514,073)	—
Total			(\$16,665,579)	\$14,848	(\$17,514,073)	—

(1) Under the Public Employee Pension Reform Act (PEPRA), the minimum required contribution cannot be less than the plan's normal cost. Therefore, any surplus cannot be used to lower the required contribution amount.

Reconciliation of Required Employer Contributions

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

	Percentage of Projected Payroll	Estimated \$ Based on Projected Payroll
Normal Cost (% of Payroll)		
1. For Period 7/1/19 – 6/30/20		
a) Employer Normal Cost	35.272%	\$101,262
b) Employee Contribution	7.425%	21,316
c) Total Normal Cost	42.697%	122,577
2. Changes Since the Prior Annual Valuation		
a) Effect of Changes in Demographics	(5.317%)	(15,313)
b) Effect of Plan Changes	0.000%	0
c) Effect of Method Changes	0.000%	0
d) Effect of Assumption Changes	0.000%	0
e) Effect of Fresh Start	0.000%	0
f) Net Effect of Changes [Sum of a – e]	(5.317%)	(15,313)
3. For Period 7/1/20 – 6/30/21		
a) Employer Normal Cost	29.38%	84,308
b) Employee Contribution	8.00%	22,956
c) Total Normal Cost	37.38%	107,264
Employer Normal Cost Change [(3a) – (1a)]	(5.892%)	(16,954)
Employee Contribution Change [(3b) – (1b)]	0.575%	1,640

Liabilities and Required Employer Contributions (continued)

Required Employer Contribution Rate History

This table provides the 10-year history of employer contribution rates for the Legislators' Retirement System.

Fiscal Year	Required Employer Contribution Rate
2020-21	29.38%
2019-20	35.272%
2018-19	38.145%
2017-18	41.696%
2016-17	40.659%
2015-16	42.265%
2014-15	42.257%
2013-14	38.381%
2012-13	N/A
2011-12	N/A

Funding History

The Funding History below shows the recent history of the actuarial accrued liability, the market value of assets, funded ratios and the annual covered payroll.

Valuation Date	Entry Age Normal Accrued Liability ¹	Market Value of Assets (MVA)	Funded Ratio (MVA)	Annual Covered Payroll
6/30/19	\$99,130,181	\$115,795,760	116.8%	\$271,801
6/30/18	98,926,634	115,484,165	116.7%	1,097,953
6/30/17	100,844,514	116,883,856	115.9%	1,208,552
6/30/16	106,974,655	119,049,997	111.3%	1,320,844
6/30/15	105,746,107	121,468,928	114.9%	1,275,083
6/30/14	111,274,434	130,353,307	117.1%	1,500,257
6/30/13	115,805,781	122,147,891	105.5%	1,427,241
6/30/12	108,585,275	123,029,188	113.3%	1,983,348
6/30/11	108,976,845	123,569,795	113.4%	2,269,390
6/30/10	112,355,875	114,104,852	101.6%	2,159,181

(1) The aggregate funding method was used in the June 30, 2010 and prior valuations. The Entry Age Normal Accrued Liability (EANAL) was not used for funding purposes. However, the EANAL was disclosed for accounting purposes due to GASB Statement #50.

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Risk Analysis

Future Investment Return Scenarios

Analysis was performed to determine the effects of various future investment returns on required employer contributions. The projections below provide a range of results based on five investment return scenarios assumed to occur during the next four fiscal years (2019-20, 2020-21, 2021-22 and 2022-23). The projections also assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur.

For fiscal years 2019-20, 2020-21, 2021-22 and 2022-23 each scenario assumes an alternate fixed annual return. The fixed return assumptions for the five scenarios are 1.0 percent, 3.0 percent, 5.0 percent, 6.5 percent and 8.5 percent.

The alternate investment returns were chosen based on stochastic analysis of possible future investment returns over the four-year period ending June 30, 2023. Using the expected returns and volatility of the asset classes in which the funds are invested, we produced five thousand stochastic outcomes for this period based on the recently completed Asset Liability Management process. We then selected annual returns that approximate the 5th, 25th, 50th, 75th, and 95th percentiles for these outcomes. For example, of all the 4-year outcomes generated in the stochastic analysis, approximately 25 percent of them had an average annual return of 3.0 percent or less.

Required contributions outside of this range are also possible. In particular, whereas it is unlikely that investment returns will average less than 1.0 percent or greater than 8.5 percent over this four-year period, the possibility of a single investment return less than -1.0 percent or greater than 8.5 percent in any given year is much greater.

The table below shows the projected required employer contributions under the five different investment return scenarios. These projections reflect recent changes to the amortization policy effective with the June 30, 2019 valuation.

Assumed Annual Return from 2019-20 through 2022-23	Required Contribution FY 2020-21	Projected Required Employer Contribution			
		FY 2021-22	FY 2022-23	FY 2023-24 ¹	FY 2024-25 ¹
1.00% (5th Percentile)					
Normal Cost	29.4%	29.4%	29.4%	29.4%	29.4%
UAL Contribution	\$0	\$0	\$0	\$0	\$0
3.00% (25th Percentile)					
Normal Cost	29.4%	29.4%	29.4%	29.4%	29.4%
UAL Contribution	\$0	\$0	\$0	\$0	\$0
5.00% (50th Percentile)					
Normal Cost	29.4%	29.4%	29.4%	29.4%	29.4%
UAL Contribution	\$0	\$0	\$0	\$0	\$0
6.50% (75th Percentile)					
Normal Cost	29.4%	29.4%	29.4%	29.4%	29.4%
UAL Contribution	\$0	\$0	\$0	\$0	\$0
8.50% (95th Percentile)					
Normal Cost	29.4%	29.4%	29.4%	29.4%	29.4%
UAL Contribution	\$0	\$0	\$0	\$0	\$0

(1) It is expected that there will be no active members during fiscal year 2023-24 and subsequent years. However, if active members are present, the expected normal cost for possible active members is shown above.

Risk Analysis

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 2.50 percent and 2.50 percent, 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, 2019 assuming alternate discount rates by changing the two components independently. Results are shown using the current discount rate of 5.0% as well as alternate discount rates of 4.0% and 6.0%. The rates of 4.0% and 6.0% were selected since they illustrate the impact of a 1.0% increase or decrease to the 5.0% assumption. This type of analysis gives the reader a sense of the long-term risk to the funded status of the plan and the FY 2020-21 employer contribution rates.

Sensitivity to the Real Rate of Return Assumption

As of June 30, 2019	1% Lower Real Return Rate	Current Real Return Rate	1% Higher Real Return Rate
Discount Rate	4.0%	5.0%	6.0%
Inflation	2.5%	2.5%	2.5%
Real Rate of Return	1.5%	2.5%	3.5%
a) Total Normal Cost	44.58%	37.38%	31.53%
b) Accrued Liability	111,381,445	99,130,181	89,241,240
c) Market Value of Assets	115,795,760	115,795,760	115,795,760
d) Unfunded Liability (Surplus) [(b)-(c)]	(4,414,315)	(16,665,579)	(26,554,520)
e) Funded Status	104.0%	116.8%	129.8%

Sensitivity to the Price Inflation Assumption

As of June 30, 2019	1% Lower Inflation Rate	Current Inflation Rate	1% Higher Inflation Rate
Discount Rate	4.0%	5.0%	6.0%
Inflation	1.5%	2.5%	3.5%
Real Rate of Return	2.5%	2.5%	2.5%
a) Total Normal Cost	37.82%	37.38%	36.96%
b) Accrued Liability	99,001,045	99,130,181	99,260,799
c) Market Value of Assets	115,795,760	115,795,760	115,795,760
d) Unfunded Liability (Surplus) [(b)-(c)]	(16,794,715)	(16,665,579)	(16,534,961)
e) Funded Status	117.0%	116.8%	116.7%

Mortality Sensitivity

The following table looks at the change in the June 30, 2019 plan costs and funded ratio under two different longevity scenarios, namely assuming rates of mortality are 10 percent lower or 10 percent higher than our current mortality assumptions adopted in 2017. This type of analysis highlights the impact on the plan of improving or worsening mortality over the long-term.

As of June 30, 2019	10% Lower Mortality Rates	Current Mortality	10% Higher Mortality Rates
a) Total Normal Cost	38.50%	37.38%	36.37%
b) Accrued Liability	102,392,674	99,130,181	96,207,207
c) Market Value of Assets	115,795,760	115,795,760	115,795,760
d) Unfunded Liability (Surplus) [(b)-(c)]	(13,403,086)	(16,665,579)	(19,588,553)
e) Funded Status	113.1%	116.8%	120.4%

Plan Maturity Measures

As pension plans mature they become more sensitive to risks than plans that are less mature. Understanding plan maturity and how it affects the ability of a pension plan to tolerate risk is important in understanding how the plan is impacted by investment return volatility, other economic variables and changes in longevity or other demographic assumptions.

The Legislators' Retirement plan closed to new entrants in 2013 and is a mature pension plan. For a plan that is closed to new entrants, plan maturity measures do not yield results that are necessarily meaningful. For example, eventually there will be no payroll associated with this plan, so measuring contribution volatility with relation to payroll does not provide information consistent with plans that are open to new entrants. Additionally, eventually there will be no actives in this plan, so measuring the ratio of actives to retirees or retired to total accrued liability won't provide results that are consistent with plans open to new entrants. For these reasons, plan maturity measures have been omitted from this report.

Appendices

Appendix A – Statement of Actuarial Methods and Assumptions

Appendix B – Summary of Principal Plan Provisions

Appendix C – Participant Data

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Appendix A

Statement of Actuarial Methods and Assumptions

Actuarial Data

As stated in the Actuarial Certification, the data, which serves as the basis of this valuation, has been obtained from the various CalPERS databases. We have reviewed the valuation data and believe that it is reasonable and appropriate in aggregate.

Actuarial Cost Method

The actuarial funding method used for the Retirement Program is the Entry Age Normal Cost Method. Under this method, projected benefits are determined for all members and the associated liabilities are spread in a manner that produces level annual cost as a percent of pay in each year from the member's entry age to the assumed retirement age. The cost allocated to the current fiscal year is called the normal cost.

The actuarial accrued liability for active members is then calculated as the portion of the total cost of the plan allocated to prior years. The actuarial accrued liability for members currently receiving benefits and for members entitled to deferred benefits is equal to the present value of the benefits expected to be paid. No normal costs are applicable for these participants.

The following table provides a history of the actuarial cost method

Valuation Year June 30	Funding Method
1996	Entry Age Normal
1997 to 2010	Aggregate
2011 to Current	Entry Age Normal

Amortization of Unfunded Actuarial Accrued Liability

The CalPERS Board of Administration has adopted a new amortization policy effective with the June 30, 2019 actuarial valuation. The new policy shortens the period over which actuarial gains and losses are amortized from 30 years to 20 years with the payments computed using a level dollar amount. In addition, the new policy removes the 5-year ramp-up and ramp-down on UAL bases attributable to assumption changes and non-investment gains/losses. The new policy removes the 5-year ramp-down on investment gains/losses. These changes will apply only to new UAL bases established on or after June 30, 2019.

Amortization Policy Effective June 30, 2019

Driver	(Gain) / Loss Investment	(Gain) / Loss Non-Investment	Assumption / Method Change	Benefit Change	Golden Handshake
Amortization Period	20 Years	20 Years	20 Years	20 Years	5 Years
Escalation Rate	0%	0%	0%	0%	0%
Ramp Up	5	0	0	0	0
Ramp Down	0	0	0	0	0

The 5-year ramp up means that the payments in the first four years of the amortization period are 20 percent, 40 percent, 60 percent and 80 percent of the "full" payment which begins in year five. The 5-year ramp down means that the reverse is true in the final four years of the amortization period.

Appendix A - Statement of Actuarial Methods and Assumptions (continued)

Exceptions for Inconsistencies:

An exception to the amortization rules above is used whenever their application results in inconsistencies. In these cases, a “fresh start” approach is used. This means that the current unfunded actuarial liability is projected and amortized over a set number of years. For example, a fresh start is needed in the following situations:

- 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.

It should be noted that the actuary may determine that a fresh start is necessary under other circumstances. In all cases of a fresh start, the period is set by the actuary at what is deemed appropriate; however, the period will not be greater than 20 years.

Exceptions for Plans in Surplus:

If a surplus exists (i.e. the Market Value of Assets exceeds the plan's accrued liability) any prior amortization layers shall be considered fully amortized, and the surplus shall not be amortized.

In the event of any subsequent unfunded liability, a Fresh Start shall be used with an amortization period of 20 years or less.

Investment Return (Interest)

5.00 percent compounded per year, net of assumed expenses of 0.25 percent.

The following table provides a history of the Investment Return Assumption.

Time Frame	Investment Return
7/1/2016 - Current	5.00%
7/1/2011 - 6/30/2016	5.75%
7/1/2010 - 6/30/11	6.00%
7/1/2004 - 6/30/2010	7.00%
7/1/1998 - 6/30/2004	7.50%

Individual Salary Increases

2.75 percent compounded per year.

Overall Payroll Growth

2.75 percent compounded annually for active population that will not decrement due to term limits or non-reelection.

Inflation

2.50 percent compounded per year. The current inflation assumption based on the most recent CalPERS Experience Study adopted by the CalPERS Board in December 2017. The following table provides a brief history of the Inflation Return Assumption.

Time Frame	Inflation
7/1/2017 - Current	2.50%
7/1/2011 - 6/30/2017	2.75%
7/1/2004 - 6/30/2011	3.00%
7/1/1998 - 6/30/2004	3.50%

Appendix A - Statement of Actuarial Methods and Assumptions (continued)

Demographic Assumptions

The demographic assumptions used in the valuation, with the exception of the mortality assumption, have been in place for many years. The demographic assumptions have not produced significant experience gains or losses for the plan and the actuary has concluded that the continued use of these assumptions is reasonable for valuation purposes. More information on the mortality assumption is available in the mortality assumption section of this appendix.

Percentage Married

90 percent

Retirement

Active members are assumed to retire immediately at the end of their term limit, if eligible.

Normal Form of Payment

The normal form of payment is assumed a 100 percent Joint and Survivor Annuity for all members of the Legislature. While the normal form is a 50 percent Joint and Survivor Annuity for this group, it is valued as a 100 percent Joint and Survivor Annuity to reflect employer subsidies used in the calculation of other optional benefit forms available to the member. The normal form of payment for all Constitutional and Legislative Statutory Officers is assumed a straight life annuity.

Mortality Rates

The mortality assumptions are based on mortality rates resulting from the most recent CalPERS Experience Study adopted by the CalPERS Board in December 2017. For purposes of the mortality rates, the rates include a 15-year mortality improvement projection using 90 percent of Scale MP 2016.

Sample mortality rates are shown in the following table:

Attained Age	Healthy Recipients		Disabled Recipients	
	Male	Female	Male	Female
35	0.00049	0.00027	0.00049	0.00027
40	0.00064	0.00037	0.00064	0.00037
45	0.00080	0.00054	0.00080	0.00054
50	0.00372	0.00346	0.01183	0.01083
55	0.00437	0.00410	0.01613	0.01178
60	0.00671	0.00476	0.02166	0.01404
65	0.00928	0.00637	0.02733	0.01757
70	0.01339	0.00926	0.03358	0.02183
75	0.02316	0.01635	0.04277	0.02969
80	0.03977	0.03007	0.06272	0.04641
85	0.07122	0.05418	0.09793	0.07847
90	0.13044	0.10089	0.14616	0.13220
95	0.21658	0.17698	0.21658	0.21015
100	0.32222	0.28151	0.32222	0.32226
105	0.46691	0.43491	0.46691	0.43491
110	1.00000	1.00000	1.00000	1.00000

Appendix A - Statement of Actuarial Methods and Assumptions (continued)

Probability of Decrement for Active Participants

Vested Withdrawal - Sample vested withdrawal rates are shown in the following table.

Disability - Sample disability rates are shown in the following table.

Non-vested Withdrawal - Sample rates for non-vested withdrawal are shown in the following table.

For each 1,000 active participants at the age shown, the following number will leave within a year on account of:

Age	Vested Withdrawal	Disability	Non-Vested Withdrawal
30	50.0	0.1	25.0
35	50.0	0.2	25.0
40	50.0	0.7	20.0
45	40.0	1.2	15.0
50	40.0	2.2	10.0
55	40.0	5.0	0.0
60	40.0	9.5	0.0

For those members subject to a term limit, the Vested Withdrawal assumption is 100 percent at the end of the term limit.

Retirement Age

The maximum retirement age assumed was age 60, except for participants who would not meet the service requirements at age 60 or are older than age 60. Retirement for these participants was assumed to occur at the age when the service requirements were met or when their term limits expires, whichever is later.

Purchase of Non-Contributory Service

Current active and non-retired inactive members are assumed to have purchased 100 percent of all non-contributory service as a member of the Legislature, as a Constitutional Officer other than a Judge, or as a Legislative Statutory Officer. Contributions made for the purchase of non-contributory service are based on their current or final compensation.

Asset Valuation Method

The value of assets is the market value of assets.

Internal Revenue Code Section 415

The limitations on benefits imposed by Internal Revenue Code Section 415 were taken into account in this valuation.

Internal Revenue Code Section 401 (a)(17)

The limitations on benefits imposed by Internal Revenue Code Section 401(a) (17) were taken into account in this valuation.

Appendix B

Summary of Principal Plan Provisions

Political Reform Act 1990

Proposition 140, the Political Reform Act of 1990, required that Senators and members of the Assembly, first elected after November 7, 1990, participate in the Federal Social Security Program and in no other retirement system.

Name

Legislators' Retirement System

Effective Date

Effective 1947 by Chapter 879, Statutes of 1947.

Authorization

This System is authorized by the Legislators' Retirement Law. The System was first established by Chapter 879, Statutes of 1947. The Legislators' Retirement Law is contained in Sections 9350 through 9378 of the Government Code. Section 9354 of the Code established the Legislators' Retirement Fund.

Administration of Plan

Administration is by the Board of Administration of the California Public Employees' Retirement System.

Eligibility for Membership

Members of the Legislature first elected prior to November 7, 1990. Prior to January 1, 2013, all Constitutional Officers upon electing to join the System, the Insurance Commissioner, and the Legislative Statutory Officers. Currently, these include the Chief Clerk of the Assembly, the Secretary of the Senate, the Sergeant-at-Arms of the Assembly, and the Sergeant-at-Arms of the Senate. Effective January 1, 2013, the system is closed to new members. The system was partially closed as a result of the Political Reform Act of 1990 (to Senators and Members of the Assembly first elected after November 7, 1990). As a result of Assembly Bill 340 which was signed by the Governor on September 12, 2012, the Legislators' Retirement System is also closed to Constitutional and Statutory Officers effective January 1, 2013.

Plan Year

The twelve-month period ending June 30th.

Credited Service

The period of time computed in years and/or fractions thereof as a member of the Senate or Assembly, an elective officer of the state, or statutory officer from date of electing membership in the system to termination date. For the purpose of crediting service, each full term as a Member of the Senate shall constitute four calendar years; each full term as a Member of the Assembly shall constitute two calendar years.

Member Contributions

Members of the Legislature and Constitutional Officers - 4 percent of compensation if elected before March 4, 1972 and 8 percent of compensation if elected after March 4, 1972. Contributions may be made at any time up to benefit commencement date, provided the individual elected to join the system while in service. No interest is charged on contributions made after the applicable service is performed.

Legislative Statutory Officers - 6 1/2 percent of compensation if elected before March 4, 1972 and 8 percent of compensation if elected after March 4, 1972.

State Contributions

Per Section 9358 of the Legislators' Retirement System Law, which was amended because of Assembly Bill 817, Chapter 897, Statutes of 1999, the State now contributes the actuarially required employer contribution rate determined by the Annual Actuarial Valuation as of June 30th. Under PEPRA, effective January 1, 2013, the state has been required to contribute the employer normal cost at a minimum, which is not necessarily the actuarially determined contribution rate.

Compensation

Compensation means remuneration paid in cash out of funds controlled by the state, excluding mileage, reimbursement for expenses incurred in the performance of official duties, and any per diem allowance paid in lieu of such expenses.

Effective December 7, 2009, elected officials' salaries were reduced 18 percent. For the purposes of determining the present value of benefits, salaries prior to the reduction were used. Actual salaries were used to calculate employer contribution rates.

Eligibility for Unreduced Service Retirement Allowance

A member is eligible for an unreduced service retirement allowance provided the member has satisfied all of the following requirements:

- The member has attained the age of 60 years and has completed 4 or more years of credited service or
- The member, regardless of attained age, has completed 20 or more years of credited service.
- Legislative Statutory Officers are eligible upon the attainment of age 55 years regardless of the number of years of credited service.

Amount of Unreduced Service Retirement Allowance

The monthly normal retirement benefit is equal to the following:

Members of the Legislature - 3 percent of the highest compensation multiplied by the years of credited service plus 2 percent of the first \$500 of monthly compensation multiplied by the years of credited service up to 15 years with a maximum benefit of 66 2/3 percent of the highest monthly compensation.

Constitutional Officers - 5 percent of the highest compensation multiplied by the years of credited service up to 8 years plus (if the member has 24 or more years of credited service) 1 2/3 percent of monthly compensation multiplied by the years of credited service in excess of 8 years, not to exceed 12 years of credited service. The maximum percentage of compensation is 60 percent of highest monthly compensation.

Legislative Statutory Officers - 3 percent of the final compensation multiplied by the years of credited service. The allowance may not exceed 66 2/3 percent of the greater of the member's compensation at the time the member vacates the office or the compensation of the incumbent of that office at the time the payments of the allowance fall due.

Appendix B - Summary of Principal Plan Provisions (continued)

Cost-of-Living Increases

All benefits are subject to the full cost-of-living adjustment from the benefit commencement date based on the United States city average of the Consumer Price Index for all Urban Consumers. Compensation rates are not adjusted for increases in the incumbent's compensation after the member leaves office.

Normal Form of Service Retirement Allowance

For Legislators a 50 percent Joint Survivor Annuity, for Constitutional Officers a Single Straight Life Annuity, and for Legislative Statutory Officers a Single Straight Life Annuity.

Eligibility for a Reduced Early Retirement Allowance

A member, other than a Legislative Statutory Officer is eligible for a reduced early retirement allowance benefit provided the member has completed 15 or more years of credited service regardless of age. Legislative Statutory Officers are not eligible for a reduced early retirement allowance.

Amount of Reduced Early Retirement Allowance

The monthly-reduced early retirement is the unreduced service retirement allowance reduced 2 percent for each year by which the member's age at the time of retirement is below age 60. Reduction Factors are shown for ages 50 to 59 in the table below.

Age at Retirement	% of Service Retirement Benefit Paid	Age at Retirement	% of Service Retirement Benefit Paid
59	98%	54	88%
58	96%	53	86%
57	94%	52	84%
56	92%	51	82%
55	90%	50	80%

Forms of Retirement Allowance Payments

Optional Settlement 1 - Single Life Annuity, with the payment of the balance of the member's contributions at the death of the member to the member's beneficiary.

Optional Settlement 2 - 100 percent Joint and Survivor Annuity.

Optional Settlement 3 - 50 percent Joint and Survivor Annuity.

Optional Settlement 4 - Subject to the approval of the Board of Administration, a member may select other benefits that are the actuarial equivalent of his/her retirement allowance.

Members of the Legislature - The member's retirement allowance is unreduced due to the selection of any of the above optional settlements.

Eligibility for Disability Allowance

All members are eligible and there is no minimum age or service requirements. A medical examination may be required if the applicant is below the minimum age for Service or Early Retirement.

Appendix B - Summary of Principal Plan Provisions (continued)

Amount of Disability Allowance

The disability allowance is the same as the service retirement allowance that would be payable to the member if the member had retired for reasons other than disability.

Eligibility for Pre-Retirement Death Allowance

All members are eligible for a Pre-Retirement Death Allowance.

Amount of Pre-Retirement Death Allowance

Prior to eligibility for Service or Early Retirement - Refund of the member's contributions with interest plus one-twelfth of the member's annual compensation during the last 12 months in office immediately preceding the member's death multiplied by the member's years of credited service.

Subsequent to eligibility for Service or Early Retirement - If the member had elected an optional settlement before death, the surviving spouse will receive the same benefit the surviving spouse would have received had the member's retirement preceded death. If the member had not elected an optional settlement, then the surviving spouse would receive the same benefits had the member elected Optional Settlement 2, a 100 percent Joint and Survivor Annuity, retired and then died.

Eligibility for Special Survivor Allowance

The surviving spouse who has the care of unmarried children under the age of 18 or unmarried incapacitated children if over the age of 18 or if there is not a spouse with these responsibilities, the guardian who has the care of unmarried children under the age of 18 or unmarried incapacitated children if over the age of 18. In the case where there are no incapacitated children, but a surviving spouse, a deferment age of 62 is required before receiving a benefit. In the case where there is not a surviving spouse or guardian, the dependent parents of the member are eligible and shall be paid the Survivor's Allowance once the age of 62 is attained. This allowance is payable only if the member is not covered by Social Security.

Amount of Special Survivor Allowance

Survivor	Monthly Allowance
Spouse or One Child	\$180
Spouse and One Child or Two Children	\$360
Spouse and Two Children or Three Children	\$430

Benefit payments under this provision are reduced by any other survivor benefits under any other provision under this system.

In Service Death Allowance

In addition to any benefits paid, the beneficiary of a member who died while in office or employed as a Legislative or Statutory Officer will receive an allowance equal to the member's compensation during the 12 months immediately preceding the member's death.

Post Retirement Death Benefit

Upon the death of a retiree, a one-time lump sum payment of \$600 will be made to the retiree's designated survivor(s), or to the retiree's estate.

Appendix C

Participant Data

Summary of Valuation Data

The table below illustrates counts of records processed by the valuation.

	June 30, 2018	June 30, 2019
1) Active Members		
a) Counts	7	2
b) Average Attained Age	66.07	68.30
c) Average Entry Age to Rate Plan	50.28	56.78
d) Average Years of Credited Service	11.98	10.30
e) Average Annual Covered Pay	\$156,850	\$135,901
f) Annual Covered Payroll	1,097,953	271,801
g) Projected Annual Payroll for Contribution Year	287,089	286,956
h) Present Value of Future Payroll	1,587,693	920,560
2) Transferred and Vested Termination Members		
a) Counts	8	6
3) Retired Members and Beneficiaries		
a) Counts	212	214
b) Average Attained Age	75.79	75.81
c) Average Annual Benefits	\$33,951	\$34,379
4) Active to Retired Ratio [(1a) / (3a)]	0.03	0.01

Reconciliation of Participants

The table below illustrates the change in members from June 30, 2018 to June 30, 2019.

Reconciliation of Participants for the Fiscal Year Ending June 30, 2019

	Actives	Inactive	Retirees and Beneficiaries	Total
As of June 30, 2018	7	8	212	227
New Entrants	—	—	—	—
Rehires	—	—	—	—
Refunds	(1)	—	—	(1)
Retirements	(3)	(3)	6	—
Disabilities	—	—	—	—
Terminations	(1)	1	—	—
Death with Beneficiary	—	—	(7)	(7)
Death without Beneficiary	—	—	(1)	(1)
New Beneficiary	—	—	7	7
Beneficiary Death	—	—	(3)	(3)
As of June 30, 2019	2	6	214	222

Appendix C - Participant Data (continued)

Distribution of Active Members

The table below illustrates a distribution of active member counts based on age and service.

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.

Distribution of Active Participants Attained Age and Years of Credited Service as of June 30, 2019

Attained Age	Years of Service at Valuation Date							Total	Annual Valuation Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+		
15 - 19	0	0	0	0	0	0	0	0	\$0
20 - 24	—	—	—	—	—	—	—	—	—
25 - 29	—	—	—	—	—	—	—	—	—
30 - 34	—	—	—	—	—	—	—	—	—
35 - 39	—	—	—	—	—	—	—	—	—
40 - 44	—	—	—	—	—	—	—	—	—
45 - 49	—	—	—	—	—	—	—	—	—
50 - 54	—	—	—	—	—	—	—	—	—
55 - 59	—	—	—	—	—	—	—	—	—
60 - 64	—	—	1	—	—	—	—	1	161,342
65+	—	1	—	—	—	—	—	1	110,459
Total	0	1	1	0	0	0	0	2	\$271,801

Distribution of Average Annual Salaries

The table below illustrates a distribution of active member annual salaries based on age and service.

Distribution of Average Annual Salaries by Age and Credited Service as of June 30, 2019

Attained Age	Years of Service at Valuation Date							Average Annual Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	
15 - 19	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
20 - 24	—	—	—	—	—	—	—	—
25 - 29	—	—	—	—	—	—	—	—
30 - 34	—	—	—	—	—	—	—	—
35 - 39	—	—	—	—	—	—	—	—
40 - 44	—	—	—	—	—	—	—	—
45 - 49	—	—	—	—	—	—	—	—
50 - 54	—	—	—	—	—	—	—	—
55 - 59	—	—	—	—	—	—	—	—
60 - 64	—	—	161,342	—	—	—	—	161,342
65+	—	110,459	—	—	—	—	—	110,459
Average	\$0	\$110,459	\$161,342	\$0	\$0	\$0	\$0	\$135,901

Appendix C - Participant Data (continued)

Distribution of Vested Terminated Participants

The table below illustrates a distribution of inactive member counts based on age and service. 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.

Distribution of Vested Inactive Terminated by Age and Service as of June 30, 2019

Attained Age	Years of Service at Valuation Date							Total	Average Annual Salary
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+		
15 - 19	0	0	0	0	0	0	0	0	\$0
20 - 24	—	—	—	—	—	—	—	—	—
25 - 29	—	—	—	—	—	—	—	—	—
30 - 34	—	—	—	—	—	—	—	—	—
35 - 39	—	—	—	—	—	—	—	—	—
40 - 44	—	—	—	—	—	—	—	—	—
45 - 49	—	—	—	—	—	—	—	—	—
50 - 54	1	—	—	—	—	—	—	1	130,490
55 - 59	—	3	—	—	—	—	—	3	140,256
60 - 64	—	1	—	—	—	—	—	1	123,744
65+	1	—	—	—	—	—	—	1	159,134
Total	2	4	0	0	0	0	0	6	\$139,023

Retirees & Beneficiaries

The table below illustrates a summary of retiree and beneficiary counts and annual benefits by year of retirement.

Retirees and Beneficiaries Number Counts and Annual Benefits by Year of Retirement as of June 30, 2019

Year Retired	Total Retirees	Total Annual Benefits	Average Annual Benefits	Year Retired	Total Retirees	Total Annual Benefits	Average Annual Benefits
2019	6	\$261,048	\$43,508	1999	3	162,543	54,181
2018	0	0	0	1998	4	107,934	26,983
2017	2	55,306	27,653	1997	5	145,647	29,129
2016	3	120,114	40,038	1996	18	772,624	42,924
2015	1	67,438	67,438	1995	7	227,203	32,458
2014	2	45,127	22,564	1994	9	326,305	36,256
2013	2	117,443	58,722	1993	4	114,086	28,522
2012	1	86,386	86,386	1992	8	392,965	49,121
2011	2	130,866	65,433	1991	7	380,602	54,372
2010	6	165,738	27,623	1990	9	201,595	22,399
2009	1	92,653	92,653	1989	6	108,189	18,031
2008	2	135,837	67,918	1988	1	54,790	54,790
2007	2	85,665	42,832	1987	2	96,922	48,461
2006	4	344,297	86,074	1986	4	100,916	25,229
2005	3	58,554	19,518	1985	2	29,118	14,559
2004	7	350,827	50,118	1984	8	117,492	14,686
2003	3	67,548	22,516	1983	1	24,150	24,150
2002	7	485,867	69,410	1982	12	243,639	20,303
2001	4	111,197	27,799	1981	3	66,757	22,252
2000	5	305,727	61,145	1980 & Earlier	38	596,008	15,684
				Totals	214	\$7,357,126	\$34,379

Appendix C - Participant Data (continued)

Distribution of Retirees & Beneficiaries

The table below illustrates a distribution of Retiree and Beneficiary counts by age and retirement type.

Distribution of Retirees and Beneficiaries by Age and Retirement Type (counts only) as of June 30, 2019

Retiree Age	Service Retiree	Disability Retiree		Death in Service		Death After Service Retirement	Total
		Non-Industrial	Industrial	Non-Industrial	Industrial		
Under 30	3	6	0	0	0	0	9
30-34	—	—	—	—	—	—	—
35-39	—	—	—	—	—	—	—
40-44	—	—	—	—	—	—	—
45-49	—	—	—	—	—	—	—
50-54	—	—	—	—	—	—	—
55-59	7	—	—	—	—	—	7
60-64	15	—	—	—	—	—	15
65-69	30	—	—	—	—	—	30
70-74	22	1	—	1	—	—	24
75-79	37	—	—	—	—	—	37
80-84	30	—	—	—	—	—	30
85-89	24	—	—	—	—	—	24
90 & Over	37	1	—	—	—	—	38
Total	205	8	0	1	0	0	214

The table below illustrates a distribution of Retiree and Beneficiary total annual benefit amounts by age and retirement type.

Distribution of Total Annual Benefits for Retirees and Beneficiaries by Age and Retirement Type as of June 30, 2019

Retiree Age	Service Retiree	Disability Retiree		Death in Service		Death After Service Retirement	Total Annual Benefits
		Non-Industrial	Industrial	Non-Industrial	Industrial		
Under 30	\$97,847	\$11,018	\$0	\$0	\$0	\$0	\$108,865
30-34	—	—	—	—	—	—	—
35-39	—	—	—	—	—	—	—
40-44	—	—	—	—	—	—	—
45-49	—	—	—	—	—	—	—
50-54	—	—	—	—	—	—	—
55-59	210,644	—	—	—	—	—	210,644
60-64	476,964	—	—	—	—	—	476,964
65-69	1,330,587	—	—	—	—	—	1,330,587
70-74	802,415	29,857	—	9,793	—	—	842,064
75-79	941,487	—	—	—	—	—	941,487
80-84	1,171,049	—	—	—	—	—	1,171,049
85-89	961,405	—	—	—	—	—	961,405
90 & Over	1,244,078	69,983	—	—	—	—	1,314,061
Total	\$7,236,475	\$110,858	\$0	\$9,793	\$0	\$0	\$7,357,126

Appendix C - Participant Data (continued)

Distribution of Retirees & Beneficiaries (continued)

The table below illustrates a distribution of Retiree and Beneficiary counts by years retired and retirement type.

Distribution of Retirees and Beneficiaries by Years Retired and Retirement Type (counts only) as of June 30, 2019

Years Retired	Service Retiree	Disability Retiree		Death in Service		Death After Service Retirement	Total
		Non-Industrial	Industrial	Non-Industrial	Industrial		
Under 5	12	0	0	0	0	0	12
5-9	12	—	—	1	—	—	13
10-14	12	—	—	—	—	—	12
15-19	26	—	—	—	—	—	26
20-24	37	—	—	—	—	—	37
25-29	37	—	—	—	—	—	37
30 & Over	69	8	—	—	—	—	77
Total	205	8	0	1	0	0	214

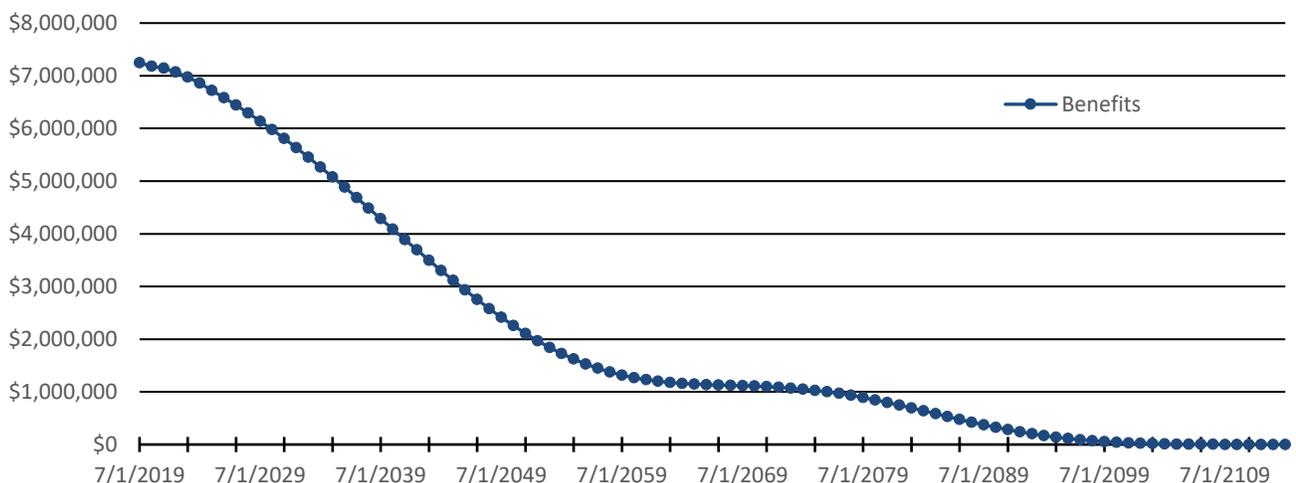
The table below shows a distribution of Retiree and Beneficiary total annual benefit amounts by years retired and retirement type.

Distribution of Retiree and Beneficiary Annual Benefits by Years Retired and Retirement Type

Years Retired	Service Retiree	Disability Retiree		Death in Service		Death After Service Retirement	Total Annual Benefits
		Non-Industrial	Industrial	Non-Industrial	Industrial		
Under 5	\$503,906	\$0	\$0	\$0	\$0	\$0	\$503,906
5-9	535,769	—	—	9,793	—	—	545,561
10-14	717,006	—	—	—	—	—	717,006
15-19	1,321,167	—	—	—	—	—	1,321,167
20-24	1,415,951	—	—	—	—	—	1,415,951
25-29	1,415,553	—	—	—	—	—	1,415,553
30 & Over	1,327,123	110,858	—	—	—	—	1,437,981
Total	\$7,236,475	\$110,858	\$0	\$9,793	\$0	\$0	\$7,357,126

Projected Benefit Payouts

The graph below shows a projection of future annual benefit payouts from the System. Total benefit payments from the System are projected to decline from a peak of \$7.2 million during fiscal year 2019-20. Total projected benefit payments over the remaining life of the plan are \$212.9 million.



Appendix D

Glossary of Actuarial Terms

Accrued Liability: (also called Actuarial Accrued Liability or Entry Age Normal Accrued Liability) The total dollars needed as of the valuation date to fund all benefits earned in the past for *current* members.

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

Actuarial Methods: Procedures employed by actuaries to achieve certain funding goals of a pension plan. Actuarial methods include funding method, setting the length of time to fund the Accrued Liability and determining the Value of Assets.

Actuarial Valuation: The determination, as of a valuation date of the Normal Cost, Accrued Liability, and related actuarial present values for a pension plan. These valuations are performed annually or when an employer is contemplating a change to their plan provisions.

Amortization Bases: Separate payment schedules for different portions of the Unfunded Liability. The total Unfunded Liability of a plan can be segregated by "cause," creating "bases" and each such base will be separately amortized and paid for over a specific period of time. However, all bases are amortized using investment and payroll assumptions from the current valuation. This can be likened to a home having a first mortgage of 24 years remaining payments and a second mortgage that has 10 years remaining payments. Each base or each mortgage note has its own terms (payment period, principal, etc.)

Generally, in an actuarial valuation, the separate bases consist of changes in unfunded liability due to contract amendments, actuarial assumption changes, actuarial methodology changes, and/or gains and losses. Amortization methodology is determined by Board policy.

Amortization Period: The number of years required to pay off an Amortization Base.

Entry Age: The earliest age at which a plan member begins to accrue benefits under a defined benefit pension plan. In most cases, this is the age of the member on their date of hire.

Entry Age Normal Cost Method: An actuarial cost method designed to fund a member's total plan benefit over the course of his or her career. This method is designed to yield a rate expressed as a level percentage of payroll.

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

Fresh Start: A Fresh Start is when multiple amortization bases are collapsed to one base and amortized together over a new funding period.

Funded Status: A measure of how well funded, or how "on track" a plan or risk pool is with respect to assets versus accrued liabilities. A ratio greater than 100% means the plan or risk pool has more assets than liabilities and a ratio less than 100% means liabilities are greater than assets.

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

Pension Actuary: A business professional that is authorized by the Society of Actuaries, and the American Academy of Actuaries to perform the calculations necessary to properly fund a pension plan.

Present Value of Benefits (PVB): The total dollars needed as of the valuation date to fund all benefits earned in the past or expected to be earned in the future for *current* members.

Unfunded Liability (UAL): When a plan or pool's Value of Assets is less than its Accrued Liability, the difference is the plan or pool's Unfunded Liability. If the Unfunded Liability is positive, the plan or pool will have to pay contributions exceeding the Normal Cost.

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