Los Angeles County Employees Retirement Association

Actuarial Valuation of Retirement Benefits

June 30, 2019

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March 2, 2020

Board of Investments
Los Angeles County Employees Retirement Association
300 North Lake Avenue, Suite 820
Pasadena, CA 91101-4199

Re: **Los Angeles County Employees Retirement Association**

Dear Members of the Board:

As requested, we have performed an actuarial valuation of retirement benefits for the Los Angeles County Employees Retirement Association (LACERA) as of June 30, 2019 to be used in determining the contribution rates effective July 1, 2020. The major findings of the valuation are contained in this report. This report reflects the benefit provisions and contribution rates in effect as of June 30, 2019, and LACERA's Funding Policy that was adopted in December of 2009 and amended as of February 2013. It should be noted that under the amended Funded Policy, the reserve value for STAR benefits is included in the Valuation Assets for 2014 and future valuations; however, the liability for any potential STAR benefits that may be granted in the future is not included in this valuation.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by LACERA's staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for LACERA have been determined on the basis of actuarial assumptions and methods that are individually reasonable (taking into account the experience of LACERA and reasonable expectations); and that, in combination, offer a reasonable estimate of anticipated experience affecting LACERA. 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 for LACERA.

This valuation report is only an estimate of LACERA's financial condition as of a single date. It can neither predict LACERA's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of benefits, only the timing of contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement, although for informational purposes we have shown valuation results at +/- 0.5% on the investment return assumption at the end of the Executive Summary.

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; increases or decreases expected

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as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); 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 Board of Investments has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix A of this report.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts of LACERA. The calculations in the enclosed report have been made on a basis consistent with our understanding of LACERA's funding requirements as stated under their Funding Policy, with a modification to reflect the three-year phase-in of the employer contribution rate change due to the new assumptions. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. Milliman will provide LACERA financial reporting results relevant to GASB Statements No. 67 and 68 in separate reports.

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

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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 sponsors. 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. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

We would like to express our appreciation to members of LACERA staff who gave substantial assistance in supplying the data on which this report is based.

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We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,

Mark Olleman, FSA, EA, MAAA
Consulting Actuary

Nick Collier, ASA, EA, MAAA
Consulting Actuary

Craig Glyde, ASA, EA, MAAA
Consulting Actuary

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1. Summary of Findings

2019 Valuation Results

	Fiscal Year Beginning	
	July 1, 2020	July 1, 2019
Employer Contribution Rate with phase-in	22.59% (1)	20.91% (2)
Funded Ratio	77.2%	80.6%

1. *The FYB 2020 employer contribution rate was calculated in the June 30, 2019 valuation. The FYB 2020 employer contribution rate without phase-in is 24.78%.*
2. *The FYB 2019 employer contribution rate was calculated in the June 30, 2018 valuation.*

This report presents the results of the June 30, 2019 actuarial valuation. This valuation determines the required contribution rates payable starting July 1, 2020. Several key points are summarized below:

Funding: The Funded Ratio decreased from 80.6% to 77.2% primarily due to the assumption changes (including a reduction in the investment return assumption) effective with the June 30, 2019 valuation, which caused a decrease of 2.8% in the Funded Ratio. Recognition of current and prior year asset losses caused a 0.7% decrease. On a market-value basis, the Funded Ratio decreased from 81.3% to 77.3%.

The “Analysis of Change” section that follows later in Section 1 provides an analysis of the sources of change in the Funded Ratio since last year.

Investment Returns: For the fiscal year ending in 2019, the fund returned 5.5% on a market-value basis (net of investment expenses). In total, there was an $755 million loss on market assets relative to the assumed rate of return of 7.25%. Under the actuarial asset method, which recognizes investment gains and losses over a five-year period, the return on actuarial assets was 6.5%, equivalent to a loss of $477 million relative to the assumed return of 7.25%.

Employer Contribution Rates: The total calculated employer contribution rate increased from the prior valuation by 1.68% (from 20.91% to 22.59%) of payroll. The increase in the employer contribution rate is primarily due to the assumption and amortization method changes effective June 30, 2019 and the recognition of current and prior year investment losses.

At the January 2020 Board of Investments (BOI) meeting, the BOI adopted a three-year phase-in of the increase in the employer contribution rate due to the new assumptions and amortization method. Without the phase-in of the increase, the total employer contribution rate would be 24.78% effective July 1, 2020. The remaining 2.19% increase due to the new assumptions and amortization method (24.78% minus 22.59%) will be phased-in equally effective July 1, 2021 and July 1, 2022.

The “Analysis of Change” section provides an analysis of the sources of change in employer contribution rates since last year. In addition, the section “Projected Future Employer Contribution Rates” below shows a 10-year projection of employer contribution rates.

Member Contribution Rates: New member contribution rates are recommended for all Plans effective July 1, 2020, based on the new assumptions adopted with the 2019 Investigation of Experience. Member contribution rates for all plans, except General Plans E and G and Safety Plan C, vary based on a member’s entry age to LACERA and the underlying actuarial assumptions. General Plan G and Safety Plan C member rates are required to be equal to 50% of the Gross Normal Cost of the respective plan.

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The recommended member contribution rates are higher for all Plans and all members, except the non-contributory General Plan E. Member contribution rates are discussed in detail in Section 5 of this report.

Economic and Demographic Assumptions

The assumptions developed as a result of the 2019 Investigation of Experience study, described in our report dated January 28, 2020, were adopted by the BOI for use in this valuation. These changes include lowering the investment return assumption from 7.25% to 7.00%, increasing the rates of assumed merit salary increases (primarily for Safety members), and updating mortality tables to the public plan specific tables published in 2019 by the Society of Actuaries Retirement Plans Experience Committee (RPEC). Of these changes, the reduction in the investment return assumption had the greatest impact on the results of this valuation.

The net effect of all the assumption changes was an increase in the Unfunded Actuarial Accrued Liability (UAAL) of approximately $2.5 billion effective June 30, 2019, a decrease in the Funded Ratio of 2.8%, and an increase in the employer contribution rate of 3.29% of payroll (without phase-in).

Member contribution rates for all Plans also increased due to the new assumptions.

Amortization of the UAAL

LACERA employs a “layered” amortization method to pay off the UAAL. Under this method, the UAAL amount as June 30, 2009 was amortized over a closed 30-year period. Subsequent changes in the UAAL were amortized over new closed 30-year periods. Effective with the June 30, 2019 valuation, all existing layers with more than 22 years remaining were re-amortized over closed 22-year periods. All new UAAL layers are amortized over a 20-year period, beginning with the date the contribution is first expected to be made. Exhibit 12 of this report illustrates in detail the calculation of the total UAAL rate for the fiscal year beginning in 2020.

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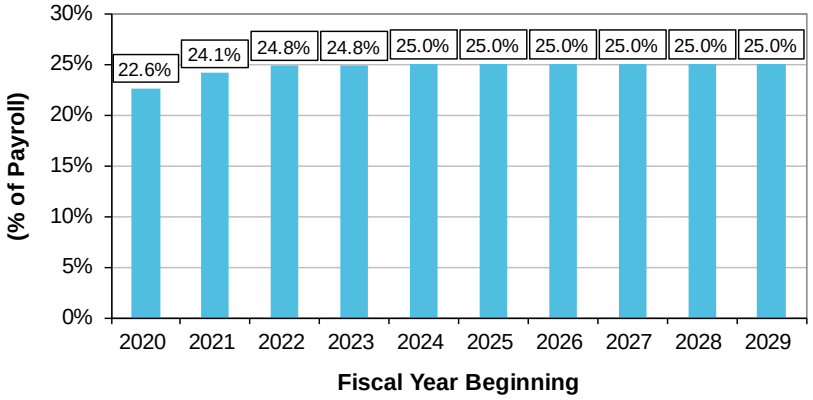
Projected Future Employer Contribution Rates

The employer contribution rate beginning July 1, 2020 is 22.59% of payroll, which is a weighted average for all LACERA plans. The actual percent of payroll to be contributed by the employers varies by plan as shown in Exhibit 11.

The new calculated employer contribution rate is effective for the fiscal year beginning July 1, 2020. Additional increases are projected over the next two years as the increase due to assumption and method changes is phased in. Even if all actuarial assumptions are met over the next few years, we project additional modest changes in the employer contribution rate as deferred asset gains and losses are recognized. To illustrate these impacts, we have performed a 10-year projection of the employer contribution rate that assumes all actuarial assumptions are met, and reflects the phase-in and the projected recognition of the remaining deferred asset gains and losses as of June 30, 2019. This projection is shown in the graph below.

Projected Employer Contribution Rate[1]



1. Projections assume that all actuarial assumptions are met after June 30, 2019, and reflect the scheduled recognition of asset gains and losses currently being deferred. Actual results will vary.

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Analysis of Change

The following table shows an analysis of the primary causes of the change in the employer contribution rate and the Funded Ratio over the last year. The impact of the assumption and amortization method changes was the most significant factor affecting the employer contribution rate, although this was somewhat mitigated by the three-year phase-in of this increase.

Sources of Change	Employer Contribution Rate	Funded Ratio
June 30, 2018 Actuarial Valuation	**20.91%**	**80.6%**
Expected Year-to-Year Change	0.00%	0.7%
Assumption and Method Changes	3.29%	-2.8%
Recognized Asset Gain/Loss		
From Current Year	0.17%	-0.3%
From Prior Years	0.25%	-0.4%
Combined Asset Gain/Loss	0.42%	-0.7%
Contributions > Assumed	-0.09%	0.2%
Payroll Increase > Assumed	-0.14%	0.0%
Liability Gain / Loss		
Salary Increase > Assumed	0.43%	-0.5%
Retiree COLAs > Assumed	0.04%	-0.1%
Other	-0.08%	-0.2%
Combined Liability Gain/Loss	0.39%	-0.8%
Deferred Recognition of 2019 Assumptions	-2.19%	0.0%
Total Change	**1.68%**	**-3.4%**
June 30, 2019 Actuarial Valuation	**22.59%**	**77.2%**

Based on the 2018 valuation, the expected UAAL as of June 30, 2019 was $13.4 billion. The actual UAAL as of June 30, 2019 is $17.0 billion. The additional UAAL is primarily due to the new assumptions adopted by the Board of Investments effective June 30, 2019 and the recognition of actuarial asset losses from the current and prior years. An analysis of the difference between expected and actual UAAL is shown in Exhibit 8a.

Funding Progress

One measure of the funding adequacy of the system is the Funded Ratio, which compares the Valuation Assets (the actuarial value of assets net of certain non-valuation reserves) to the Actuarial Accrued Liability (AAL). The Funded Ratio shown in this valuation is appropriate for assessing the future contributions needed. However, it is not appropriate for assessing the sufficiency of current system assets to cover the estimated cost of settling the system's accrued benefit obligations. As shown in Exhibit 1, the Funded Ratio is different depending on whether the Market Assets or Valuation Assets is used.

As shown in the graph that follows, the Funded Ratio was 94.5% as of June 30, 2008, but decreased steadily over the five-year period following the economic downturn to a low of 75.0% as of June 30, 2013 as asset losses were gradually recognized. The Funded Ratio has gradually increased since that time, although this increase has been slow as the Board has strengthened the actuarial assumptions over the period, thereby increasing the AAL and offsetting some of the increase in the Funded Ratio from other sources.

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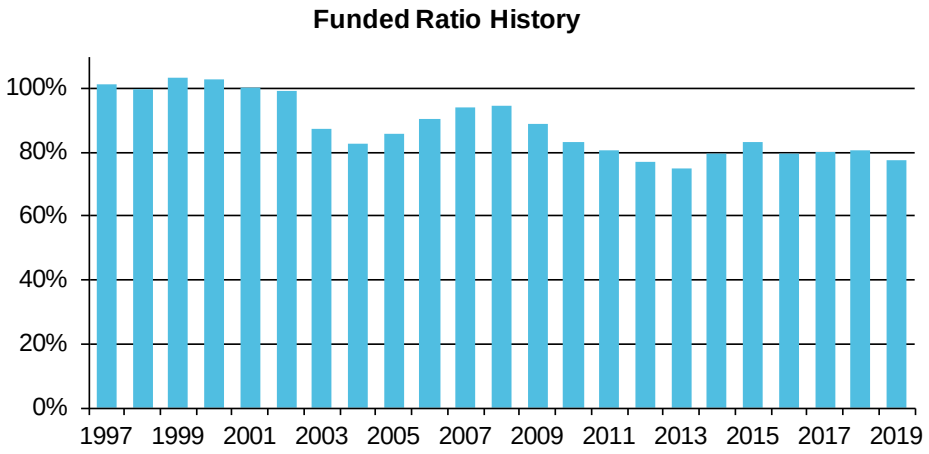
A historical perspective of the Funded Ratio is shown in the following chart.



Assets

On June 30, 2019, the market value of the fund (including non-valuation reserves) was $58.3 billion. The actuarial value of assets was $58.2 billion, split between $0.6 billion of Non-Valuation Assets and $57.6 billion of Valuation Assets. The actuarial value of assets is approximately 100% of the market value of assets.

On a market-value basis, for the fiscal year ended June 30, 2019, LACERA earned 5.5% net of investment expenses, as reported by LACERA in the June 30, 2019 CAFR. The market value of assets is used in calculating the actuarial value of assets. Under the actuarial asset method, investment gains and losses are recognized (or smoothed in) over a five-year period. Due to the recognition of current and deferred net asset losses, the return on the actuarial valuation of assets is 6.5% net of investment and administrative expenses, and is less than the assumed return for the prior year of 7.25%.

Valuation Assets are used in the calculation of the UAAL contribution rate and Funded Ratio. Valuation Assets are equal to the actuarial value of assets less certain non-valuation reserves. The Valuation Assets of $57.6 billion are equal to 77.2% of the $74.6 billion AAL.

The non-valuation reserves are set aside for obligations or contingencies. They are not used to fund the retirement benefits unless explicitly stated. As of June 30, 2019, the non-valuation reserves include only the Contingency Reserve, which is equal to 1% of the market value of assets, or $563 million. Note that the Contingency Reserve affects the assets used in the actuarial valuation and is not part of the accounting process used in creating the financial statements.

Under LACERA's Funding Policy, the reserve value for STAR benefits is included in the Valuation Assets; however, the liability for any STAR benefits that may be granted in the future is not included in the valuation. Note that if the STAR reserve of $614 million was excluded from the Valuation Assets, the UAAL would increase by this amount. Under this hypothetical scenario, the calculated employer contribution rate for the fiscal year beginning July 1, 2020 would increase by 0.52% of payroll, and the Funded Ratio would decrease by 0.8% to 76.4%.

Future Impact of Recognition of Deferred Gains/Losses

The smoothing method is currently deferring $95 million in net asset gains. As the currently deferred gains and losses are recognized over upcoming valuations, it is projected there will be fluctuations in the calculated employer contribution rate.

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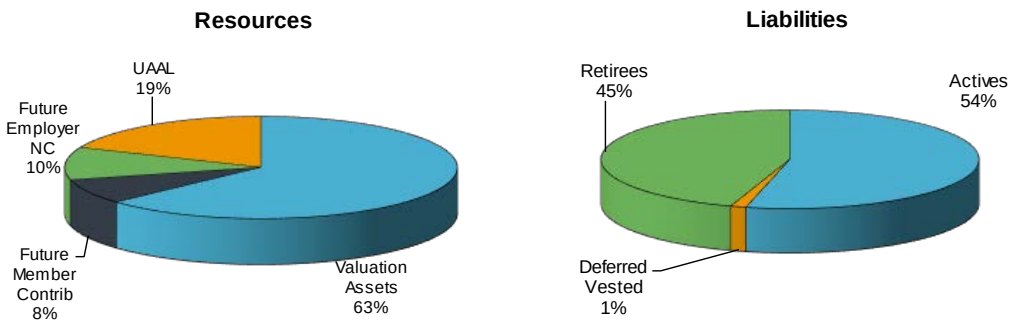
The potential future impact of the recognition of these deferred gains and losses on the projected employer contribution rate is included in the graph on page 3.

Actuarial Balance Sheet

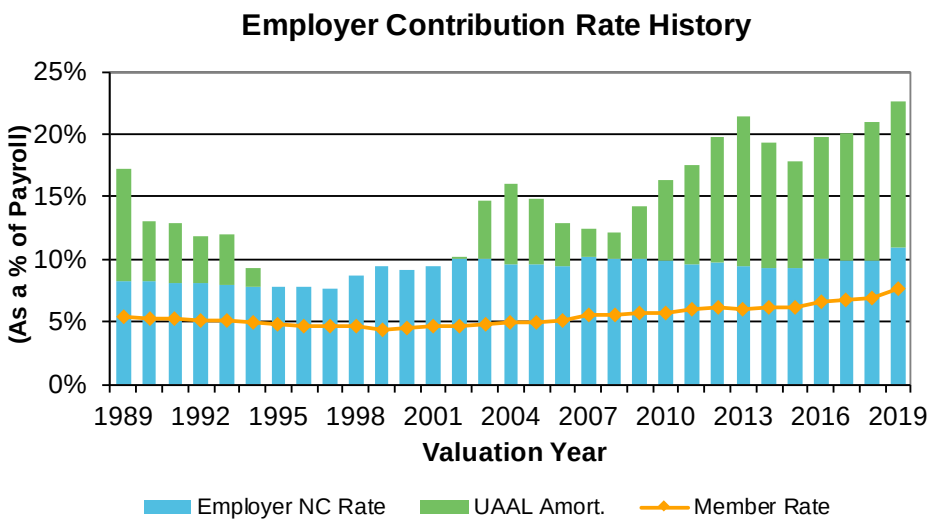
The first step in the valuation process is to compare the total actuarial assets of LACERA with its total liabilities for all plans. In this analysis, assets are those currently on hand at the actuarial value and also include expected future contributions by both the employers and members. Liabilities reflect benefits already earned in the past and those expected to be earned in the future by current members. This relationship is shown in the pie charts below. The AAL is the total of these liabilities less expected future Normal Cost contributions.

The 2019 actuarial valuation indicates that LACERA's Valuation Assets are less than its AAL. The difference between these two values is the UAAL. It is discussed, along with the effect of the experience gains and losses, in detail in Section 4, Actuarial Liabilities.



Employer Contribution Rate History

Based on the results of the valuation, the calculated employer contribution rate will increase for the fiscal year beginning in 2020 to a rate of 22.59% of pay. A historical perspective of the employer contribution rates is shown in the following graph.



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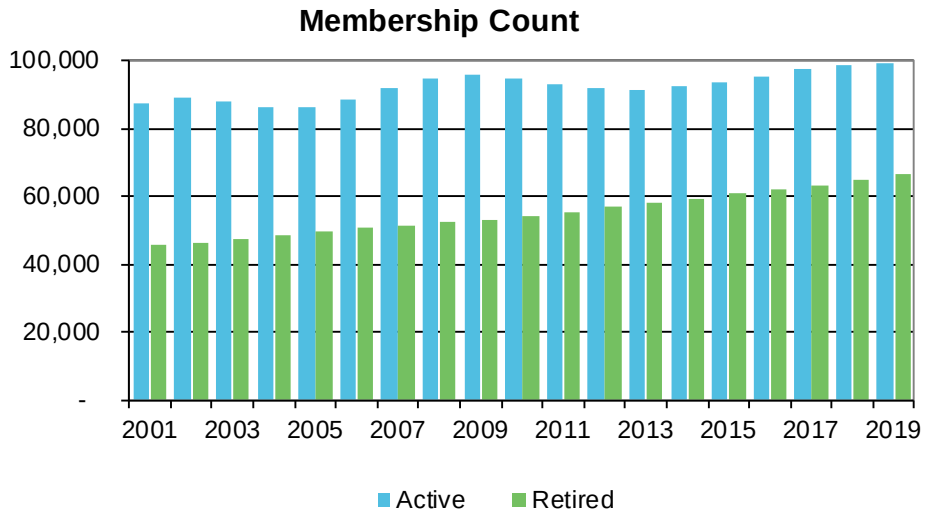
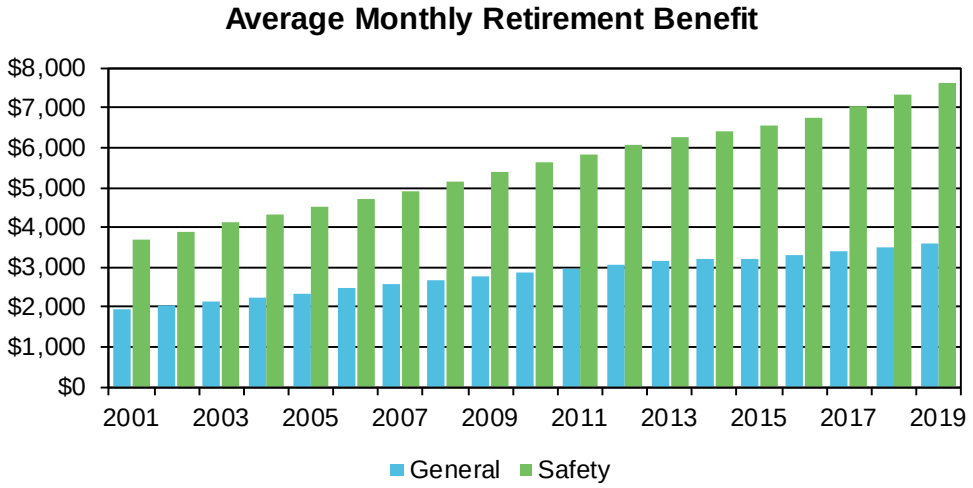
Member Information

Active membership and payroll have each increased since 2018. As of June 30, 2019, the annualized payroll is $8.4 billion for 99,186 active members. This reflects a 3.5% increase in average member pay and a 0.7% increase in the number of active members.



Retired member counts and average retirement benefit amounts continue to increase steadily. For 2019, there were 66,507 retired members and beneficiaries with an average benefit of $4,385 per month. This represents a 2.5% increase in count and a 3.6% increase in the average monthly benefit.



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Analysis of Change in Member Population

The following table summarizes the year-to-year change in member population.

	Active Members	Inactive Members	Service Retired Members	Disabled Retired Members	Beneficiaries in Pay	Total
As of June 30, 2018	**98,474**	**14,906**	**46,296**	**9,707**	**8,877**	**178,260**
New Members	5,417	178	18		747	6,360
Status Change:						
to Active	128	(128)				-
to Inactive	(1,476)	1,476				-
to Service Retirement	(2,527)	(437)	2,964			-
to Disabled Retirement	(241)	(8)	(238)	487		-
Refunds	(367)	(414)				(781)
Terminated non-vested	(50)					(50)
Benefits Expired			(10)		(6)	(16)
Deaths	(172)	(6)	(1,513)	(303)	(519)	(2,513)
As of June 30, 2019	**99,186**	**15,567**	**47,517**	**9,891**	**9,099**	**181,260**

Note: Inactive Members include non-vested former members who have not taken a refund of their contributions.

Sensitivity to Investment Return

The valuation results are projections based on the actuarial assumptions. Actual experience will differ from these assumptions, either increasing or decreasing the ultimate cost. Of the assumptions, the investment return generally has the biggest impact. The following table provides a simple analysis on how the short-term costs are affected by the investment return assumption. Note that the long-term cost of the Plan will be largely driven by actual investment returns and other experience; the assumptions used in the valuation impact the timing of the contributions over the long term.

	Investment Return Assumption		
	Current 7.00%	+0.5% 7.50%	-0.5% 6.50%
Employer Contribution Rate	22.59%	17.92%	27.50%
Change		-4.67%	4.91%
Funded Ratio	77.2%	82.1%	72.4%
Change		4.9%	-4.8%

Summary Valuation Results

Exhibit 1 on the following page presents a summary of key valuation elements as of June 30, 2019 and June 30, 2018, and shows the relative change over the past year. More detail on each of these elements can be found in the following sections and exhibits of this report.

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Exhibit 1
Summary of Significant Valuation Results

	June 30, 2019	June 30, 2018	Percentage Change
Total Membership			
A. Active Members	99,186	98,474	0.7%
B. Retired Members & Beneficiaries	66,507	64,880	2.5%
C. Vested Former Members[1]	15,567	14,906	4.4%
D. Total	181,260	178,260	1.7%
Pay Rate as of June 30, 2019			
A. Annual Total ($millions)	$ 8,423	$ 8,079	4.3%
B. Monthly Average per Active Member	7,076	6,837	3.5%
Average Monthly Benefit Paid to Current Retirees and Beneficiaries			
A. Service Retirement	4,334	4,200	3.2%
B. Disability Retirement	5,856	5,579	5.0%
C. Surviving Spouse and Dependents	3,052	2,934	4.0%
D. Total	4,385	4,233	3.6%
Actuarial Accrued Liability ($millions)			
A. Active Members	32,400	29,335	10.4%
B. Retired Members	41,021	38,087	7.7%
C. Vested Former Members	1,214	1,105	9.9%
D. Total	74,635	68,527	8.9%
Assets			
A. Market Value of Fund ($millions)	58,295	56,300	3.5%
B. Actuarial Value ($millions)			
1. Valuation Reserves	57,617	55,233	4.3%
2. Non-valuation Reserves	583	563	3.5%
C. Annual Investment Return			
1. Market Basis (Net Return)	5.5%	9.0%	n/a
2. Valuation (Actuarial) Basis	6.5%	8.1%	n/a
Unfunded Actuarial Accrued Liability ($ millions)	$ 17,018	$ 13,294	28.0%
Employer contribution rate for all plans combined as a percent of total payroll			
A. Gross Normal Cost	18.54%	16.80%	10.4%
B. Member Contributions[2]	(7.68)%	(6.88)%	11.6%
C. Employer Normal Cost	10.86%	9.92%	9.5%
D. UAAL Amortization	13.92%	10.99%	26.7%
E. Calculated Contribution Rate	24.78%	20.91%	18.5%
F. Deferred Recognition of new assumptions	(2.19)%	-	n/a
G. Employer Contribution Rate with phase-in	22.59%	20.91%	8.0%
Funded Ratio	77.2%	80.6%	(4.2)%
Results Based on Market Value (Informational Purposes Only)			
Calculated Contribution Rate	22.51%	20.55%	9.5%
Funded Ratio (excluding non-valuation reserves)	77.3%	81.3%	(4.9)%

1. Includes non-vested former members with contributions on deposit.
2. Includes non-contributory members. The average rate for contributory plans increased from 8.32 % to 9.13%.

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2. Scope of the Report

This report presents the actuarial valuation of the Los Angeles County Employees Retirement Association as of June 30, 2019. This valuation was requested by the Board of Investments. Section 31453 of the County Employees Retirement Law of 1937 (the '37 Act) requires an actuarial valuation to be performed at least every three years for the purpose of setting contribution rates. The 2019 valuation meets this requirement. Under LACERA's Funding Policy, annual valuations determine the employer contribution rates each year. Member contribution rates for all plans except General Plan G and Safety Plan C are set in years in which relevant actuarial assumptions are altered, such as 2019. For members of General Plan G and Safety Plan C, member contribution rates are recalculated each year, based on one-half of the Plan's normal cost rate.

A summary of the findings resulting from this valuation is presented in the previous section. Section 3 describes the assets and investment experience of the Plan. The assets and investment income are presented in Exhibits 2-4. Exhibit 5 develops the actuarial value of assets as of June 30, 2019. Exhibit 6 develops the Valuation Assets used for funding benefits.

Section 4 describes the benefit obligations of LACERA. Exhibit 7 is the Actuarial Balance Sheet and Exhibit 8a analyzes the change in UAAL. Exhibit 8b shows a history of these changes.

Section 5 discusses the member contribution rates.

Section 6 discusses the employer contributions rates.

Section 7 discloses supplemental information for use in the Comprehensive Annual Financial Report (CAFR). Milliman provides LACERA financial reporting information relevant to GASB Statements No. 67 and 68 in separate reports.

Section 8 shows the estimated cash flow of the Plan, including a projection of both contributions and benefit payments.

This report includes several appendices:

Appendix A	A summary of the actuarial procedures and assumptions used to estimate liabilities and contributions.
Appendix B	A summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2019.
Appendix C	Schedules of valuation data classified by various categories of plan members.
Appendix D	Member contribution rates by plan.
Appendix E	Historical information.
Appendix F	A glossary of actuarial terms used in this report.

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3. Assets

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is June 30, 2019. On that date, the assets available for the payment of retirement benefits are appraised. These assets are compared with the actuarial liabilities (both accrued and future) for current members, which are generally in excess of the actuarial assets. The purpose of the valuation is to determine what future contributions by the members and employers are needed to pay all expected future benefits.

This section of the report looks at the assets used for funding purposes. In the next section, the actuarial liabilities will be discussed. Section 6 reviews the process for determining required contributions based on the relationship between the valuation assets and the actuarial liabilities.

A historical summary of the Plan's assets is presented below (dollar amounts in billions).

		Actuarial Value		
	Market Value of Total Assets	Non-Valuation Reserves	Valuation Assets	Total Fund Return (%)[1]
2010	$ 33.4	$ 0.8	$ 38.8	11.6
2011	39.5	0.9	39.2	20.2
2012	38.3	0.9	39.0	0.0
2013	41.8	0.4	39.9	11.9
2014	47.7	0.5	43.7	16.5
2015	48.8	0.5	47.3	4.1
2016	47.8	0.5	49.4	0.8
2017	52.7	0.5	52.2	12.7
2018	56.3	0.6	55.2	9.0
2019	58.3	0.6	57.6	5.5

1. As reported in the Investment Section of LACERA's CAFR for the fiscal year ended June 30, 2019. All returns are shown net of investment expenses.

On June 30, 2019, the total market value of the fund, less current liabilities, was $58.3 billion. The actuarial value of the fund was determined to be $58.2 billion, including the non-valuation reserves. The average total fund return for the last 10 years is 9.0% net of fees, as reported by LACERA.

Financial Exhibits

Exhibit 2 presents a Statement of Fiduciary Net Position and Exhibit 3 presents a Statement of Changes in Fiduciary Net Position. Exhibit 4 describes the allocation of LACERA's assets by the various reserve values determined for accounting purposes as disclosed in the audited financial statements.

Exhibits 2-4 are taken directly from data furnished to us by LACERA in its annual financial report. We have accepted these tables for use in this report without audit, but we have reviewed them both for the prior year and the current year for reasonableness and consistency with previous reports.

Actuarial Asset Method

The actuarial asset method computes the expected market value of assets based on the prior year's market value of assets, the actual cash flow of contributions and benefit payments, and the assumed investment rate of return.

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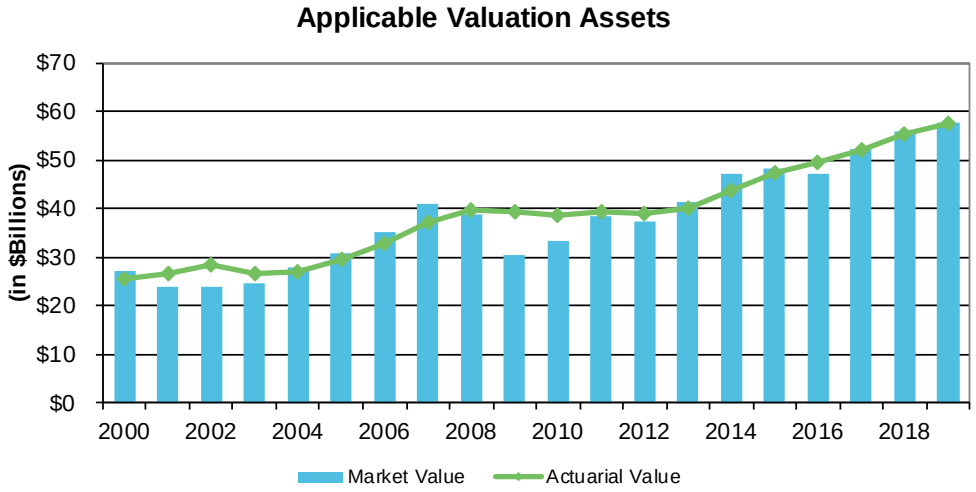
For the previous year, the assumed rate of return was 7.25%, net of all expenses. The difference between the actual market value and the expected market value is recognized evenly (also referred to as "smoothing") over a five-year period.

Actuarial Value of Assets

The development of the June 30, 2019 actuarial value of assets is shown in Exhibit 5. Note the smoothing process is deferring past investment gains and losses, and is currently in a net actuarial gain position. The result is an actuarial value of assets that is less than the June 30, 2019 market value by $95 million. The following graph shows a historical comparison of the actuarial and market assets used for valuation purposes.



Funding Policy

Under the Board of Investments' long-term Funding Policy, the following is the allocation of actuarial assets. A Funded Ratio equal to 100% is the Funding Goal. Note that although the allocation of assets used in the actuarial valuation is similar to the process LACERA uses for accounting purposes, there are some differences, including the earnings considered for interest crediting purposes.

For funding purposes and for setting contributions rates, recognized earnings for a plan year is the recognized investment income as determined by the Actuarial Asset Method and includes both unrealized income and net realized income, together with the prior balance in the Contingency Reserve. The allocation of recognized earnings is performed once a year as of the Valuation Date in the following order of priority:

Priority 1: Allocate to the Member Reserve so the Actuarial Asset allocation to that Reserve equals the accounting value for that Reserve on the Valuation Date.

Priority 2: Allocate to the Advanced Employer Contributions Reserve so the Actuarial Asset allocation to that Reserve equals the accounting value for that Reserve on the Valuation Date.

Priority 3: Allocate to the Employer Reserve so the Actuarial Asset allocation to that reserve equals the accounting value for that Reserve on the Valuation Date.

Priority 4: Allocate to the County Contribution Credit Reserve so the Actuarial Asset allocation to that reserve equals the accounting value for that Reserve on the Valuation Date. Note: This Reserve is not a Valuation Reserve.

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Priority 5: Allocate to the Employer Reserve so the total amounts allocated equal one-year's interest at the assumed interest rate used in the actuarial valuation as of the preceding Valuation Date to the extent there are positive recognized earnings to allocate.

Priority 6: Allocate to the Contingency Reserve an amount equal to 1% of the Market Value of Assets as of the Valuation Date to the extent there are positive recognized earnings to allocate.

Priority 7: Allocate to the Employer Reserve an amount, if necessary, when combined with other Valuation Reserves, to provide 100% funding of the AAL as of the Valuation Date to reach the Funding Goal. In the event there are negative recognized earnings, allocate the entire amount.

Priority 8: The Board may consider additional actions as permitted under the County Employee Retirement Law (CERL) using funds in excess of the amount needed to meet the Funding Goal for funding discretionary benefits. "Excess Earnings" as defined in the County Employees Retirement Law (CERL) may be appropriated upon reaching the Funding Goal; however, the Board may consider adjustment to the employer's contributions only upon satisfying California Government Code Section 7522.52(b).

Valuation Assets

Valuation Assets are the actuarial value of the fund, less the value of any Non-Valuation Reserves. Non-Valuation Reserves include Contingency Reserves and other reserves that have been set aside for current liabilities and special benefits to be funded outside of the actuarially determined contribution rates. The Contingency Reserve is set at a minimum of 1.0% of the market value of the total assets.

The Funding Policy allows the STAR Reserve to be allocated to the Valuation Assets (subject to periodic review), if needed. The June 30, 2019 STAR Reserve accounting value of $614 million was included in Valuation Assets and used to determine the employer contribution rates for the fiscal year beginning July 1, 2020. Although the STAR Reserve is included in the 2019 Valuation Assets, there is no liability included in this valuation for STAR benefits that may be granted in the future.

The Non-Valuation Reserves shown in Exhibit 6 for funding purposes are not the same as those shown in the audited financial statements and in Exhibit 4.

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Exhibit 2
Statement of Fiduciary Net Position
As of June 30, 2019 and June 30, 2018

	2019	2018
Assets		
Cash and Short-Term Investments	$ 1,310,026,598	$ 1,786,940,488
Cash Collateral on Loaned Securities	814,829,353	1,191,235,028
Receivables		
Contributions Receivable	96,481,733	89,180,657
Accounts Receivable - Sale of Investments	1,046,945,184	707,664,801
Accrued Interest and Dividends	102,714,643	102,733,511
Accounts Receivable - Other	8,334,664	47,090,340
Total Receivables	1,254,476,224	946,669,308
Investments at Fair Value		
Equity	25,836,066,007	25,661,002,621
Fixed Income	18,028,747,241	15,934,586,918
Private Equity	6,028,264,809	5,929,098,297
Real Estate	6,192,619,038	6,326,245,674
Hedge Funds	1,890,739,586	1,592,125,696
Total Investments	57,976,436,681	55,443,059,206
Total assets	**61,355,768,857**	**59,367,904,030**
Liabilities		
Accounts Payable - Purchase of Investments	2,162,819,244	1,803,896,893
Retiree Payroll and Other Payables	921,886	912,029
Accrued Expenses	44,518,045	35,830,507
Tax Withholding Payable	35,504,456	32,848,312
Obligations under Securities Lending Program	814,829,353	1,191,235,028
Accounts Payable - Other	2,339,307	3,199,091
Total liabilities	3,060,932,291	3,067,921,859
Fiduciary Net Position restricted for pension benefits	**$ 58,294,836,565**	**$ 56,299,982,171**

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Exhibit 3
Statement of Changes in Fiduciary Net Position
For the Fiscal Years Ended June 30, 2019 and 2018

	2019	2018
Additions		
Contributions		
Employer	$ 1,708,121,851	$ 1,564,284,149
Member	595,444,371	551,800,960
Total Contributions	2,303,566,222	2,116,085,109
Investment Income		
From Investing Activities:		
Net Appreciation/(Depreciation) in Fair Value of Investments	1,215,624,890	974,529,583
Investment Income/(Loss)	2,188,735,905	3,925,181,008
Total Investing Activity Income	3,404,360,796	4,899,710,590
Less Expenses From Investing Activities	(233,125,624)	(188,753,319)
Net Investing Activity Income	3,171,235,172	4,710,957,272
From Securities Lending Activities:		
Securities Lending Income	26,146,035	18,795,978
Less Expenses From Securities Lending Activities:		
Borrower Rebates	(20,545,040)	(11,786,852)
Management Fees	(1,112,831)	(1,326,534)
Total Expenses from Securities Lending Activities	(21,657,871)	(13,113,386)
Net Securities Lending Income	4,488,164	5,682,591
Total Net Investment Income	3,175,723,336	4,716,639,863
Miscellaneous	5,958,105	5,613,034
Total Additions	5,485,247,662	6,838,338,006
Deductions		
Retiree Payroll	3,375,752,179	3,177,726,363
Administrative Expenses	70,800,052	67,490,603
Investment Expenses	12,105,588	10,690,610
Refunds	28,691,156	23,220,662
Lump Sum Death Benefits	2,711,348	2,428,048
Miscellaneous	332,945	450,521
Total Deductions	3,490,393,268	3,282,006,806
Net increase/(decrease)	1,994,854,395	3,556,331,199
Fiduciary Net Position restricted for pension benefits		
Beginning of Year	56,299,982,171	52,743,650,971
End of Year	**$ 58,294,836,565**	**$ 56,299,982,171**

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Exhibit 4
Allocation of Assets by Accounting Reserve Amounts

(Dollars in Thousands)

	June 30, 2019	June 30, 2018
1. Member Reserves		
a. Active Members	$ 22,363,377	$ 21,438,279
b. Unclaimed Deposits	-	-
c. Total Member Reserves	22,363,377	21,438,279
2. Employer Reserves		
a. Actual Employer Contributions	22,464,894	22,610,763
b. Advanced Employer Contributions	-	-
c. Total Employer Contributions	22,464,894	22,610,763
3. County Contribution Credit Reserve	-	-
4. STAR Reserve	614,011	614,011
5. Contingency Reserve	-	-
6. Total Reserves at Book Value	45,442,282	44,663,053
7. Unrealized Investment Portfolio Appreciation	12,852,555	11,636,929
8. **Total Reserves at Fair Value**	**$ 58,294,837**	**$ 56,299,982**

Note: These amounts were determined by LACERA for accounting purposes and are reported in the CAFR for the fiscal year ended June 30, 2019.

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Exhibit 5
Five-Year Smoothing of Gains and Losses on Market Value

(Dollars in Thousands)

June 30, 2019 Valuation

Plan Year Ending	Contributions	Benefit Payments	Expected Market Value	Actual Market Value	Phase-Out of Gain / (Loss)					
06/30/2019	$ 2,303,566	$ 3,407,155	$ 59,238,837	$ 58,294,837	80.00%	x	$ (944,000)	=	$	(755,200)
06/30/2018	2,116,085	3,203,375	55,441,551	56,299,982	60.00%	x	858,431	=		515,059
06/30/2017	1,857,938	3,029,633	50,102,154	52,743,651	40.00%	x	2,641,497	=		1,056,599
06/30/2016	1,901,795	2,889,186	51,455,977	47,846,694	20.00%	x	(3,609,283)	=		(721,857)
06/30/2015	1,936,233	2,768,410	50,438,628	48,818,350	0.00%	x	(1,620,278)	=		0
							(a) Total Phase-Out of Gain / (Loss)	=	$	94,601
							(b) Total Market Value of Assets	=	$	58,294,837
							(c) Total Actuarial Value of Assets [(b) - (a)]	=	**$**	**58,200,236**

Total Actuarial Value of Assets = Total Market Value of Assets less the Total Phase-Out amount
Phase-Out amounts will be recognized in future years.

Projected Recognition of Actuarial Asset Gains / (Losses) in Future Valuations

	2020 Val	2021 Val	2022 Val	2023 Val	Total
Amount to be Recognized	$ (210,671)	$ 511,186	$ (17,114)	$ (188,800)	$ 94,601

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Exhibit 6
Allocation of Valuation and Non-Valuation Assets

(Dollars in Thousands)

	June 30, 2019	June 30, 2018
1. Total Market Value of Assets	$ 61,355,769	$ 59,367,904
2. Current Liabilities	3,060,932	3,067,922
3. Net Assets Held in Trust for Pension Benefits	58,294,837	56,299,982
4. Market Stabilization Reserve[1]	94,601	503,874
5. Actuarial Value of Fund Assets	58,200,236	55,796,108
6. Non-Valuation Reserves[2]		
a. Unclaimed Deposits	-	-
b. Contingency Reserve	582,948	563,000
c. Advanced Employer Contributions	-	-
d. County Contribution Credit Reserve	-	-
e. Reserve for STAR Program	-	-
f. Total	582,948	563,000
7. Valuation Assets[2]		
a. Member Reserves	22,363,377	21,438,279
b. Employer Reserves for Funding Purposes	35,253,911	33,794,829
c. Total	57,617,288	55,233,108

1. The Market Stabilization Reserve represents the difference between the Market Value of the fund less Current Liabilities, and the Actuarial Value of the fund as determined in Exhibit 5.

2. The values used for funding purposes for all reserves are based on the Board's Funding Policy. Amounts used for funding purposes may differ from those reported in the audited financial statements as shown in Exhibit 4.

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4. Actuarial Liabilities

In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of LACERA's assets as of the valuation date, June 30, 2019. In this section, the discussion will focus on the commitments of LACERA for retirement benefits, which are referred to as its actuarial liabilities.

Actuarial Balance Sheet – Liabilities

Actuarial liabilities attributable to both past and future benefits are included on the actuarial balance sheet. The difference between the Valuation Assets and the total actuarial liabilities is the amount that needs to be funded by future member and employer contributions. Both the current and future assets (contributions) are included on the actuarial balance sheet and compared to the total actuarial liabilities. The determination of the level of future member and employer contributions needed is discussed in the next section.

Exhibit 7 contains an analysis of the actuarial present value of all future benefits for inactive members (both retired and vested former members) and active members. The analysis is given by class of membership, by plan and by type of benefit. Note that for purposes of this exhibit the Valuation Assets are shown allocated by plan in proportion to each plan's reserves (employer and member).

The actuarial liabilities include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measures of both benefits already earned and future benefits to be earned. For all members, active and inactive, the value extends over the rest of their lives and for the lives of any surviving beneficiaries.

The actuarial assumptions used to determine the liabilities are based on the results of the 2019 Investigation of Experience Report. New assumptions were adopted by the Board effective with the June 30, 2019 actuarial valuation. See Appendix A of this report for details.

All liabilities reflect the benefits effective through June 30, 2019. This includes permanent STAR COLAs that have been adopted through the valuation date, but does not include the value of any STAR benefits that may be granted in the future.

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Exhibit 7
Actuarial Balance Sheet – June 30, 2019

(Dollars in Millions)

	General						Safety			
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Plan A	Plan B	Plan C	All Plans
LIABILITIES										
Present Value of Benefits - Inactives										
- Retirees and Beneficiaries	$ 11,576	$ 470	$ 274	$ 8,594	$ 4,080	$ 5	$ 7,304	$ 8,709	$ 9	$ 41,021
- Vested Former	9	2	1	596	450	29	0	125	2	1,214
- Inactive Total	11,585	472	275	9,190	4,530	34	7,304	8,834	11	42,235
Present Value of Benefits - Actives										
- Service Retirement	107	39	42	20,969	6,268	4,820	9	8,763	995	42,012
- Transfer Service (prior LACERA plan)	0	0	0	235	451	4	0	13	0	703
- Disability Retirement	1	0	0	914	N/A	361	1	3,262	543	5,082
- Death	1	0	0	373	N/A	112	0	77	18	581
- Termination	0	0	0	198	84	289	0	46	53	670
- Active Total	109	39	42	22,689	6,803	5,586	10	12,161	1,609	49,048
Total Actuarial Liabilities	**$ 11,694**	**$ 511**	**$ 317**	**$ 31,879**	**$ 11,333**	**$ 5,620**	**$ 7,314**	**$ 20,995**	**$ 1,620**	**$ 91,283**
ASSETS										
Valuation Assets	(2,553)	402	297	28,184	13,172	1,744	(1,396)	17,433	334	57,617
PV Future Member Contributions	1	1	1	2,974	N/A	2,434	0	1,109	731	7,251
PV Future Employer Normal Cost Contributions	4	1	0	3,405	1,171	2,202	0	1,938	676	9,397
UAAL or (Surplus Funding)	14,242	107	19	(2,684)	(3,010)	(760)	8,710	515	(121)	17,018
Total Current and Future Assets	**$ 11,694**	**$ 511**	**$ 317**	**$ 31,879**	**$ 11,333**	**$ 5,620**	**$ 7,314**	**$ 20,995**	**$ 1,620**	**$ 91,283**

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Actuarial Balance Sheet – Assets

For the purpose of the Actuarial Balance Sheet, LACERA's assets are equal to the sum of:

(a) Assets currently available to pay benefits and considered for funding purposes (the Valuation Assets);

(b) The present value of future contributions expected to be made by current active members; and

(c) The present value of future contributions expected to be made by the employer.

Actuarial Cost Method

The Actuarial Balance sheet determines the amount of future contributions that are needed, but the method used to determine when those future contributions will be made in future years is called the "actuarial cost method." For this valuation, the entry age actuarial cost method has been used. Under this method, the contributions required to meet the difference between current assets and current actuarial liabilities are allocated each year between two elements:

- A normal cost amount; and
- An amount to amortize the UAAL (Unfunded Actuarial Accrued Liability). Note that the UAAL may be negative (representing current assets greater than current actuarial liabilities).

The two items described above – the Normal Cost and UAAL – are the keys to understanding the actuarial cost method.

Normal Cost

The Normal Cost is the theoretical contribution rate that will meet the ongoing costs of a group of average new employees. Suppose that a group of new employees was covered under a separate fund from which all benefits and to which all contributions and associated investment returns were paid. Under the entry age actuarial cost method, the Normal Cost contribution rate maintains the funding of benefits as a level percentage of pay. If experience follows the actuarial assumptions precisely, the fund would be completely liquidated when the last payment to the last survivor of the group is made.

By applying the Normal Cost contribution rate to the present value of salaries expected to be paid in the future, we determine the present value of future Normal Cost contributions. Future contributions are expected to be made by both the members and the employer. The member contribution rates are determined based upon requirements established in the '37 Act and the actuarial assumptions. Based on these member contribution rates, we determine the present value of future member contributions. We subtract that value from the total future Normal Cost contributions expected, based on the entry age cost method. The remaining difference is the employer's portion of the future Normal Cost contributions.

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Actuarial Accrued Liability

The difference between the present value of all future obligations and the present value of the future Normal Cost contributions is referred to as the Actuarial Accrued Liability (AAL). The AAL is calculated and then compared to the value of assets available to fund benefits. The difference is referred to as the UAAL. The results for all LACERA plans in aggregate are summarized below:

(Dollars in millions)	2019	2018	Percent Change
A. Actuarial present value of all future benefits for contributing members, former contributing members, and their survivors	$ 91,283	$ 82,534	10.6%
B. Actuarial present value of total future normal costs for current members	16,648	14,007	18.9%
C. Actuarial accrued liability [A-B]	74,635	68,527	8.9%
D. Valuation Assets	57,617	55,233	4.3%
E. UAAL or (Surplus Funding) [C-D]	17,018	13,294	28.0%
F. Funded Ratio [D/C]	77.2%	80.6%	-4.2%

Unfunded Actuarial Accrued Liability

The portion allocated to service already rendered or accrued is called the AAL. The difference between the AAL and the Valuation Assets is called the Unfunded AAL (UAAL). If a UAAL amount exists, it usually results from prior years' benefit or assumption changes and the net effect of accumulated gains and losses. If the employer had always contributed the current Normal Cost, and if there were no prior benefit or assumption changes, and if actual experience exactly matched the actuarial assumptions, then the present value of all future Normal Cost contributions would be sufficient to fund all benefits and there would be no UAAL.

Exhibit 7 shows how the UAAL was derived for each level of plan benefits. In the Actuarial Balance sheet, the total actuarial liability for all future benefits must be equal to the current and future assets.

The Actuarial Balance Sheet for each plan, as well as its UAAL, is based on an estimated allocation of the total LACERA Valuation Assets, as previously shown in Exhibit 7. The allocation is based on the relative value of each plan's employer and member reserves as reported to us by LACERA. These allocations are shown for illustrative purposes only, as the UAAL contribution rates are paid by the employer based on the valuation results in aggregate.

Funding Adequacy

A key consideration in determining the adequacy of the funding of LACERA is how the UAAL is being funded. Under LACERA's Funding Policy, a new UAAL "layer" is established each year when the Funded Ratio is less than 100% or greater than or equal to 120%. Effective with the June 30, 2019 valuation, all new UAAL layers are amortized over 20-year periods, compared to 30-year periods previously.

If future experience is significantly more favorable than expected based on the actuarial assumptions, then LACERA's UAAL may be eliminated . Conversely, if experience is less favorable, a larger UAAL will develop.

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Analysis of Change in Unfunded Actuarial Accrued Liability

The UAAL, at any date after establishment of a retirement plan, is affected by any actuarial gains (decreases in UAAL) or losses (increases in UAAL) arising when the actual experience of the retirement plan varies from the experience anticipated by the actuarial assumptions. To the extent actual experience, as it develops, differs from that expected according to the assumptions used, so also will the emerging costs differ from the estimated costs.

The 2019 actuarial valuation reflects an increase in the UAAL of $2,528 due to the new assumptions. In addition, there was an actuarial experience loss of $1,171 million for the fiscal year just ended. This resulted in an approximate $3.7 billion increase in the UAAL. The effect of the gains and losses on the UAAL is shown in Exhibit 8a. A summary of these factors is:

- Investment Returns: Returns on market assets were 5.5% (net of investment expenses) compared to the assumed return of 7.25%. This, combined with recognitions of gains and losses from prior periods, resulted in an actuarial asset loss of $477 million.
- Active Member Experience (non salary): This includes gains and losses from termination, service retirement, disability retirement, and death different than assumed. This resulted in an actuarial loss of $124 million.
- Salary Increases: Individual salaries for continuing active members increased at a rate greater than the valuation assumption. This resulted in an actuarial loss of $486 million.
- Actual CPI versus Assumption: The actual CPI increase was greater than assumed for members of Plan A. This resulted in COLA increases more than the assumption, which generated an actuarial loss of $44 million.
- Mortality Experience: An actuarial loss due to mortality generally indicates that retired members are living longer than the current assumption predicts. This year, there was an actuarial gain of $6 million due to mortality, indicating retirees are currently living slightly shorter lives than assumed.
- Other Experience: Examples of this are gains and losses from retirement and mortality experience of inactive members, reciprocity, and transfers between plans. These factors combined resulted in an actuarial loss of $46 million.

Change in Unfunded Actuarial Accrued Liability – History

Exhibit 8b shows the sources of change in the UAAL over the past five valuations. The single biggest source of annual change in most years, when there are no changes in the assumptions, is the return on investments being either greater than or less than the assumption.

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Exhibit 8a
Analysis of Change in Unfunded Actuarial Accrued Liability

(Dollars in Millions)

			Amount	As a Percent of June 30, 2019 Actuarial Accrued Liability
Unfunded Actuarial Accrued Liability - June 30, 2018			**$ 13,294**	**17.81%**
Interest Accrued			976	1.31%
Benefits Accrued (Normal Cost)			1,352	1.81%
Contributions				
Employer - Cash	$	(1,708)		-2.29%
Employer - Contribution Credit		-		0.00%
Member		(595)		-0.80%
Total			(2,303)	-3.09%
Expected Unfunded Actuarial Accrued Liability - June 30, 2019			**$ 13,319**	**17.85%**
Sources of Change:				
Increase in UAAL due to New Assumptions			2,528	3.39%
Asset (Gains) and Losses				
(Gain) / Loss due to Investment Income			477	0.64%
Liability (Gains) and Losses				
Active Member Experience (non salary)	$	124		0.17%
Salary Increases Greater than Expected		486		0.65%
CPI Greater than Expected		44		0.06%
Mortality Experience		(6)		-0.01%
All Other Experience		46		0.06%
Total			694	0.93%
Total Changes			**$ 3,699**	4.96%
Unfunded Actuarial Accrued Liability - June 30, 2019			**$ 17,018**	**22.80%**

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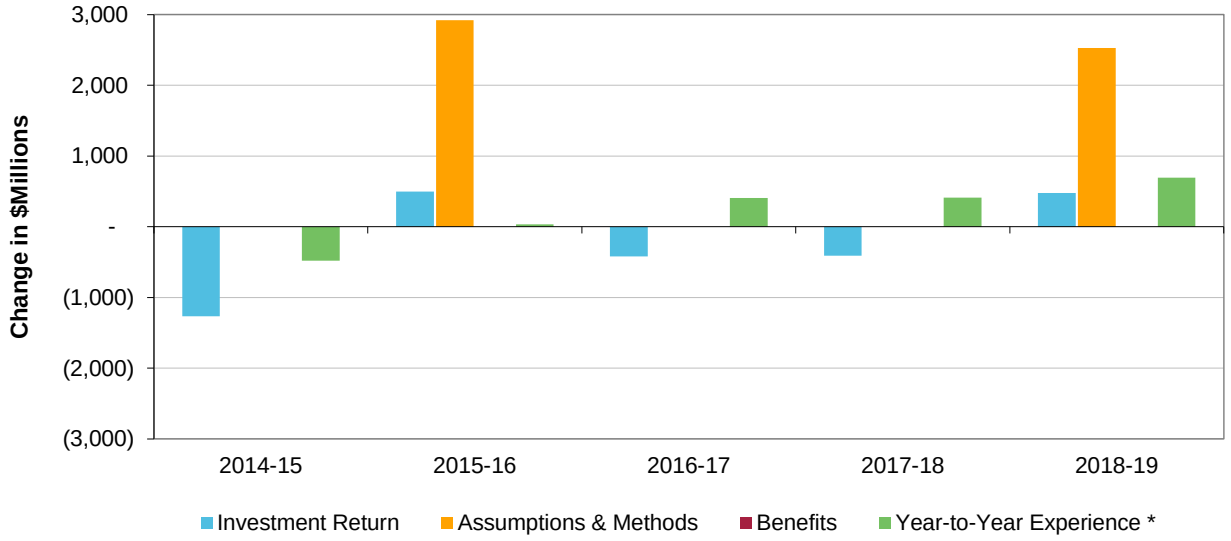
Exhibit 8b
History of Changes in Unfunded Actuarial Accrued Liability

(Dollars in Millions)

	2014-15	2015-16	2016-17	2017-18	2018-19	2014-19
Prior Valuation UAAL	**$ 11,288**	**$ 9,491**	**$ 12,841**	**$ 13,145**	**$ 13,294**	**$ 11,288**
Increase in UAAL due to:						
Expected Increase / (Decrease)	(54)	(102)	320	146	25	335
Asset (Gains) and Losses	(1,263)	496	(421)	(411)	477	(1,122)
Changes in Benefits	-	-	-	-	-	-
Changes in Assumptions	-	2,922	-	-	2,528	5,450
Changes in Methods	-	-	-	-	-	-
Salary Increases	79	162	277	223	486	1,227
CPI Increases	(570)	(191)	(139)	45	44	(811)
Mortality Experience	(59)	(4)	(51)	(20)	(6)	(140)
All Other Experience	70	67	318	166	170	791
Total Increase / (Decrease)	**(1,797)**	**3,350**	**304**	**149**	**3,724**	**5,730**
Valuation UAAL	**$ 9,491**	**$ 12,841**	**$ 13,145**	**$ 13,294**	**$ 17,018**	**$ 17,018**
Funded Ratio	**83.3%**	**79.4%**	**79.9%**	**80.6%**	**77.2%**	**77.2%**



** Year-to-Year Experience includes changes due to Salary, CPI, Mortality and Other Experience.*

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5. Member Contributions

Normal Contributions for non-PEPRA Plans

Member contributions are of two types: Normal contributions and cost-of-living contributions.

Normal contributions for each non-PEPRA plan (all plans except General Plan G and Safety Plan C) are defined in the following sections of the County Employees' Retirement Law:

Plan	'37 Act Reference	Formula
General A	31621.3	1/240th of FAC at age 55
General B	31621.1	1/120th of FAC at age 55
General C	31621	1/120th of FAC at age 60
General D	31621	1/120th of FAC at age 60
General E	N/A	Plan E is non-contributory
Safety A	31639.5	1/200th of FAC at age 50
Safety B	31639.25	1/100th of FAC at age 50

Note: FAC = Final Average Compensation

Normal member contributions are determined using the Entry Age Normal Funding Method and the following actuarial assumptions:

1. Expected rate of return on assets.

2. Individual salary increase rate (wage growth + merit).

3. Mortality for members on service retirement.

Since new assumptions were adopted for the 2019 valuation, we are recommending changes to the member contribution rates for General Plans A to D and Safety Plans A and B, as shown in Appendix D. A sample of these recommended member contribution rates is shown in Exhibit 9.

Member contribution rates for General Plan G and Safety Plan C are discussed below.

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Cost-of-Living Contributions for non-PEPRA Plans

The determination of the member cost-of-living (COLA) contributions is based on Section 31873 of the County Employees' Retirement Law. This section requires that the cost of the COLA benefit be shared equally between members and the employer. Unlike the member normal contributions, these rates are based on the actuarial cost of the benefits and reflect all assumptions used in the valuation of liabilities.

Since new assumptions were adopted for the 2019 valuation we are recommending changes in the member cost-of-living contribution rates. The recommended cost-of-living contribution rates, expressed as a percentage of the normal member contribution rates, are as follows:

Plan	Recommended COLA %	Current COLA %	Ratio (Recommended / Current)
General A	84.46%	79.37%	106.4%
General B	25.90%	23.97%	108.1%
General C	26.81%	25.46%	105.3%
General D	25.94%	24.49%	105.9%
General E	0.00%	0.00%	N/A
Safety A	87.15%	86.98%	100.2%
Safety B	33.03%	31.63%	104.4%

The relative magnitude of these amounts reflects the differences in the normal contribution rates for each plan and the different cost-of-living benefits offered by the different plans. The rate for Plan E is 0.00%, since it is non-contributory.

A sample of the current member contribution rates (normal plus cost-of-living) can be found in Exhibit 9.

Full disclosure of the member rates, showing both the normal and the total (normal plus cost-of-living) contribution rates, can be found in Appendix D.

Member Contribution Rates for General Plan G and Safety Plan C (PEPRA Plans)

Members of the two plans developed in compliance with the California Public Employees' Pension Reform Act of 2013 (PEPRA) contribute a flat rate (i.e., does not vary by entry age) based on whether they are in the General or Safety plan. This rate is set equal to one-half of the total Normal Cost rate. We are recommending changes to the member contribution rates for these plans, as shown below, to reflect the Plan's Normal Cost rates for the 2019 valuation.

	General Plan G	Safety Plan C
All Ages: Recommended	**9.11%**	**14.54%**
All Ages: Current	8.43%	13.69%
Ratio (Recommended / Current)	108.1%	106.2%

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Note that the member contribution rates for these plans are further split for purposes of this report into a “Normal” and “Cost of Living” component. The cost-of-living component for these members, as shown in Exhibit 9 below, represents one-half of the cost of the COLA for these plans.

Average Member Rates

The average member contribution rate for only those members in contributory plans at June 30, 2019 is 9.13% of covered payroll. This number compares to 7.68% of covered payroll, which is the average member contribution rate among all members. The 7.68% offsets the gross normal cost to yield the employer normal cost rate. Note that covered payroll does not include pay for PEPRA plan members that is above the PEPRA compensation limit.

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Exhibit 9
Sample Member Contribution Rates

	Entry Age	Recommended Rates (Based on 2019 Valuation) Normal	Cost of Living	Total as a % of Pay	Current Rate (Total)	Ratio (New / Current)
General Members						
Plan A	25	3.24%	2.74%	5.98%	5.33%	112.2%
	35	3.99%	3.37%	7.36%	6.65%	110.7%
	45	4.83%	4.08%	8.91%	8.18%	108.9%
	55	5.13%	4.33%	9.46%	8.84%	107.0%
Plan B	25	6.47%	1.68%	8.15%	7.35%	110.9%
	35	7.98%	2.07%	10.05%	9.19%	109.4%
	45	9.66%	2.50%	12.16%	11.32%	107.4%
	55	10.25%	2.65%	12.90%	12.24%	105.4%
Plan C	25	5.52%	1.48%	7.00%	6.32%	110.8%
	35	6.80%	1.82%	8.62%	7.89%	109.3%
	45	8.33%	2.23%	10.56%	9.86%	107.1%
	55	9.68%	2.60%	12.28%	11.66%	105.3%
Plan D	25	5.52%	1.43%	6.95%	6.27%	110.8%
	35	6.80%	1.76%	8.56%	7.83%	109.3%
	45	8.33%	2.16%	10.49%	9.78%	107.3%
	55	9.68%	2.51%	12.19%	11.57%	105.4%
Plan G	All Ages	7.36%	1.75%	9.11%	8.43%	108.1%
Safety Members						
Plan A	25	4.74%	4.13%	8.87%	7.82%	113.4%
	35	5.63%	4.91%	10.54%	9.63%	109.4%
	45	6.70%	5.84%	12.54%	11.50%	109.0%
	55	6.33%	5.52%	11.85%	11.61%	102.1%
Plan B	25	9.48%	3.13%	12.61%	11.00%	114.6%
	35	11.27%	3.72%	14.99%	13.57%	110.5%
	45	13.40%	4.43%	17.83%	16.20%	110.1%
	55	13.40%	4.43%	17.83%	16.35%	109.1%
Plan C	All Ages	11.27%	3.27%	14.54%	13.87%	104.8%

Note: A portion of some of the member contribution rates is paid for ("picked up") by the employer and is not considered part of the member's contribution account for refund purposes. Such contributions are referred to as the surcharge amount and are subject to change each year. The rates shown in the table above are prior to any surcharge payments.

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6. Employer Contributions

Calculated Employer Contribution Rate

Contributions to LACERA are determined using the Entry Age Normal Cost Method. The portion of the actuarial present value of retirement benefits allocated to a valuation year by the Actuarial Cost Method is called the Normal Cost. These amounts are usually expressed as a percentage of payroll and called the Normal Cost Contribution Rate. Exhibit 10 illustrates the Normal Cost Contribution Rates by type of benefit and for each plan based on this valuation. A comparison with last year is also shown.

Under the Funding Policy, the total contribution rate is set equal to the Normal Cost contribution plus a payment by the employer towards the UAAL. The calculation of the UAAL contribution rate is shown in Exhibit 12. A portion of the Normal Cost contribution is funded by member contributions. The remainder is paid for by the employer.

The total calculated employer contribution rates for each plan, along with a comparison to the prior year's calculated rates, can be found in Exhibit 11. These results are expressed as a percentage of payroll and annual contribution dollars. Note that LACERA's UAAL contribution rate is not determined separately for each plan, but is funded evenly as a percentage of pay over salaries for all members.

For the fiscal year beginning in 2020, the total calculated employer contribution rate increases to 22.59% (after reflecting the phase in of the employer contribution rate). This is equal to the aggregate employer Normal Cost contribution rate of 10.86% based on the 2019 valuation, plus a layered amortization payment of the UAAL. The UAAL amortization layers are shown in Exhibit 12. Effective with the June 30, 2019 valuation, all new UAAL layers are amortized over a 20-year period, beginning with the date the contribution is first expected to be made.

(All values as a % of Payroll)

Employer Normal Cost Contribution Rate	10.86%
Layered Amortization of UAAL	13.92%
Calculated Employer Contribution Rate (before phase-in)	24.78%
Deferred Recognition of 2019 Assumption Changes	(2.19)%
Calculated Employer Contribution Rate (with phase-in)	22.59%

The 1.68% increase from last year in the calculated employer contribution rate is primarily due to the assumption and method changes adopted by the Board of Investments effective June 30, 2019. These changes resulted in an increase of 3.29% in the employer contribution rate, which will be phased-in over three fiscal years effective with the fiscal year beginning July 1, 2020. Recognition of investment losses resulted in an increase of 0.42% in the employer contribution rate, and other sources, including salary increases greater than assumed, increased the employer contribution rate by about 0.16%.

Employer Contribution Rate with phase-in

At the January 2020 meeting, the Board of Investments adopted a three-year phase-in of the impact of the change in employer contribution rate resulting from the new assumptions adopted effective June 30, 2019. For the fiscal year beginning July 1, 2022, the impact of the June 30, 2019 assumption changes will be fully phased in.

Section II 1A(4) of the Funding Policy states: "In no case shall the total amount contributed by the employer be less than the Normal Cost Rate for the year, plus a 30-year amortization of the total UAAL." Based on discussion with LACERA staff, it is our understanding that that since the employer contribution rate, including future phased-in increases, is projected to amortize the UAAL in less than 30 years, the employer contribution rate is deemed to meet the requirements under Section II 1A(4) of the Funding Policy.

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Exhibit 10
Calculated Normal Cost Contribution Rates – June 30, 2019

	General							Safety				Grand
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	**Total**
A. Normal Cost Contribution Rate												
Service Retirement	21.48%	16.82%	13.89%	14.74%	10.13%	15.59%	14.06%	19.45%	18.23%	17.50%	18.10%	14.81%
Disability Retirement	1.15%	0.93%	0.76%	1.16%	0.00%	1.29%	0.97%	9.15%	9.07%	10.28%	9.28%	2.52%
Death	0.32%	0.28%	0.23%	0.38%	0.00%	0.35%	0.30%	0.41%	0.35%	0.32%	0.34%	0.31%
Termination	0.44%	0.42%	0.40%	0.98%	0.61%	0.99%	0.91%	0.74%	0.83%	0.98%	0.86%	0.90%
Total	**23.39%**	**18.45%**	**15.28%**	**17.26%**	**10.74%**	**18.22%**	**16.24%**	**29.75%**	**28.48%**	**29.08%**	**28.58%**	**18.54%**
B. Member Contributions	(6.05)%	(9.05)%	(7.29)%	(8.05)%	0.00%	(9.11)%	(6.74)%	(3.38)%	(11.21)%	(14.54)%	(11.78)%	(7.68)%
C. Net Employer Normal Cost as of June 30, 2019 (A) - (B)	17.34%	9.40%	7.99%	9.21%	10.74%	9.11%	9.50%	26.37%	17.27%	14.54%	16.80%	10.86%
D. Net Employer Normal Cost as of June 30, 2018	16.36%	8.34%	7.34%	8.43%	9.80%	8.43%	8.73%	24.33%	15.32%	13.69%	15.11%	9.92%
E. Increase (Decrease) as a Percentage of Payroll (C) - (D)	0.98%	1.06%	0.65%	0.78%	0.94%	0.68%	0.77%	2.04%	1.95%	0.85%	1.69%	0.94%
F. Estimated Payroll for fiscal year beginning July 1, 2020*	$ 11	$ 4	$ 4	$ 3,910	$ 1,393	$ 1,743	$ 7,065	$ 1	$ 1,349	$ 282	$ 1,631	$ 8,696
G. Estimated Total Normal Cost Contribution in Dollars (A x F)**	$ 3	$ 1	$ 1	$ 675	$ 150	$ 317	$ 1,147	$ -	$ 384	$ 82	$ 466	$ 1,613

** Estimated Payroll based upon annualized salary rate as of June 30, 2019 increased by 3.25% wage inflation. Dollar figures in millions.*
*** The timing of the Normal Cost shown in this exhibit is spread over the entire year and corresponds to payroll timing.*

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Exhibit 11
Total Employer Contributions

	General							Safety				All
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	Plans
A. Net Employer Normal Cost												
1. Basic Benefits	13.82%	7.54%	6.45%	7.57%	8.88%	7.36%	7.79%	19.13%	13.70%	11.27%	13.85%	8.80%
2. Cost-of-Living Benefits	3.52%	1.86%	1.54%	1.64%	1.86%	1.75%	1.71%	7.24%	3.57%	3.27%	2.95%	2.06%
3. Total June 30, 2019	17.34%	9.40%	7.99%	9.21%	10.74%	9.11%	9.50%	26.37%	17.27%	14.54%	16.80%	10.86%
B. UAAL Contribution Rate	13.92%	13.92%	13.92%	13.92%	13.92%	13.92%	13.92%	13.92%	13.92%	13.92%	13.92%	13.92%
C. Calculated June 30, 2019 Contribution Rate (A) + (B)	**31.26%**	**23.32%**	**21.91%**	**23.13%**	**24.66%**	**23.03%**	**23.42%**	**40.29%**	**31.19%**	**28.46%**	**30.72%**	**24.78%**
D. Deferred Recognition of new assumptions	(2.19)%	(2.19)%	(2.19)%	(2.19)%	(2.19)%	(2.19)%	(2.19)%	(2.19)%	(2.19)%	(2.19)%	(2.19)%	(2.19)%
E. Total June 30, 2019 Contribution Rate with phase-in (C) + (D)	**29.07%**	**21.13%**	**19.72%**	**20.94%**	**22.47%**	**20.84%**	**21.23%**	**38.10%**	**29.00%**	**26.27%**	**28.53%**	**22.59%**
F. Total June 30, 2018 Contribution Rate with phase-in	27.35%	19.33%	18.33%	19.42%	20.79%	19.42%	19.72%	35.32%	26.31%	24.68%	26.10%	20.91%
G. Estimated Payroll for fiscal year beginning July 1, 2020*	$ 11	$ 4	$ 4	$ 3,910	$ 1,393	$ 1,743	$ 7,065	$ 1	$ 1,349	$ 282	$ 1,631	$ 8,696
H. Estimated Annual Contribution (E x G)	**$ 3**	**$ 1**	**$ 1**	**$ 819**	**$ 313**	**$ 363**	**$ 1,500**	**$ -**	**$ 391**	**$ 74**	**$ 465**	**$ 1,965**
I. Last Year's Estimated Annual Contribution	$ 4	$ 1	$ 1	$ 753	$ 302	$ 278	$ 1,338	$ -	$ 353	$ 53	$ 406	$ 1,744
J. Increase / (Decrease) in Annual Contribution	$ (1)	$ -	$ -	$ 66	$ 11	$ 85	$ 162	$ -	$ 38	$ 21	$ 59	$ 221

** Estimated Payroll based upon annualized salary rate as of June 30, 2019 increased by 3.25% wage inflation. Dollar figures in millions.*

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Exhibit 12
Unfunded Actuarial Accrued Liability Detail

(Dollars in Millions)

Unfunded Actuarial Accrued Liability - Amortization Detail

Date Established	Description	Balance as of June 30, 2019	Interest on Balance	Amort. Payment on June 30, 2020 [1]	Balance as of June 30, 2020 [2]	Remaining Period as of June 30, 2020 [5]	July 1, 2020 Amortization Payment
June 30, 2009	Initial UAAL	$ 5,630.4	$ 394.1	$ 423.0	$ 5,601.5	19 Years	$ 406.6
June 30, 2010	(Gain) / Loss[3]	3,067.0	214.7	223.1	3,058.6	20 Years	214.3
June 30, 2011	(Gain) / Loss[3]	1,517.3	106.2	107.1	1,516.4	21 Years	102.8
June 30, 2012	(Gain) / Loss[3]	2,476.5	173.4	170.0	2,480.0	22 Years	162.9
June 30, 2013	(Gain) / Loss[3]	1,397.7	97.8	93.4	1,402.1	22 Years	92.1
June 30, 2014	(Gain) / Loss	(2,584.0)	(180.9)	(168.5)	(2,596.3)	22 Years	(170.6)
June 30, 2015	(Gain) / Loss	(2,015.7)	(141.1)	(128.4)	(2,028.4)	22 Years	(133.3)
June 30, 2016	(Gain) / Loss[3]	3,867.7	270.7	241.1	3,897.3	22 Years	256.1
June 30, 2017	(Gain) / Loss	(18.7)	(1.3)	1.1	(21.1)	22 Years	(1.4)
June 30, 2018	(Gain) / Loss	60.4	4.2	3.6	61.0	22 Years	4.0
June 30, 2019	(Gain) / Loss[3]	3,619.2	253.3	(77.1) [4]	3,949.7	20 Years	276.7
						Total Amortization Payment July 1, 2020:	$ 1,210.1
						Projected Payroll July 1, 2020:	$ 8,696.2
UAAL as of June 30, 2019:		**$ 17,018.0**		**UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2020:**			**13.92%**

Explanatory Notes:

1. Amortization Payments are based on a fixed schedule that increases by the payroll assumption each year.
2. The assets and liabilities used in the calculation of the UAAL are as of June 30, 2019, whereas, the contribution rates are not effective until July 1, 2020. Therefore, the UAAL is adjusted to June 30, 2020 based on the actual contribution rate for the period.
3. (Gain) / Loss layers include impact of assumption changes in these years.
4. The amortization of UAAL does not begin until July 1, 2020; therefore, the UAAL amount is adjusted by one year to reflect the actual July 1, 2019 contribution rate.
5. Effective with the June 30, 2019 valuation, all new UAAL layers will be amortized over a 20-years period, beginning with the date the contribution is first expected to be made.

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7. Supplemental Information

Governmental Accounting Standards Board (GASB) Statement No. 67 sets out requirements for defined benefit pension plan reporting and disclosures. GASB Statement No. 68 sets out requirements for accounting by state and local government employers.

Milliman provides LACERA with results relevant to Statements No. 67 and 68 in separate stand-alone financial reporting valuation reports.

For informational purposes, we have provided the following exhibits in this report that LACERA may use in the audited financial statements:

Exhibit 13: Schedule of Funding Progress
Exhibit 14: Schedule of Employer Contributions
Exhibit 15: Solvency Test
Exhibit 16: Actuarial Analysis of Financial Experience
Exhibit 17: Retirants and Beneficiaries added to / removed from Retiree Payroll

Exhibit 13, Schedule of Funding Progress, compares actuarial assets and liabilities of the Plan, based on the actuarial funding method used.

Exhibit 14, Schedule of Employer Contributions, compares the employer contributions required based on the actuarial valuation with the employer contributions actually made. Information shown in this exhibit comes from LACERA's audited financial statements.

Exhibit 15 compares the Actuarial Value of Valuation Assets to the types of Actuarial Accrued Liabilities, applying them first to Active Member contributions, then to retirees and beneficiaries, and then the remaining amount to the Active Members benefits. This is referred to as the Solvency Test.

Exhibit 16 shows the changes in actual versus expected UAAL from year to year.

Exhibit 17 reconciles the retired members and beneficiaries who have been added to and removed from the retiree payroll.

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Exhibit 13
Schedule of Funding Progress

(Dollars in Thousands)

Actuarial Valuation Date	(a) Actuarial Value of Valuation Assets	(b) Actuarial Accrued Liabilities	(b-a) Unfunded Actuarial Accrued Liabilities (UAAL)	(a/b) Funded Ratio	(c) Covered Payroll[1]	[(b-a)/c] UAAL as a Percentage of Covered Payroll
June 30, 2010[2]	$ 38,839,392	$ 46,646,838	$ 7,807,446	83.3%	$ 6,695,439	116.6%
June 30, 2011[2]	39,193,627	48,598,166	9,404,539	80.6%	6,650,674	141.4%
June 30, 2012[2]	39,039,364	50,809,425	11,770,061	76.8%	6,619,816	177.8%
June 30, 2013[2]	39,932,416	53,247,776	13,315,360	75.0%	6,595,902	201.9%
June 30, 2014	43,654,462	54,942,453	11,287,991	79.5%	6,672,228	169.2%
June 30, 2015	47,328,270	56,819,215	9,490,945	83.3%	6,948,738	136.6%
June 30, 2016[2]	49,357,847	62,199,214	12,841,367	79.4%	7,279,777	176.4%
June 30, 2017	52,166,307	65,310,803	13,144,496	79.9%	7,637,032	172.1%
June 30, 2018	55,233,108	68,527,354	13,294,246	80.6%	7,957,981	167.1%
June 30, 2019[2]	57,617,288	74,635,840	17,018,552	77.2%	8,370,050	203.3%

1. Covered Payroll includes compensation paid to all active employees on which contributions are calculated, as reported by LACERA. Covered Payroll differs from the Active Member Valuation Payroll shown in Table C-1, which is an annualized compensation of only those members who were active on the actuarial valuation date.

2. Assumption changes.

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Exhibit 14
Schedule of Contributions from the Employer

(Dollars in Thousands)

Fiscal Year Ending	Actuarially Determined Employer Contribution	Actual Employer Contributions			Percentage of Actuarially Determined Contribution Contributed
		Cash Payment	Transfer from Reserve Accounts	Total	
06/30/2010	$ 843,704	$ 843,703	$ -	$ 843,703	100%
06/30/2011	944,174	944,174	-	944,174	100%
06/30/2012	1,078,929	1,078,929	-	1,078,929	100%
06/30/2013	1,172,014	723,195	448,819	1,172,014	100%
06/30/2014	1,320,442	1,320,442	-	1,320,442	100%
06/30/2015	1,494,975	1,494,975	-	1,494,975	100%
06/30/2016	1,443,130	1,443,130	-	1,443,130	100%
06/30/2017 (1)	1,392,813	1,370,922	21,891	1,392,813	100%
06/30/2018	1,564,284	1,564,284	-	1,564,284	100%
06/30/2019	1,708,122	1,708,122	-	1,708,122	100%

1. The County Contribution Reserve was used to offset the contribution required from the Courts in the fiscal year ended June 30, 2017. Exhibit 14 in the June 30, 2017 actuarial valuation report did not reflect this transfer amount.

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Exhibit 15
Solvency Test

(Dollars in Millions)

Actuarial Valuation Date	Actuarial Value of Valuation Assets	Actuarial Accrued Liabilities for: Active Member Contributions (A)	Retirees and Beneficiaries[1] (B)	Active Members (Employer Financed Portion) (C)	Portion of Actuarial Accrued Liabilities Covered by Assets: (A)	(B)	(C)
June 30, 2010	$ 38,839	$ 6,278	$ 26,220	$ 14,148	100%	100%	45%
June 30, 2011	39,194	6,529	27,559	14,511	100%	100%	35%
June 30, 2012	39,039	6,961	29,118	14,730	100%	100%	20%
June 30, 2013	39,932	7,837	30,980	14,430	100%	100%	8%
June 30, 2014	43,654	8,354	31,882	14,706	100%	100%	23%
June 30, 2015	47,328	8,805	32,734	15,280	100%	100%	38%
June 30, 2016	49,358	8,767	35,316	18,116	100%	100%	29%
June 30, 2017	52,166	9,482	37,077	18,752	100%	100%	30%
June 30, 2018	55,233	9,882	39,192	19,453	100%	100%	32%
June 30, 2019	57,617	10,210	42,235	22,190	100%	100%	23%

1. Includes vested and non-vested former members.

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Exhibit 16
Actuarial Analysis of Financial Experience

(Dollars in Millions)

	Valuation as of June 30						
	2013	2014	2015	2016	2017	2018	2019
Unfunded Actuarial Accrued Liability	$11,770	$13,315	$11,288	$9,491	$12,841	$13,145	$13,294
Expected Increase/(Decrease) from Prior Valuation	869	338	(54)	(102)	320	146	25
Salary Increases Greater/(Less) than Expected	(563)	(291)	79	162	277	223	486
CPI Less than Expected	(190)	(427)	(570)	(191)	(139)	45	44
Change in Assumptions	511	-	-	2,922	-	-	2,528
Asset Return Less/(Greater) than Expected	893	(1,664)	(1,263)	496	(421)	(411)	477
All Other Experience	25	17	11	63	267	146	164
Ending Unfunded Actuarial Accrued Liability	**$13,315**	**$11,288**	**$9,491**	**$12,841**	**$13,145**	**$13,294**	**$17,018**

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Exhibit 17
Retirants and Beneficiaries added to and removed from Retiree Payroll

(Dollars in Thousands)

	Added to Rolls		Removed from Rolls		Rolls at End of Year			
Valuation Date	Member Count	Annual Allowance[1]	Member Count	Annual Allowance[1]	Member Count	Annual Allowance[1]	% Increase in Retiree Allowance	Average Annual Allowance
June 30, 2010	2,947	$ 188,724 [2]	(1,820)	$ (54,105)	54,196 [3]	$ 2,220,344	6.45%	$ 41.0
June 30, 2011	3,134	185,204 [2]	(1,959)	(62,923)	55,371	2,342,625	5.51%	42.3
June 30, 2012	3,194	193,865 [2]	(1,795)	(61,588)	56,770 [3]	2,474,902	5.65%	43.6
June 30, 2013	3,373	205,659 [2]	(2,057)	(69,494)	58,086 [3]	2,611,067	5.50%	45.0
June 30, 2014	3,128	172,743 [2]	(1,985)	(71,730)	59,229 [3]	2,712,080	3.87%	45.8
June 30, 2015	3,501	180,549 [2]	(2,124)	(80,028)	60,606 [3]	2,812,601	3.71%	46.4
June 30, 2016	3,479	220,632 [2]	(2,171)	(80,881)	61,914 [3]	2,952,352	4.97%	47.7
June 30, 2017	3,721	245,915 [2]	(2,311)	(89,624)	63,324 [3]	3,108,643	5.29%	49.1
June 30, 2018	3,826	276,118 [2]	(2,270)	(89,033)	64,880 [3]	3,295,728	6.02%	50.8
June 30, 2019	3,978	302,022 [2]	(2,351)	(97,840)	66,507 [3]	3,499,910	6.20%	52.6

1. Annual allowance is the monthly benefit allowance annualized for those members counted as of June 30.

2. Includes COLAs that occurred during the fiscal year and therefore were not included in the previous years' Annual Allowance totals.

3. For the actuarial valuation year, Member Count includes retirees who due to timing at year end, are not yet included in the total Retired Members count disclosed in Note A - Plan Description of LACERA's CAFR for the fiscal year ended June 30, 2018.

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8. Cash Flow History and Projections

Exhibits 18a and 18b contain tables and graphs that illustrate both the cash flow history for the past 10 years and a projection on the valuation basis for the next 10 years.

Contributions include both employer and member contributions. Exhibit 18a shows that net cash outflow has gradually increased over the last five years. In future years, after the phase-in of the rate increase due to assumption changes and methods, the cash flow is expected to become increasingly negative. This is a typical pattern for a mature retirement plan where it is expected that contributions will be less than benefits and that the plan will begin drawing on the fund that has been built up over prior years.

Note that the actual cash contributions do not reflect the transfers made between reserve funds, but only cash coming into the Plan. We are assuming no further transfers, only full cash contributions. In addition, LACERA will receive dividends and interest payments from its investments. These types of payments are not considered for this analysis, which focuses solely on comparing contributions with benefit payments and administrative expenses.

The projected cash flows include contributions, statutory benefits, and administrative expenses only. They are based on the actuarial assumptions as stated in Appendix A of this valuation report. The total employer contribution rate is assumed to be 20.91% for the first year and 22.59% for the second year; total employer contributions for the remainder of the period reflect the expected recognition of asset gains currently being deferred and the phase-in of the increase due to the assumption and method changes. The aggregate member rate is assumed to stay at the calculated rate for June 30, 2019 of 7.68% of payroll. Expenses are based on the expenses for the year ended June 30, 2019, increased annually with the actuarial inflation assumption of 2.75%.

Any increases or reductions in future contribution rates will increase or decrease the net cash flow. The projected cash flows do not include:

- Projected STAR benefits that have not yet been granted. STAR benefits that were vested as of January 2019 are included.
- Projected benefits payable under certain insurance contracts for a group of retired members. These payments are netted against the total expected retiree benefits.

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Exhibit 18a
Cash Flow History and Projections – Dollars

Plan Year Ending	Cash Flow History: Total Contributions	Cash Flow History: Benefits & Administrative Expenses[1]	Cash Flow History: Net Cash Flow
2010	$ 1,273	$ 2,177	$ (904)
2011	1,408	2,318	(910)
2012	1,586	2,439	(853)
2013	1,403	2,593	(1,190)
2014	1,759	2,719	(960)
2015	1,936	2,829	(893)
2016	1,902	2,954	(1,052)
2017	1,858	3,094	(1,236)
2018	2,116	3,268	(1,152)
2019	2,304	3,475	(1,171)

Plan Year Ending	Cash Flow Projections[2]: Total Contributions	Cash Flow Projections[2]: Benefits & Administrative Expenses[1]	Cash Flow Projections[2]: Net Cash Flow
2020	$ 2,378	$ 3,803	$ (1,424)
2021	2,675	3,910	(1,235)
2022	2,898	4,101	(1,204)
2023	3,062	4,299	(1,238)
2024	3,163	4,509	(1,346)
2025	3,282	4,727	(1,445)
2026	3,387	4,953	(1,565)
2027	3,498	5,183	(1,686)
2028	3,611	5,417	(1,805)
2029	3,729	5,654	(1,925)

1. Investment expenses are assumed to be covered by investment return.

2. Future contributions reflect the expected impact of asset gains and losses currently being deferred.

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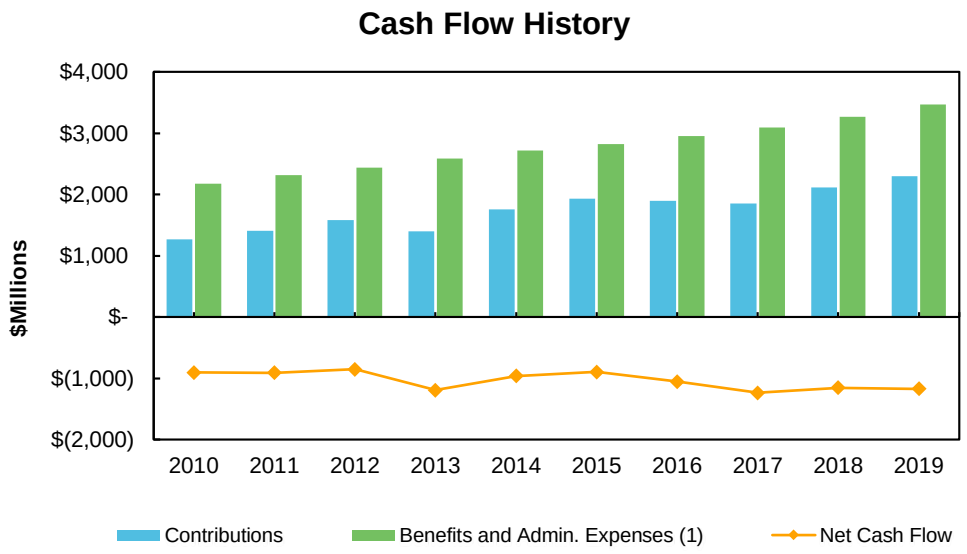
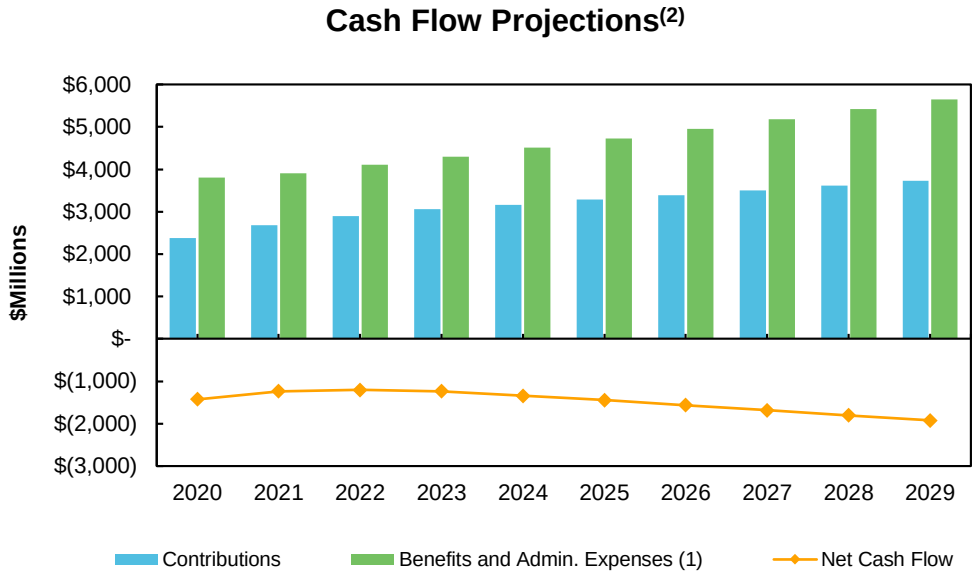
Exhibit 18b
Cash Flow History and Projections – Graphs





1. Investment expenses are assumed to be covered by investment return.

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9. Risk Discussion

Overview

The results of any actuarial valuation are based on one set of reasonable 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. It is therefore important to consider the potential impacts of these likely differences when making decisions that may affect the future financial health of the Plan, or of the Plan's members.

Actuarial Standard of Practice No. 51 (ASOP 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions) addresses these issues by providing actuaries with guidance for assessing and disclosing the risk associated with measuring pension liabilities and the determination of pension plan contributions. Specifically, it directs the actuary to:

- Identify risks that may be significant to the Plan.
- Assess the risks identified as significant to the Plan. The assessment does not need to include numerical calculations.
- Disclose plan maturity measures and historical information that are significant to understanding the Plan's risks.

ASOP 51 states that if in the actuary's professional judgment, a more detailed assessment would be significantly beneficial in helping the individuals responsible for the Plan to understand the risks identified by the actuary, then the actuary should recommend that such an assessment be performed. The standard is first effective for certain actuarial work products with a measurement date on or after November 1, 2018, so for LACERA it was first effective with the June 30, 2019 actuarial valuation.

In addition, the California Actuarial Advisory Panel (CAAP) has adopted a set of model disclosure elements for actuarial valuation reports of public retirement systems in California. Most of these elements are included in other areas of this report. The remaining CAAP-recommended disclosures are as follows:

Disclosure Element	Description	Value
Gross Normal Cost $ [1]	Normal Cost allocated to valuation year, paid at mid-year.	$ 1,586.7
Statutory Contribution $ [1]	Expected Employer Contribution paid at mid-year.	$ 1,789.5
Asset Smoothing Ratio	Actuarial Value of Assets divided by Market Value of Assets	99.8%
Asset Volatility Ratio	Market Value of Assets divided by Payroll	6.9
Liability Volatility Ratio	Actuarial Accrued Liability divided by Payroll	8.9

1. Amounts shown in millions of dollars

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This Section 9 uses the framework of ASOP 51 and the Asset and Liability Volatility Ratios shown above to communicate important information about: significant risks to the Plan, the Plan's maturity, and relevant historical plan data.

Asset and Liability Volatility Ratios

Asset and Liability Volatility Ratios are a measure of the level of assets (or liabilities) to payroll. In general, a higher ratio means that the employer contribution rates (ECR) are more sensitive to changes in levels of assets or liabilities. Historical Asset and Liability Volatility Ratios are shown in Exhibit E-4.

As shown above, in the current valuation LACERA has an Asset Volatility Ratio of 6.9 and a Liability Volatility Ratio of 8.9. As shown in Exhibit E-4, these ratios have increased over time as LACERA has matured.

Factors Affecting Future Results

There are a number of factors that affect future valuation results. To the extent actual experience for these factors varies from the assumptions, this will likely cause either increases or decreases in the plan's future funding level and ECR. The factors that can have the most significant impact on LACERA's valuation results are:

- Investment returns

  To the extent that actual investment returns differ from the assumed investment return, the Plan's future assets, ECR, and funded status may differ significantly from those presented in this valuation. Additional discussion of the impact of variance of investment returns is included below.

- Compensation increases

  Individual member retirement benefits are linked to that member's compensation. As such, assumptions need to be made as to a member's future compensation increases. Higher future compensation increases will generally result in larger retirement benefits, liabilities, ECRs, and a lower funded status. Conversely, lower compensation increases than assumed will generally result in smaller retirement benefits, liabilities, ECRs, and a higher funded status.

- Payroll variation

  In the valuation, an assumption is made for the overall rate of payroll growth of LACERA from year-to-year. To the extent that the overall rate of payroll growth is greater than assumed, the ECR may decrease since the UAAL will be amortized over a larger payroll base. The opposite will occur if the overall rate of payroll growth is lower than assumed.

  This effect often will offset somewhat with individual compensation increases, discussed above.

- Longevity and other demographic risks

  The liabilities reported in this valuation have been calculated by assuming that members will follow specific patterns of demographic experience (e.g., mortality, retirement, termination, disability) as described in Appendix A. To the extent that actual demographic experience is different than is assumed to occur, future liabilities, ECRs, and funded status may differ from that presented in this valuation.

All of these assumptions are reviewed in detail during the triennial Investigation of Experience study, and are also reviewed annually during the valuation process. Changes in assumptions are generally recommended as part of the triennial Investigation of Experience if actual experience has been materially different than assumed or forecasts have changed significantly. Additionally, changes may be recommended and discussed at each valuation if they are deemed to be appropriate at that time.

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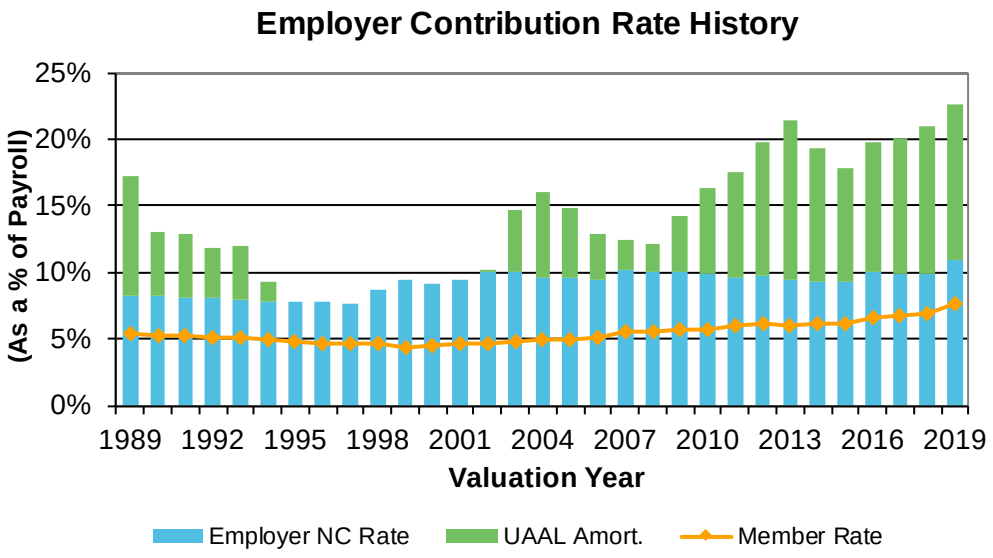
Discussion of Investment Return Risk

Of these factors, we believe the factor with the greatest potential risk to impact future valuation results for LACERA is future investment returns. For example, if actual returns fall short of the current assumption of 7.0% per year, this will cause an increase in the ECR and a decrease in the Funded Ratio, all other things being equal. Conversely, if actual returns exceed the current assumption of 7.0% per year, this will cause a decrease in the ECR and an increase in the Funded Ratio.

The magnitude of the increase or decrease in the ECR is affected by the maturity level, and specifically, the asset volatility ratio. LACERA has accumulated a significant amount of assets relative to its payroll and by several measures is considered a mature plan. Accumulating assets to pay for future benefit obligations is responsible funding, but it does mean that changes in the investment markets can have a significant impact on the ECR.

Historical Variation in Employer Contribution Rate

One way to assess future risks is to look at historical measurements. The following graph shows how the ECR has varied over the last 30 years under various investment return and assumption environments.



Appendix A Actuarial Procedures and Assumptions

The actuarial procedures and assumptions used in this valuation are described in this section. The assumptions were reviewed and changed for the June 30, 2019 actuarial valuation as a result of the 2019 triennial Investigation of Experience Study.

The actuarial assumptions used in the valuations are intended to estimate the future experience of the members of LACERA and of LACERA itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of LACERA's benefits.

Table A-1 summarizes the assumptions. The mortality probabilities are taken from the sources listed.

Tables A-2 and A-3 show how members are expected to leave retired status due to death.

Table A-4 presents the probability of refund of contributions upon termination of employment while vested.

Table A-5 presents the expected annual percentage increase in salaries.

Tables A-6 to A-13 were developed from the experience as measured by the 2019 Investigation of Experience Study. These are the probability that a member will leave the System for various reasons.

Actuarial Cost Method

The actuarial valuation is prepared using the entry age actuarial cost method (CERL 31453.5). Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit (until maximum retirement age).

For members who transferred between plans, entry age is based on original entry into the System.

The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the Unfunded Actuarial Accrued Liability (UAAL). The original UAAL as of June 30, 2009 is amortized as a level percentage of the projected salaries of present and future members of LACERA over a closed 30-year period. As of the June 30, 2019 valuation, all amortization layers with periods greater than 22 years as of July 1, 2020 were amortized over a 22-year period. Future gains and losses are amortized over new closed 20-year periods, beginning with the date the contribution is first expected to be made. This is referred to as “layered” amortization.

For General Plan G and Safety Plan C, the normal cost rate is rounded up to the nearest 0.02%.

Records and Data

The data used in this valuation consists of financial information and the age, service, and income records for active and inactive members and their survivors. All of the data were supplied by LACERA and are accepted for valuation purposes without audit.

Replacement of Former Members

The ages and relative salaries at entry of future members are assumed to follow a new entrant distribution based on the pattern of current members. Under this assumption, the normal cost rates for active members will remain fairly stable in future years unless there are changes in the governing law, the actuarial assumptions, or the pattern of the new entrants.

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Growth in Membership

For benefit determination purposes, no growth in the membership of LACERA is assumed. For funding purposes, if amortization is required, the total payroll of covered members is assumed to grow due to the combined effects of future wage increases of current active members and the replacement of the current active members by new employees. No growth or decline in the total number of active members is assumed.

Internal Revenue Code Section 415 Limit

The Internal Revenue Code Section 415 maximum benefit limitation is not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.

Internal Revenue Code Section 401(a)(17)

The Internal Revenue Code Section 401(a)(17) maximum compensation limitation is not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.

Employer Contributions

The employer contribution rate is set by the Board of Investments based on actuarial valuations.

Member Contributions

The member contribution rates vary by entry age (except for PEPRA plans) and are described in the law. Code references are shown in Appendix B of the valuation report. The methods and assumptions used are detailed later in this section.

The individual member rates by entry age, plan, and class are illustrated in Appendix D of the valuation report.

Valuation of Assets

The assets are valued using a five-year smoothed method based on the difference between the expected market value and the actual market value of the assets as of the valuation date. The expected market value is the prior year's market value increased with the net increase in the cash flow of funds, all increased with interest during the past fiscal year at the expected investment return rate assumption. The five-year smoothing valuation basis for all assets was adopted effective June 30, 2009.

Investment Earnings and Expenses

The future investment earnings of the assets of LACERA are assumed to accrue at an annual rate of 7.00% compounded annually, net of both investment and administrative expenses. This rate was adopted June 30, 2019.

Postretirement Benefit Increases

Postretirement increases are assumed for the valuation in accordance with the benefits provided as described in Appendix B. These adjustments are assumed payable each year in the future as they are not greater than the expected increase in the Consumer Price Index of 2.75% per year. This rate was adopted June 30, 2016.

Interest on Member Contributions

The annual credited interest rate on member contributions is assumed to be 7.00% compounded semi-annually for an annualized rate of 7.12%. This rate was adopted effective June 30, 2019.

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Future Salaries

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table A-5. In addition to increases in salary due to promotions and longevity, this scale includes an assumed 3.25% per annum rate of increase in the general wage level of the membership. These rates were adopted June 30, 2019.

Increases are assumed to occur mid-year (i.e., January 1st) and only apply to base salary, excluding megaflex compensation. The mid-year timing reflects that salary increases occur throughout the year, or on average mid-year.

For plans with a one-year final average compensation period, actual average annual compensation is used. For Plan E, Plan G and Safety Plan C, the monthly rate as of June of the valuation year was annualized. Due to irregular compensation payments now included as pensionable earnings, actual annual pay is preferred over annualizing a single monthly payment amount.

Social Security Wage Base

Plan E members have their benefits offset by an assumed Social Security Benefit. For valuation funding purposes, we need to project the Social Security Benefit. We assume the current Social Security provisions will continue and the annual Wage Base will increase at the rate of 3.25% per year. Note that statutory provisions describe exactly how to compute the offset for purposes of determining a member's offset amount at time of termination or retirement. This rate was adopted June 30, 2016.

Note also, that it is assumed all Plan E members born after 1950 have less than 10 years of Social Security-covered service and, therefore, do not have their benefit offset.

General Plan G and Safety Plan C members have their compensation limited to approximately 120% of the Social Security Wage Base. The limit for 2019 is $149,016 (after applying the 120% factor) and is projected to increase at the CPI rate of 2.75%. This rate of future increase was adopted effective June 30, 2016.

Retirement

Members in General Plans A-D may retire at age 50 with 10 years of service, or any age with 30 years of service, or age 70 regardless of the number of years of service. General Plan G members are eligible to retire at age 52 with 5 years of service, or age 70 regardless of the number of years of service. Non-contributory Plan E members may retire at age 55 with 10 years of service. Members of Safety Plans A and B may retire at age 50 with 10 years of service, or any age with 20 years of service. Safety Plan C members are eligible to retire at age 50 with 5 years of County service. Retirement probabilities vary by age and are shown by plan in Tables A-6 through A-13.

All general members who attain or have attained age 75 in active service and all safety members who attain or have attained age 65 in active service are assumed to retire immediately (except for Safety Plan C members who have not yet attained 5 years of service).

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Vested former members are assumed to retire at the later of their current age and the assumed retirement age specified as follows:

Assumption for Deferred Commencement	
Plan	Age at Commencement
GA	62
GB	62
GC	62
GD	59
GE	62
GG	57
SA	55
SB	50
SC	50

The assumptions regarding termination of employment, early retirement, and unreduced service retirement are treated as a single set of decrements in regards to a particular member. For example, a General Plan D member hired at age 30 has a probability of withdrawing from LACERA due to death, disability or other termination of employment until age 50. After age 50, the member can withdraw due to death, disability, or retirement. Thus, in no year during the member's projected employment would the member be eligible for both a probability of other termination of employment and a probability of retirement.

The retirement probabilities were adopted June 30, 2019.

Disability

The probabilities of disability used in the valuation are also illustrated in Tables A-6 through A-13. These probabilities were adopted June 30, 2019.

Postretirement Mortality – Other Than Disabled Members

The same postretirement mortality probabilities are used in the valuation for members retired for service and beneficiaries. These probabilities are illustrated in Table A-2. Current beneficiary mortality is assumed to be the same as for healthy members of the same sex. Future beneficiaries are assumed to be of the opposite sex and have the same mortality as General members. The amount-weighted Pub-2010 mortality tables are used.

Note that these assumptions include a projection for expected future mortality improvement. These probabilities were adopted June 30, 2019.

Males — General members: PubG-2010 Healthy Retiree Mortality Table for Males, with MP-2014 Ultimate Projection Scale.

Safety members: PubS-2010 Healthy Retiree Mortality Table for Males multiplied by 85%, with MP-2014 Ultimate Projection Scale.

Females — General members: PubG-2010 Healthy Retiree Mortality Table for Females multiplied by 110%, with MP-2014 Ultimate Projection Scale.

Safety members: PubS-2010 Healthy Retiree Mortality Table for Females, with MP-2014 Ultimate Projection Scale.

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Postretirement Mortality – Disabled Members

For members retired for disability, the mortality probabilities used in the valuation are illustrated in Table A-3. The amount-weighted Pub-2010 mortality tables are used.

Note that these assumptions include a projection for expected future mortality improvement. These probabilities were adopted June 30, 2019.

Males — General members: Average of PubG-2010 Healthy Retiree Mortality Table for Males and PubG-2010 Disabled Retiree Mortality Table for Males, both projected with MP-2014 Ultimate Projection Scale.

Safety members: PubS-2010 Healthy Retiree Mortality Table for Males, with MP-2014 Ultimate Projection Scale.

Females — General members: Average of PubG-2010 Healthy Retiree Mortality Table for Females and PubG-2010 Disabled Retiree Mortality Table for Females, both projected with MP-2014 Ultimate Projection Scale.

Safety members: PubS-2010 Healthy Retiree Mortality Table for Females, with MP-2014 Ultimate Projection Scale.

Mortality while in Active Status

For active members, the mortality probabilities used in the valuation are illustrated in Tables A-6 through A-13. The amount-weighted Pub-2010 mortality tables are used. These probabilities were adopted June 30, 2019.

Class	Gender	Proposed Table
General	Male	PubG-2010 (120%) Employee Male[1]
General	Female	PubG-2010 (130%) Employee Female[1]
Safety	Male	PubS-2010 (100%) Employee Male[1]
Safety	Female	PubS-2010 (100%) Employee Female[1]

1. Projected using the MP-2014 Ultimate projection scale.

Note that Safety members have an additional service-connected mortality probability of 0.01% per year.

Other Employment Terminations

Tables A-6 to A-13 show, for all ages, the probabilities assumed in this valuation for future termination from active service other than for death, disability, or retirement. These probabilities do not apply to members eligible for service retirement. These probabilities were adopted June 30, 2019.

Terminating employees may withdraw their contributions immediately upon termination of employment and forfeit the right to further benefits, or they may leave their contributions with LACERA. Former contributing members whose contributions are on deposit may later elect to receive a refund, may return to work, or may remain inactive until becoming eligible to receive a retirement benefit under either LACERA or a reciprocal retirement system. All terminating members who are not eligible for vested benefits are assumed to withdraw their contributions immediately. It is assumed that all terminating members will not be rehired in the future.

Table A-4 gives the assumed probabilities that vested members will withdraw their contributions and elect a refund immediately upon termination and the probability that remaining members will elect a deferred vested benefit. All non-vested members are assumed to elect a refund and withdraw their contributions. These probabilities were adopted June 30, 2019.

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Probability of Eligible Survivors

For members not currently in pay status, 77% of all males and 50% of all females are assumed to have eligible survivors (spouses or qualified domestic partners). Survivors are assumed to be four years younger than male members and two years older than female members. Survivors are assumed to be of the opposite gender as the member. There is no explicit assumption for children's benefits. We believe the survivor benefits based on this assumption are sufficient to cover children's benefits as they occur.

Valuation of Vested Former Members

The deferred retirement benefit is calculated based on the member's final compensation and service at termination. The compensation amount is projected until the assumed retirement age for members who are assumed to be employed by a reciprocal agency. For members who are missing compensation data, Final Compensation is estimated as the average amount for all members who terminated during the same year and had a valid compensation amount. The greater of the present value of the calculated benefit and the employee's current contribution balance is valued for future deferred vested members.

Reciprocal Employment

16% of General and 35% of Safety current and future vested former members are assumed to work for a reciprocal employer.

Current vested reciprocal members are assumed to receive annual salary increases of 4.25%. Future reciprocal vested members are assumed to receive the same salary increases they would have received if they had stayed in active employment with LACERA and retired at the assumed retirement age.

Valuation of Annuity Purchases

Over 30 years ago, LACERA purchased single life annuities from two insurance companies for some retired members (currently less than 1% of the retired population). The total liability for these members is calculated and then offset by the expected value of the benefit to be paid by the insurance companies.

For affected members, the insurance companies are responsible for:

1. Straight life annuity payments
2. Statutory COLAs

LACERA is responsible for:

1. Benefit payments payable to any beneficiary
2. STAR COLAs

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Member Contribution Rate Assumptions

The following assumptions summarize the procedures used to compute member contribution rates based on entry age:

In general, the member rate is determined by the Present Value of the Future Benefit (PVFB) payable at retirement age, divided by the present value of all future salaries payable between age at entry and retirement age. For these purposes, per the CERL:

A. The Annuity factor used for general members is based on a 35% / 65% blend of the male and female valuation mortality tables and projection scale, with a static projection to 2041. For Safety members, it is based on a 85% / 15% blend of the male and female annuity factors determined using the same mortality tables as used for service-retired members.

B. The annuity factor used in determining the present value of future benefits (PVFB) at entry age is equal to the life only annuity factor at 7.00%.

C. The Final Compensation is based on the salary paid in the year prior to attaining the retirement age.

   Example: For a General Plan C Member who enters at age 59 or earlier, the Final Compensation at retirement (age 60) will be the monthly average of the annual salaries during age 59.

D. Member Rates are assumed to increase with entry age. There are a few exceptions at the higher entry ages where the calculated rate is less than the previous entry age. In these cases the member contribution rate is adjusted so that it is no less than the value for the previous entry age.

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Table A-1
Summary of Valuation Assumptions as of June 30, 2019

I.	Economic assumptions	
	A. General wage increases	3.25%
	B. Investment earnings	7.00%
	C. Growth in membership	0.00%
	D. Postretirement benefit increases (varies by plan)	Plan COLA not greater than CPI assumption.
	E. CPI inflation assumption	2.75%
II.	Demographic assumptions	
	A. Salary increases due to service	Table A-5
	B. Retirement	Tables A-6 to A-13
	C. Disability	Tables A-6 to A-13
	D. Mortality during active employment	Tables A-6 to A-13
	E. Mortality for active members after termination and service retired members[1]	Table A-2

Class	Gender	
General	Male	PubG-2010 (100%) Healthy Retiree Male
General	Female	PubG-2010 (110%) Healthy Retiree Female
Safety	Male	PubS-2010 (85%) Healthy Retiree Male
Safety	Female	PubS-2010 (100%) Healthy Retiree Female

F. Mortality among disabled members[1] — Table A-3

Class	Gender	
General	Male	Avg of: PubG-2010 (100%) Healthy Retiree Male PubG-2010 (100%) Disabled Retiree Male
General	Female	Avg of: PubG-2010 (100%) Healthy Retiree Female PubG-2010 (100%) Disabled Retiree Female
Safety	Male	PubS-2010 (100%) Healthy Retiree Male
Safety	Female	PubS-2010 (100%) Healthy Retiree Female

G. Mortality for beneficiaries[1] — Table A-2

Basis – Beneficiaries are assumed to have the same mortality as a general member of the opposite gender who has taken a service retirement.

	H. Other terminations of employment	Tables A-6 to A-13
	I. Refund of contributions on vested termination	Table A-4

1. All mortality probabilities are projected using the MP-2014 Ultimate projection scale.

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Table A-2
Mortality for Members Retired for Service[1]

Age	Safety Male	Safety Female	General Male	General Female
20	0.0520%	0.0210%	0.0740%	0.0380%
25	0.0470%	0.0260%	0.0560%	0.0260%
30	0.0520%	0.0350%	0.0720%	0.0440%
35	0.0590%	0.0470%	0.0940%	0.0680%
40	0.0750%	0.0640%	0.1320%	0.1060%
45	0.1037%	0.0870%	0.1960%	0.1650%
50	0.1632%	0.1490%	0.2980%	0.2442%
55	0.2601%	0.2580%	0.4310%	0.3146%
60	0.4318%	0.4460%	0.6150%	0.4224%
65	0.7489%	0.7700%	0.9130%	0.6743%
70	1.3328%	1.3290%	1.5260%	1.1693%
75	2.4021%	2.2950%	2.6710%	2.0713%
80	4.3376%	3.9620%	4.7740%	3.6960%
85	7.7648%	6.8420%	8.5910%	6.8255%
90	13.4810%	11.8150%	14.6720%	12.6357%

Annual Projected Mortality Improvement

Age	All Groups
65 & Less	1.000%
70	1.000%
75	1.000%
80	1.000%
85	1.000%
90	0.930%
95	0.850%
100	0.640%
105	0.430%
110	0.210%
115	0.000%

1. Mortality probabilities are those applicable for the fiscal year beginning in 2010. Annual projected improvements are assumed in the following years under the schedule shown. For example, the annual mortality probability for an 85-year old Safety male in fiscal year beginning in 2019 is 7.0933% calculated as follows:

Age 85 probability in 2019 = Age 85 probability in 2010 with 9 years improvement
= 7.7648% x (100.0% - 1.0%) ^ 9
= 7.0933%

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Table A-3
Mortality for Members Retired for Disability[1]

Age	Safety Male	Safety Female	General Male	General Female
20	0.0610%	0.0210%	0.2430%	0.1340%
25	0.0550%	0.0260%	0.1670%	0.0940%
30	0.0610%	0.0350%	0.2130%	0.1485%
35	0.0700%	0.0470%	0.2760%	0.2315%
40	0.0880%	0.0640%	0.3885%	0.3625%
45	0.1220%	0.0870%	0.6015%	0.5675%
50	0.1920%	0.1490%	0.9515%	0.8525%
55	0.3060%	0.2580%	1.2725%	1.0140%
60	0.5080%	0.4460%	1.5590%	1.1700%
65	0.8810%	0.7700%	1.9785%	1.4345%
70	1.5680%	1.3290%	2.7135%	1.9625%
75	2.8260%	2.2950%	3.9315%	2.9430%
80	5.1030%	3.9620%	6.0610%	4.6835%
85	9.1350%	6.8420%	9.7030%	7.7680%
90	15.8600%	11.8150%	15.4625%	12.5760%

1. Mortality probabilities are those applicable for the fiscal year beginning in 2010. Annual projected improvements are assumed in the following years under the schedule shown on the preceding page.

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Table A-4
Immediate Refund of Contributions upon Termination of Employment
(Excludes Plan E)

Years of Service	General	Safety
0	100%	100%
1	100%	100%
2	100%	100%
3	100%	100%
4	100%	100%
5	32%	30%
6	32%	30%
7	32%	30%
8	32%	28%
9	31%	26%
10	31%	24%
11	30%	22%
12	30%	20%
13	29%	18%
14	28%	16%
15	26%	14%
16	25%	12%
17	24%	10%
18	22%	9%
19	21%	8%
20	19%	7%
21	18%	6%
22	16%	5%
23	14%	4%
24	12%	3%
25	10%	2%
26	8%	2%
27	6%	2%
28	4%	2%
29	2%	2%
30 & Above	0%	0%

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Table A-5
Annual Increase in Salary[1]

Years of Service	General	Safety
<1	6.00%	9.00%
1	5.25%	8.50%
2	4.75%	8.00%
3	4.10%	6.00%
4	3.50%	4.50%
5	3.00%	3.25%
6	2.50%	2.50%
7	2.00%	2.00%
8	1.60%	1.50%
9	1.30%	1.35%
10	1.15%	1.20%
11	1.00%	1.05%
12	0.85%	0.95%
13	0.75%	0.85%
14	0.70%	0.75%
15	0.65%	0.70%
16	0.60%	0.65%
17	0.55%	0.60%
18	0.50%	0.55%
19	0.45%	2.25%
20	0.40%	0.50%
21	0.35%	0.50%
22	0.30%	0.50%
23	0.25%	0.50%
24	0.25%	3.00%
25	0.25%	0.50%
26	0.25%	0.50%
27	0.25%	0.50%
28	0.25%	0.50%
29	0.25%	3.00%
30 & Above	0.25%	0.50%

** The total expected increase in salary includes both merit (shown above) and the general wage increase assumption of 3.25% per annum increase. The total result is compounded rather than additive. For example, the total assumed increase for General members for service less than one year is 9.45%.*

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Appendix A: Probabilities of Separation from Active Service Tables A-6 to A-13

A schedule of the probabilities of termination of employment due to the following causes can be found on the following pages:

Service Retirement:	Member retires after meeting age and service requirements for reasons other than disability.
Withdrawal:	Member terminates and elects a refund of member contributions, or a deferred vested retirement benefit.
Service Disability:	Member receives disability retirement; disability is service related.
Ordinary Disability:	Member receives disability retirement; disability is not service related.
Service Death:	Member dies before retirement; death is service related.
Ordinary Death:	Member dies before retirement; death is not service related.

Each of these represents the probability that a member will separate from service at each age due to the particular cause. For example, a probability of 0.0300 for a member's service retirement at age 50 means we assume that 30 out of 1,000 members who are age 50 will retire at that age.

Each table represents the detailed probabilities needed for each LACERA plan by gender:

Table	A-6: General Plan A, B & C – Males	A-10: General Plan E – Males
	A-7: General Plan A, B & C – Females	A-11: General Plan E – Females
	A-8: General Plan D & G – Males	A-12: Safety Plan A, B & C – Males
	A-9: General Plan D & G – Females	A-13: Safety Plan A, B & C – Females

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Table A-6
Probability of Separation from Active Service for General Members
Plans A, B & C – Male

Age	Service Retirement	Other Terminations	Service Disability	Ordinary Disability	Service Death	Ordinary Death
18	0.00000	0.00500	0.00010	0.00010	N/A	0.00043
19	0.00000	0.00500	0.00010	0.00010	N/A	0.00046
20	0.00000	0.00500	0.00010	0.00010	N/A	0.00044
21	0.00000	0.00500	0.00010	0.00010	N/A	0.00043
22	0.00000	0.00500	0.00010	0.00010	N/A	0.00040
23	0.00000	0.00500	0.00010	0.00010	N/A	0.00037
24	0.00000	0.00500	0.00010	0.00010	N/A	0.00035
25	0.00000	0.00500	0.00010	0.00010	N/A	0.00034
26	0.00000	0.00500	0.00010	0.00010	N/A	0.00036
27	0.00000	0.00500	0.00010	0.00010	N/A	0.00037
28	0.00000	0.00500	0.00010	0.00010	N/A	0.00040
29	0.00000	0.00500	0.00010	0.00010	N/A	0.00041
30	0.00000	0.00500	0.00010	0.00020	N/A	0.00043
31	0.00000	0.00500	0.00010	0.00020	N/A	0.00046
32	0.00000	0.00500	0.00010	0.00020	N/A	0.00048
33	0.00000	0.00500	0.00016	0.00020	N/A	0.00050
34	0.00000	0.00500	0.00022	0.00020	N/A	0.00053
35	0.00000	0.00500	0.00028	0.00020	N/A	0.00056
36	0.00000	0.00500	0.00034	0.00020	N/A	0.00060
37	0.00000	0.00500	0.00040	0.00020	N/A	0.00064
38	0.00000	0.00500	0.00048	0.00020	N/A	0.00068
39	0.00000	0.00500	0.00056	0.00020	N/A	0.00073
40	0.03000	0.00500	0.00064	0.00020	N/A	0.00079
41	0.03000	0.00500	0.00072	0.00020	N/A	0.00085
42	0.03000	0.00500	0.00080	0.00020	N/A	0.00092
43	0.03000	0.00500	0.00084	0.00024	N/A	0.00100
44	0.03000	0.00500	0.00088	0.00028	N/A	0.00108
45	0.03000	0.00500	0.00092	0.00032	N/A	0.00118
46	0.03000	0.00500	0.00096	0.00036	N/A	0.00128
47	0.03000	0.00500	0.00100	0.00040	N/A	0.00139
48	0.03000	0.00500	0.00104	0.00044	N/A	0.00152
49	0.03000	0.00500	0.00108	0.00048	N/A	0.00166
50	0.03000	0.00500	0.00112	0.00052	N/A	0.00179
51	0.03000	0.00500	0.00116	0.00056	N/A	0.00194
52	0.03000	0.00500	0.00120	0.00060	N/A	0.00210
53	0.03000	0.00500	0.00156	0.00064	N/A	0.00227
54	0.06000	0.00500	0.00192	0.00068	N/A	0.00244
55	0.10000	0.00500	0.00228	0.00072	N/A	0.00263
56	0.12000	0.00500	0.00264	0.00076	N/A	0.00283
57	0.17000	0.00500	0.00300	0.00080	N/A	0.00306
58	0.26000	0.00500	0.00330	0.00084	N/A	0.00330
59	0.26000	0.00500	0.00360	0.00088	N/A	0.00355
60	0.32000	0.00500	0.00390	0.00092	N/A	0.00383
61	0.32000	0.00500	0.00420	0.00096	N/A	0.00413
62	0.32000	0.00500	0.00450	0.00100	N/A	0.00445
63	0.32000	0.00500	0.00450	0.00104	N/A	0.00481
64	0.32000	0.00500	0.00450	0.00108	N/A	0.00520
65	0.32000	0.00500	0.00450	0.00112	N/A	0.00562
66	0.25000	0.00500	0.00450	0.00116	N/A	0.00607
67	0.24000	0.00500	0.00450	0.00120	N/A	0.00658
68	0.24000	0.00500	0.00450	0.00124	N/A	0.00713
69	0.24000	0.00500	0.00450	0.00128	N/A	0.00775
70	0.24000	0.00500	0.00450	0.00132	N/A	0.00844
71	0.24000	0.00500	0.00450	0.00136	N/A	0.00920
72	0.24000	0.00500	0.00450	0.00140	N/A	0.01004
73	0.24000	0.00500	0.00450	0.00144	N/A	0.01098
74	0.24000	0.00500	0.00450	0.00148	N/A	0.01201
75	1.00000	0.00000	0.00000	0.00000	N/A	0.01315

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Table A-7
Probability of Separation from Active Service for General Members
Plans A, B & C – Female

Age	Service Retirement	Other Terminations	Service Disability	Ordinary Disability	Service Death	Ordinary Death
18	0.00000	0.00500	0.00015	0.00010	N/A	0.00017
19	0.00000	0.00500	0.00015	0.00010	N/A	0.00017
20	0.00000	0.00500	0.00015	0.00010	N/A	0.00017
21	0.00000	0.00500	0.00015	0.00010	N/A	0.00016
22	0.00000	0.00500	0.00015	0.00010	N/A	0.00014
23	0.00000	0.00500	0.00015	0.00010	N/A	0.00013
24	0.00000	0.00500	0.00015	0.00010	N/A	0.00012
25	0.00000	0.00500	0.00015	0.00010	N/A	0.00012
26	0.00000	0.00500	0.00015	0.00010	N/A	0.00013
27	0.00000	0.00500	0.00015	0.00010	N/A	0.00014
28	0.00000	0.00500	0.00015	0.00010	N/A	0.00016
29	0.00000	0.00500	0.00015	0.00010	N/A	0.00017
30	0.00000	0.00500	0.00015	0.00010	N/A	0.00020
31	0.00000	0.00500	0.00015	0.00010	N/A	0.00021
32	0.00000	0.00500	0.00015	0.00010	N/A	0.00023
33	0.00000	0.00500	0.00020	0.00010	N/A	0.00025
34	0.00000	0.00500	0.00025	0.00010	N/A	0.00027
35	0.00000	0.00500	0.00030	0.00010	N/A	0.00030
36	0.00000	0.00500	0.00035	0.00010	N/A	0.00033
37	0.00000	0.00500	0.00040	0.00010	N/A	0.00036
38	0.00000	0.00500	0.00042	0.00014	N/A	0.00039
39	0.00000	0.00500	0.00044	0.00018	N/A	0.00043
40	0.03000	0.00500	0.00046	0.00022	N/A	0.00047
41	0.03000	0.00500	0.00048	0.00026	N/A	0.00052
42	0.03000	0.00500	0.00050	0.00030	N/A	0.00056
43	0.03000	0.00500	0.00060	0.00032	N/A	0.00061
44	0.03000	0.00500	0.00070	0.00034	N/A	0.00066
45	0.03000	0.00500	0.00080	0.00036	N/A	0.00073
46	0.03000	0.00500	0.00090	0.00038	N/A	0.00079
47	0.03000	0.00500	0.00100	0.00040	N/A	0.00086
48	0.03000	0.00500	0.00110	0.00042	N/A	0.00092
49	0.03000	0.00500	0.00120	0.00044	N/A	0.00100
50	0.03000	0.00500	0.00130	0.00046	N/A	0.00108
51	0.03000	0.00500	0.00140	0.00048	N/A	0.00117
52	0.03000	0.00500	0.00150	0.00050	N/A	0.00126
53	0.03000	0.00500	0.00156	0.00052	N/A	0.00137
54	0.06000	0.00500	0.00162	0.00054	N/A	0.00147
55	0.10000	0.00500	0.00168	0.00056	N/A	0.00160
56	0.12000	0.00500	0.00174	0.00058	N/A	0.00173
57	0.17000	0.00500	0.00180	0.00060	N/A	0.00187
58	0.26000	0.00500	0.00194	0.00064	N/A	0.00203
59	0.26000	0.00500	0.00208	0.00068	N/A	0.00221
60	0.32000	0.00500	0.00222	0.00072	N/A	0.00242
61	0.32000	0.00500	0.00236	0.00076	N/A	0.00264
62	0.32000	0.00500	0.00250	0.00080	N/A	0.00289
63	0.32000	0.00500	0.00250	0.00084	N/A	0.00317
64	0.32000	0.00500	0.00250	0.00088	N/A	0.00350
65	0.32000	0.00500	0.00250	0.00092	N/A	0.00385
66	0.25000	0.00500	0.00250	0.00096	N/A	0.00425
67	0.24000	0.00500	0.00250	0.00100	N/A	0.00471
68	0.24000	0.00500	0.00250	0.00104	N/A	0.00520
69	0.24000	0.00500	0.00250	0.00108	N/A	0.00575
70	0.24000	0.00500	0.00250	0.00112	N/A	0.00636
71	0.24000	0.00500	0.00250	0.00116	N/A	0.00703
72	0.24000	0.00500	0.00250	0.00120	N/A	0.00777
73	0.24000	0.00500	0.00250	0.00124	N/A	0.00859
74	0.24000	0.00500	0.00250	0.00128	N/A	0.00950
75	1.00000	0.00000	0.00000	0.00000	N/A	0.01050

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Table A-8
Probability of Separation from Active Service for General Members
Plan D & G – Male

Age	Service Retirement Plan D	Service Retirement Plan G	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.00000	0.00000	0.00010	0.00010	N/A	0.00043	0	0.07000
19	0.00000	0.00000	0.00010	0.00010	N/A	0.00046	1	0.05500
20	0.00000	0.00000	0.00010	0.00010	N/A	0.00044	2	0.04000
21	0.00000	0.00000	0.00010	0.00010	N/A	0.00043	3	0.03250
22	0.00000	0.00000	0.00010	0.00010	N/A	0.00040	4	0.02500
23	0.00000	0.00000	0.00010	0.00010	N/A	0.00037	5	0.02330
24	0.00000	0.00000	0.00010	0.00010	N/A	0.00035	6	0.02170
25	0.00000	0.00000	0.00010	0.00010	N/A	0.00034	7	0.02000
26	0.00000	0.00000	0.00010	0.00010	N/A	0.00036	8	0.01900
27	0.00000	0.00000	0.00010	0.00010	N/A	0.00037	9	0.01800
28	0.00000	0.00000	0.00010	0.00010	N/A	0.00040	10	0.01700
29	0.00000	0.00000	0.00010	0.00010	N/A	0.00041	11	0.01600
30	0.00000	0.00000	0.00010	0.00020	N/A	0.00043	12	0.01500
31	0.00000	0.00000	0.00010	0.00020	N/A	0.00046	13	0.01400
32	0.00000	0.00000	0.00010	0.00020	N/A	0.00048	14	0.01300
33	0.00000	0.00000	0.00016	0.00020	N/A	0.00050	15	0.01200
34	0.00000	0.00000	0.00022	0.00020	N/A	0.00053	16	0.01100
35	0.00000	0.00000	0.00028	0.00020	N/A	0.00056	17	0.01000
36	0.00000	0.00000	0.00034	0.00020	N/A	0.00060	18	0.00920
37	0.00000	0.00000	0.00040	0.00020	N/A	0.00064	19	0.00840
38	0.00000	0.00000	0.00048	0.00020	N/A	0.00068	20	0.00760
39	0.00000	0.00000	0.00056	0.00020	N/A	0.00073	21	0.00680
40	0.01500	0.00000	0.00064	0.00020	N/A	0.00079	22	0.00600
41	0.01500	0.00000	0.00072	0.00020	N/A	0.00085	23	0.00560
42	0.01500	0.00000	0.00080	0.00020	N/A	0.00092	24	0.00520
43	0.01500	0.00000	0.00084	0.00024	N/A	0.00100	25	0.00480
44	0.01500	0.00000	0.00088	0.00028	N/A	0.00108	26	0.00440
45	0.01500	0.00000	0.00092	0.00032	N/A	0.00118	27	0.00400
46	0.01500	0.00000	0.00096	0.00036	N/A	0.00128	28	0.00400
47	0.01500	0.00000	0.00100	0.00040	N/A	0.00139	29	0.00400
48	0.01500	0.00000	0.00104	0.00044	N/A	0.00152	30 & Above	0.00000
49	0.01500	0.00000	0.00108	0.00048	N/A	0.00166		
50	0.01500	0.01200	0.00112	0.00052	N/A	0.00179		
51	0.01200	0.00960	0.00116	0.00056	N/A	0.00194		
52	0.01200	0.00960	0.00120	0.00060	N/A	0.00210		
53	0.01500	0.01200	0.00156	0.00064	N/A	0.00227		
54	0.02000	0.01600	0.00192	0.00068	N/A	0.00244		
55	0.02500	0.02000	0.00228	0.00072	N/A	0.00263		
56	0.02500	0.02000	0.00264	0.00076	N/A	0.00283		
57	0.03000	0.02400	0.00300	0.00080	N/A	0.00306		
58	0.03500	0.02800	0.00330	0.00084	N/A	0.00330		
59	0.05000	0.04000	0.00360	0.00088	N/A	0.00355		
60	0.07000	0.05600	0.00390	0.00092	N/A	0.00383		
61	0.08000	0.06400	0.00420	0.00096	N/A	0.00413		
62	0.11000	0.11000	0.00450	0.00100	N/A	0.00445		
63	0.11000	0.11000	0.00450	0.00104	N/A	0.00481		
64	0.16000	0.16000	0.00450	0.00108	N/A	0.00520		
65	0.23000	0.18000	0.00450	0.00112	N/A	0.00562		
66	0.20000	0.18000	0.00450	0.00116	N/A	0.00607		
67	0.19000	0.30000	0.00450	0.00120	N/A	0.00658		
68	0.18000	0.18000	0.00450	0.00124	N/A	0.00713		
69	0.20000	0.20000	0.00450	0.00128	N/A	0.00775		
70	0.23000	0.23000	0.00450	0.00132	N/A	0.00844		
71	0.20000	0.20000	0.00450	0.00136	N/A	0.00920		
72	0.20000	0.20000	0.00450	0.00140	N/A	0.01004		
73	0.20000	0.20000	0.00450	0.00144	N/A	0.01098		
74	0.20000	0.20000	0.00450	0.00148	N/A	0.01201		
75	1.00000	1.00000	0.00000	0.00000	N/A	0.01315		

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Table A-9
Probability of Separation from Active Service for General Members
Plan D & G – Female

Age	Service Retirement Plan D	Service Retirement Plan G	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.00000	0.00000	0.00015	0.00010	N/A	0.00017	0	0.07000
19	0.00000	0.00000	0.00015	0.00010	N/A	0.00017	1	0.05500
20	0.00000	0.00000	0.00015	0.00010	N/A	0.00017	2	0.04000
21	0.00000	0.00000	0.00015	0.00010	N/A	0.00016	3	0.03250
22	0.00000	0.00000	0.00015	0.00010	N/A	0.00014	4	0.02500
23	0.00000	0.00000	0.00015	0.00010	N/A	0.00013	5	0.02330
24	0.00000	0.00000	0.00015	0.00010	N/A	0.00012	6	0.02170
25	0.00000	0.00000	0.00015	0.00010	N/A	0.00012	7	0.02000
26	0.00000	0.00000	0.00015	0.00010	N/A	0.00013	8	0.01900
27	0.00000	0.00000	0.00015	0.00010	N/A	0.00014	9	0.01800
28	0.00000	0.00000	0.00015	0.00010	N/A	0.00016	10	0.01700
29	0.00000	0.00000	0.00015	0.00010	N/A	0.00017	11	0.01600
30	0.00000	0.00000	0.00015	0.00010	N/A	0.00020	12	0.01500
31	0.00000	0.00000	0.00015	0.00010	N/A	0.00021	13	0.01400
32	0.00000	0.00000	0.00015	0.00010	N/A	0.00023	14	0.01300
33	0.00000	0.00000	0.00020	0.00010	N/A	0.00025	15	0.01200
34	0.00000	0.00000	0.00025	0.00010	N/A	0.00027	16	0.01100
35	0.00000	0.00000	0.00030	0.00010	N/A	0.00030	17	0.01000
36	0.00000	0.00000	0.00035	0.00010	N/A	0.00033	18	0.00920
37	0.00000	0.00000	0.00040	0.00010	N/A	0.00036	19	0.00840
38	0.00000	0.00000	0.00042	0.00014	N/A	0.00039	20	0.00760
39	0.00000	0.00000	0.00044	0.00018	N/A	0.00043	21	0.00680
40	0.01500	0.00000	0.00046	0.00022	N/A	0.00047	22	0.00600
41	0.01500	0.00000	0.00048	0.00026	N/A	0.00052	23	0.00560
42	0.01500	0.00000	0.00050	0.00030	N/A	0.00056	24	0.00520
43	0.01500	0.00000	0.00060	0.00032	N/A	0.00061	25	0.00480
44	0.01500	0.00000	0.00070	0.00034	N/A	0.00066	26	0.00440
45	0.01500	0.00000	0.00080	0.00036	N/A	0.00073	27	0.00400
46	0.01500	0.00000	0.00090	0.00038	N/A	0.00079	28	0.00400
47	0.01500	0.00000	0.00100	0.00040	N/A	0.00086	29	0.00400
48	0.01500	0.00000	0.00110	0.00042	N/A	0.00092	30 & Above	0.00000
49	0.01500	0.00000	0.00120	0.00044	N/A	0.00100		
50	0.01500	0.01200	0.00130	0.00046	N/A	0.00108		
51	0.01200	0.00960	0.00140	0.00048	N/A	0.00117		
52	0.01200	0.00960	0.00150	0.00050	N/A	0.00126		
53	0.01500	0.01200	0.00156	0.00052	N/A	0.00137		
54	0.02000	0.01600	0.00162	0.00054	N/A	0.00147		
55	0.02500	0.02000	0.00168	0.00056	N/A	0.00160		
56	0.02500	0.02000	0.00174	0.00058	N/A	0.00173		
57	0.03000	0.02400	0.00180	0.00060	N/A	0.00187		
58	0.03500	0.02800	0.00194	0.00064	N/A	0.00203		
59	0.05000	0.04000	0.00208	0.00068	N/A	0.00221		
60	0.07000	0.05600	0.00222	0.00072	N/A	0.00242		
61	0.08000	0.06400	0.00236	0.00076	N/A	0.00264		
62	0.11000	0.11000	0.00250	0.00080	N/A	0.00289		
63	0.11000	0.11000	0.00250	0.00084	N/A	0.00317		
64	0.16000	0.16000	0.00250	0.00088	N/A	0.00350		
65	0.23000	0.18000	0.00250	0.00092	N/A	0.00385		
66	0.20000	0.18000	0.00250	0.00096	N/A	0.00425		
67	0.19000	0.30000	0.00250	0.00100	N/A	0.00471		
68	0.18000	0.18000	0.00250	0.00104	N/A	0.00520		
69	0.20000	0.20000	0.00250	0.00108	N/A	0.00575		
70	0.23000	0.23000	0.00250	0.00112	N/A	0.00636		
71	0.20000	0.20000	0.00250	0.00116	N/A	0.00703		
72	0.20000	0.20000	0.00250	0.00120	N/A	0.00777		
73	0.20000	0.20000	0.00250	0.00124	N/A	0.00859		
74	0.20000	0.20000	0.00250	0.00128	N/A	0.00950		
75	1.00000	1.00000	0.00000	0.00000	N/A	0.01050		

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Table A-10
Probability of Separation from Active Service for General Members
Plan E – Male

Age	Service Retirement	Service Disability	Ordinary Disability	Service Death	Ordinary Death
18	0.00000	N/A	N/A	N/A	0.00043
19	0.00000	N/A	N/A	N/A	0.00046
20	0.00000	N/A	N/A	N/A	0.00044
21	0.00000	N/A	N/A	N/A	0.00043
22	0.00000	N/A	N/A	N/A	0.00040
23	0.00000	N/A	N/A	N/A	0.00037
24	0.00000	N/A	N/A	N/A	0.00035
25	0.00000	N/A	N/A	N/A	0.00034
26	0.00000	N/A	N/A	N/A	0.00036
27	0.00000	N/A	N/A	N/A	0.00037
28	0.00000	N/A	N/A	N/A	0.00040
29	0.00000	N/A	N/A	N/A	0.00041
30	0.00000	N/A	N/A	N/A	0.00043
31	0.00000	N/A	N/A	N/A	0.00046
32	0.00000	N/A	N/A	N/A	0.00048
33	0.00000	N/A	N/A	N/A	0.00050
34	0.00000	N/A	N/A	N/A	0.00053
35	0.00000	N/A	N/A	N/A	0.00056
36	0.00000	N/A	N/A	N/A	0.00060
37	0.00000	N/A	N/A	N/A	0.00064
38	0.00000	N/A	N/A	N/A	0.00068
39	0.00000	N/A	N/A	N/A	0.00073
40	0.00000	N/A	N/A	N/A	0.00079
41	0.00000	N/A	N/A	N/A	0.00085
42	0.00000	N/A	N/A	N/A	0.00092
43	0.00000	N/A	N/A	N/A	0.00100
44	0.00000	N/A	N/A	N/A	0.00108
45	0.00000	N/A	N/A	N/A	0.00118
46	0.00000	N/A	N/A	N/A	0.00128
47	0.00000	N/A	N/A	N/A	0.00139
48	0.00000	N/A	N/A	N/A	0.00152
49	0.00000	N/A	N/A	N/A	0.00166
50	0.00000	N/A	N/A	N/A	0.00179
51	0.00000	N/A	N/A	N/A	0.00194
52	0.00000	N/A	N/A	N/A	0.00210
53	0.00000	N/A	N/A	N/A	0.00227
54	0.00000	N/A	N/A	N/A	0.00244
55	0.02000	N/A	N/A	N/A	0.00263
56	0.02000	N/A	N/A	N/A	0.00283
57	0.02500	N/A	N/A	N/A	0.00306
58	0.02500	N/A	N/A	N/A	0.00330
59	0.03000	N/A	N/A	N/A	0.00355
60	0.04000	N/A	N/A	N/A	0.00383
61	0.06000	N/A	N/A	N/A	0.00413
62	0.09000	N/A	N/A	N/A	0.00445
63	0.09000	N/A	N/A	N/A	0.00481
64	0.20000	N/A	N/A	N/A	0.00520
65	0.28000	N/A	N/A	N/A	0.00562
66	0.19000	N/A	N/A	N/A	0.00607
67	0.19000	N/A	N/A	N/A	0.00658
68	0.19000	N/A	N/A	N/A	0.00713
69	0.19000	N/A	N/A	N/A	0.00775
70	0.19000	N/A	N/A	N/A	0.00844
71	0.19000	N/A	N/A	N/A	0.00920
72	0.19000	N/A	N/A	N/A	0.01004
73	0.19000	N/A	N/A	N/A	0.01098
74	0.19000	N/A	N/A	N/A	0.01201
75	1.00000	N/A	N/A	N/A	0.01315

Years of Service	Other Terminations
0	0.15000
1	0.08000
2	0.06000
3	0.04500
4	0.03500
5	0.03100
6	0.02700
7	0.02300
8	0.02200
9	0.02100
10	0.02000
11	0.01900
12	0.01800
13	0.01680
14	0.01560
15	0.01440
16	0.01320
17	0.01200
18	0.01160
19	0.01120
20	0.01080
21	0.01040
22	0.01000
23	0.01000
24	0.01000
25	0.01000
26	0.01000
27	0.01000
28	0.01000
29	0.01000
30 & Above	0.01000

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Table A-11
Probability of Separation from Active Service for General Members
Plan E – Female

Age	Service Retirement	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.00000	N/A	N/A	N/A	0.00017	0	0.15000
19	0.00000	N/A	N/A	N/A	0.00017	1	0.08000
20	0.00000	N/A	N/A	N/A	0.00017	2	0.06000
21	0.00000	N/A	N/A	N/A	0.00016	3	0.04500
22	0.00000	N/A	N/A	N/A	0.00014	4	0.03500
23	0.00000	N/A	N/A	N/A	0.00013	5	0.03100
24	0.00000	N/A	N/A	N/A	0.00012	6	0.02700
25	0.00000	N/A	N/A	N/A	0.00012	7	0.02300
26	0.00000	N/A	N/A	N/A	0.00013	8	0.02200
27	0.00000	N/A	N/A	N/A	0.00014	9	0.02100
28	0.00000	N/A	N/A	N/A	0.00016	10	0.02000
29	0.00000	N/A	N/A	N/A	0.00017	11	0.01900
30	0.00000	N/A	N/A	N/A	0.00020	12	0.01800
31	0.00000	N/A	N/A	N/A	0.00021	13	0.01680
32	0.00000	N/A	N/A	N/A	0.00023	14	0.01560
33	0.00000	N/A	N/A	N/A	0.00025	15	0.01440
34	0.00000	N/A	N/A	N/A	0.00027	16	0.01320
35	0.00000	N/A	N/A	N/A	0.00030	17	0.01200
36	0.00000	N/A	N/A	N/A	0.00033	18	0.01160
37	0.00000	N/A	N/A	N/A	0.00036	19	0.01120
38	0.00000	N/A	N/A	N/A	0.00039	20	0.01080
39	0.00000	N/A	N/A	N/A	0.00043	21	0.01040
40	0.00000	N/A	N/A	N/A	0.00047	22	0.01000
41	0.00000	N/A	N/A	N/A	0.00052	23	0.01000
42	0.00000	N/A	N/A	N/A	0.00056	24	0.01000
43	0.00000	N/A	N/A	N/A	0.00061	25	0.01000
44	0.00000	N/A	N/A	N/A	0.00066	26	0.01000
45	0.00000	N/A	N/A	N/A	0.00073	27	0.01000
46	0.00000	N/A	N/A	N/A	0.00079	28	0.01000
47	0.00000	N/A	N/A	N/A	0.00086	29	0.01000
48	0.00000	N/A	N/A	N/A	0.00092	30 & Above	0.01000
49	0.00000	N/A	N/A	N/A	0.00100		
50	0.00000	N/A	N/A	N/A	0.00108		
51	0.00000	N/A	N/A	N/A	0.00117		
52	0.00000	N/A	N/A	N/A	0.00126		
53	0.00000	N/A	N/A	N/A	0.00137		
54	0.00000	N/A	N/A	N/A	0.00147		
55	0.02000	N/A	N/A	N/A	0.00160		
56	0.02000	N/A	N/A	N/A	0.00173		
57	0.02500	N/A	N/A	N/A	0.00187		
58	0.02500	N/A	N/A	N/A	0.00203		
59	0.03000	N/A	N/A	N/A	0.00221		
60	0.04000	N/A	N/A	N/A	0.00242		
61	0.06000	N/A	N/A	N/A	0.00264		
62	0.09000	N/A	N/A	N/A	0.00289		
63	0.09000	N/A	N/A	N/A	0.00317		
64	0.20000	N/A	N/A	N/A	0.00350		
65	0.28000	N/A	N/A	N/A	0.00385		
66	0.19000	N/A	N/A	N/A	0.00425		
67	0.19000	N/A	N/A	N/A	0.00471		
68	0.19000	N/A	N/A	N/A	0.00520		
69	0.19000	N/A	N/A	N/A	0.00575		
70	0.19000	N/A	N/A	N/A	0.00636		
71	0.19000	N/A	N/A	N/A	0.00703		
72	0.19000	N/A	N/A	N/A	0.00777		
73	0.19000	N/A	N/A	N/A	0.00859		
74	0.19000	N/A	N/A	N/A	0.00950		
75	1.00000	N/A	N/A	N/A	0.01050		

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Table A-12
Probability of Separation from Active Service for Safety Members
Plan A, B & C – Male

Age	Service Retirement Plans A-B	Service Retirement Plan C	Service Disability	Ordinary Disability	Service Death	Ordinary Death
18	0.00000	0.00000	0.00200	0.00000	0.00010	0.00037
19	0.00000	0.00000	0.00200	0.00000	0.00010	0.00040
20	0.00000	0.00000	0.00200	0.00000	0.00010	0.00041
21	0.00000	0.00000	0.00200	0.00000	0.00010	0.00041
22	0.00000	0.00000	0.00200	0.00000	0.00010	0.00040
23	0.00000	0.00000	0.00200	0.00000	0.00010	0.00039
24	0.00000	0.00000	0.00200	0.00000	0.00010	0.00038
25	0.00000	0.00000	0.00200	0.00000	0.00010	0.00037
26	0.00000	0.00000	0.00200	0.00000	0.00010	0.00038
27	0.00000	0.00000	0.00200	0.00000	0.00010	0.00039
28	0.00000	0.00000	0.00200	0.00000	0.00010	0.00040
29	0.00000	0.00000	0.00200	0.00000	0.00010	0.00041
30	0.00000	0.00000	0.00200	0.00000	0.00010	0.00041
31	0.00000	0.00000	0.00200	0.00000	0.00010	0.00042
32	0.00000	0.00000	0.00200	0.00000	0.00010	0.00043
33	0.00000	0.00000	0.00210	0.00000	0.00010	0.00044
34	0.00000	0.00000	0.00220	0.00000	0.00010	0.00045
35	0.00000	0.00000	0.00230	0.00000	0.00010	0.00047
36	0.00000	0.00000	0.00240	0.00000	0.00010	0.00049
37	0.00000	0.00000	0.00250	0.00000	0.00010	0.00050
38	0.00000	0.00000	0.00260	0.00000	0.00010	0.00053
39	0.00000	0.00000	0.00270	0.00000	0.00010	0.00056
40	0.00750	0.00000	0.00280	0.00000	0.00010	0.00059
41	0.00750	0.00000	0.00290	0.00000	0.00010	0.00062
42	0.00750	0.00000	0.00300	0.00000	0.00010	0.00067
43	0.00750	0.00000	0.00310	0.00000	0.00010	0.00071
44	0.00750	0.00000	0.00320	0.00000	0.00010	0.00076
45	0.00750	0.00000	0.00330	0.00000	0.00010	0.00082
46	0.00750	0.00000	0.00340	0.00000	0.00010	0.00088
47	0.00750	0.00000	0.00350	0.00000	0.00010	0.00095
48	0.00750	0.00000	0.00400	0.00000	0.00010	0.00102
49	0.00750	0.00000	0.00500	0.00000	0.00010	0.00111
50	0.02000	0.02000	0.00750	0.00000	0.00010	0.00120
51	0.02000	0.02000	0.00750	0.00000	0.00010	0.00129
52	0.02000	0.02000	0.00750	0.00000	0.00010	0.00140
53	0.03000	0.03000	0.02000	0.00000	0.00010	0.00151
54	0.15000	0.10000	0.02000	0.00000	0.00010	0.00162
55	0.26000	0.15000	0.07500	0.00000	0.00010	0.00175
56	0.17000	0.15000	0.07500	0.00000	0.00010	0.00190
57	0.17000	0.28000	0.10000	0.00000	0.00010	0.00205
58	0.17000	0.17000	0.10000	0.00000	0.00010	0.00223
59	0.27000	0.27000	0.10000	0.00000	0.00010	0.00243
60	0.27000	0.27000	0.10000	0.00000	0.00010	0.00264
61	0.25000	0.25000	0.05000	0.00000	0.00010	0.00288
62	0.25000	0.25000	0.05000	0.00000	0.00010	0.00315
63	0.25000	0.25000	0.05000	0.00000	0.00010	0.00344
64	0.25000	0.25000	0.05000	0.00000	0.00010	0.00375
65	1.00000	1.00000	0.00000	0.00000	0.00000	0.00410

Years of Service	Other Terminations
0	0.03500
1	0.02750
2	0.02000
3	0.01500
4	0.01200
5	0.01130
6	0.01070
7	0.01000
8	0.00920
9	0.00840
10	0.00760
11	0.00680
12	0.00600
13	0.00560
14	0.00520
15	0.00480
16	0.00440
17	0.00400
18	0.00360
19	0.00320
20	0.00280
21	0.00240
22	0.00200
23	0.00200
24	0.00200
25	0.00200
26	0.00200
27	0.00200
28	0.00200
29	0.00200
30 & Above	0.00000

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Table A-13
Probability of Separation from Active Service for Safety Members
Plan A, B & C – Female

Age	Service Retirement Plans A-B	Service Retirement Plan C	Service Disability	Ordinary Disability	Service Death	Ordinary Death
18	0.00000	0.00000	0.00300	0.00000	0.00010	0.00014
19	0.00000	0.00000	0.00300	0.00000	0.00010	0.00015
20	0.00000	0.00000	0.00300	0.00000	0.00010	0.00016
21	0.00000	0.00000	0.00300	0.00000	0.00010	0.00017
22	0.00000	0.00000	0.00300	0.00000	0.00010	0.00017
23	0.00000	0.00000	0.00300	0.00000	0.00010	0.00018
24	0.00000	0.00000	0.00300	0.00000	0.00010	0.00019
25	0.00000	0.00000	0.00300	0.00000	0.00010	0.00020
26	0.00000	0.00000	0.00300	0.00000	0.00010	0.00021
27	0.00000	0.00000	0.00300	0.00000	0.00010	0.00022
28	0.00000	0.00000	0.00340	0.00000	0.00010	0.00024
29	0.00000	0.00000	0.00380	0.00000	0.00010	0.00025
30	0.00000	0.00000	0.00420	0.00000	0.00010	0.00027
31	0.00000	0.00000	0.00460	0.00000	0.00010	0.00028
32	0.00000	0.00000	0.00500	0.00000	0.00010	0.00030
33	0.00000	0.00000	0.00560	0.00000	0.00010	0.00032
34	0.00000	0.00000	0.00620	0.00000	0.00010	0.00034
35	0.00000	0.00000	0.00680	0.00000	0.00010	0.00036
36	0.00000	0.00000	0.00740	0.00000	0.00010	0.00038
37	0.00000	0.00000	0.00800	0.00000	0.00010	0.00041
38	0.00000	0.00000	0.00840	0.00000	0.00010	0.00043
39	0.00000	0.00000	0.00880	0.00000	0.00010	0.00046
40	0.00750	0.00000	0.00920	0.00000	0.00010	0.00049
41	0.00750	0.00000	0.00960	0.00000	0.00010	0.00052
42	0.00750	0.00000	0.01000	0.00000	0.00010	0.00056
43	0.00750	0.00000	0.01040	0.00000	0.00010	0.00059
44	0.00750	0.00000	0.01080	0.00000	0.00010	0.00063
45	0.00750	0.00000	0.01120	0.00000	0.00010	0.00067
46	0.00750	0.00000	0.01160	0.00000	0.00010	0.00071
47	0.00750	0.00000	0.01200	0.00000	0.00010	0.00076
48	0.00750	0.00000	0.01300	0.00000	0.00010	0.00080
49	0.00750	0.00000	0.01500	0.00000	0.00010	0.00085
50	0.02000	0.02000	0.01800	0.00000	0.00010	0.00091
51	0.02000	0.02000	0.02000	0.00000	0.00010	0.00097
52	0.02000	0.02000	0.02400	0.00000	0.00010	0.00103
53	0.03000	0.03000	0.02800	0.00000	0.00010	0.00109
54	0.15000	0.10000	0.03200	0.00000	0.00010	0.00116
55	0.26000	0.15000	0.11000	0.00000	0.00010	0.00123
56	0.17000	0.15000	0.06000	0.00000	0.00010	0.00131
57	0.17000	0.28000	0.06000	0.00000	0.00010	0.00140
58	0.17000	0.17000	0.06000	0.00000	0.00010	0.00148
59	0.27000	0.27000	0.06000	0.00000	0.00010	0.00158
60	0.27000	0.27000	0.06000	0.00000	0.00010	0.00168
61	0.25000	0.25000	0.06000	0.00000	0.00010	0.00178
62	0.25000	0.25000	0.06000	0.00000	0.00010	0.00190
63	0.25000	0.25000	0.06000	0.00000	0.00010	0.00202
64	0.25000	0.25000	0.06000	0.00000	0.00010	0.00215
65	1.00000	1.00000	0.00000	0.00000	0.00000	0.00228

Years of Service	Other Terminations
0	0.03500
1	0.02750
2	0.02000
3	0.01500
4	0.01200
5	0.01130
6	0.01070
7	0.01000
8	0.00920
9	0.00840
10	0.00760
11	0.00680
12	0.00600
13	0.00560
14	0.00520
15	0.00480
16	0.00440
17	0.00400
18	0.00360
19	0.00320
20	0.00280
21	0.00240
22	0.00200
23	0.00200
24	0.00200
25	0.00200
26	0.00200
27	0.00200
28	0.00200
29	0.00200
30 & Above	0.00000

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Appendix B Summary of Plan Provisions

All actuarial calculations are based on our understanding of the statutes governing LACERA as contained in the County Employees Retirement Law (CERL) of 1937 and the California Public Employees' Pension Reform Act of 2013 (PEPRA). The benefit and contribution provisions of this law are summarized briefly below, along with corresponding references to the Government Code Section. This summary does not attempt to cover all the detailed provisions of the law.

MEMBERSHIP	Government Code Section
Permanent employees of Los Angeles County (County) and participating districts who work ¾ time or more are eligible for membership in LACERA.	(31551, 31552, Bylaws)
Employees eligible for safety membership (law enforcement, firefighting and specific lifeguards) become safety members on the first day of the month after date of hire. Employees who become members on or after January 1, 2013, will enter into Safety Plan C.	(31558)
All other employees become general members on the first day of the month after date of hire or the first day of the month after they make an election of either Plan D or Plan E, depending on the law in effect at that time. Employees who become members on or after January 1, 2013 will enter into General Plan G.	(31493, 31493.5, 31493.6, Bylaws)
Elective officers become members on the first day of the month after filing a declaration with the Board of Retirement (Board).	(31553, 31562)
General members in Plan E may transfer all their Plan E service credit to Plan D during an approved transfer period by making the required contributions. Transferred members relinquish, waive, and forfeit any and all vested or accrued benefits available under any other retirement plan and are entitled only to the benefits of Plan D.	(31494.1, 31494.3)

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RETIREMENT PLANS

The County has established nine defined benefit plans. The following outlines the dates these plans were available, based on a member's date of entry into LACERA:

Safety Member Plans:

Plan A: Inception to August 1977
Plan B: September 1977 through December 2012
Plan C: January 2013 to present (7522.02)

General Member Plans:

Plan A: Inception through August 1977
Plan B: September 1977 through September 1978
Plan C: October 1978 through May 1979
Plan D: June 1979 through December 2012
Plan E: February 1982 through December 2012 (31487, 31496)
Plan G: January 2013 to present (7522.02)

NOTE: After review of a new member's account, a member with prior membership may be enrolled into one of the pre-PEPRA plans.

MEMBER CONTRIBUTIONS

Plans A, B, D and General Plan C members

Contributions are based on the entry age and class of each member and are required of all members in Plans A, B, C, and D. Current member rates are shown in Appendix D. Section 5 provides additional detail on how these rates are calculated. (31620)

Contributions cease when general members are credited with 30 years of service in a contributory plan, provided they were members of LACERA or a reciprocal plan on March 7, 1973, and continuously thereafter. All safety members are eligible for the 30-year cessation of contributions. (31625.2, 31836.1)

Interest is credited to contributions semiannually on June 30 and December 31 at an interest rate set by the Board of Investments on amounts that have been on deposit for at least six months. (31591, 31700)

In addition to the normal contributions, members pay one-half of the cost of their plan's COLA. This is discussed further in Section 5 of this report. (31873)

General Plan G and Safety Plan C members

Members contribute 50% of the aggregate Normal Cost rate for their Plan. (7522.30)

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EMPLOYER CONTRIBUTIONS

The employer (County or District) contributes to the retirement fund a percent of the total compensation provided for all members based on an actuarial valuation and recommendation of the actuary and the Board of Investments. (31453, 31454 31581)

SERVICE RETIREMENT ALLOWANCE

Eligibility

Plans A-B:	**Safety members** Age 50 with 10 years of County service; Any age with 20 years of service; or	(31662.4, 31662.6, 31663.25)
Plans A-D:	**General members** Age 50 with 10 years of County service; Any age with 30 years of service; or Age 70 and actively employed, regardless of service.	(31672)
Plan C:	**Safety members** Age 50 with 5 years of service.	(7522.25(d))
Plan E:	**General members** Age 65 with 10 years of service. A reduced benefit is also payable at age 55 with 10 years of service.	(31491, 31491.3)
Plan G:	**General members** Age 52 with 5 years of service.	(7522.20(a))

Final Compensation

General Plans A-D and Safety Plans A-B	Average of the member's highest monthly pensionable earnings during any 12-consecutive-month period.	(31462.3)
Plan E:	Average of the member's highest monthly pensionable earnings during any three 12-consecutive month periods.	(31488)
General Plan G and Safety Plan C	Average of the member's highest monthly pensionable earnings during any 36-consecutive month period.	(7522.32)

The amount of compensation that is taken into account in computing benefits payable to any person who first becomes a member on or after July 1, 1996, shall not exceed the dollar limitations in Section 401(a)(17) of Title 26 of the US Code. (31671)

The amount of compensation taken into account for General Plan G and Safety Plan C members is limited to $149,016 for 2019. The amount of compensation taken into account shall be adjusted based on changes in the Consumer Price Index for All Urban Consumers: U.S. City Average. Adjustments shall be effective annually on January 1. (7522.10)

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SERVICE RETIREMENT ALLOWANCE (continued)

Monthly Allowance

Plans A-B:	**Safety members** 1/50 x Final Compensation x Safety age factor x Years of service. (The Safety Plan A and Safety Plan B age factors are the same.)	(31664)
Plans A-D:	**General members** 1/60 x Final Compensation x a Plan specific age factor x years of service. (The General Plan C and General D age factors are the same.)	(31676.1) (31676.11) (31676.14) (7522.25(d))
Plan C:	**Safety members** Final Compensation x Safety Plan percentage x Years of service.	
Plan E:	**General members [(a)+(b)-(c)] x d where:** (a) 2% x Final Compensation x (Years of Service (up to 35 years), plus (b) 1 % x Final Compensation x Years of Service in excess of 35 (up to 10) (c) Estimated Primary Insurance Amount (PIA) x Years of Covered Service (up to 35) divided by 35. (d) Early Retirement Adjustment Factor The PIA is calculated based on certain assumptions specified by statute, and an assumed Social Security retirement age of 62. If retirement occurs prior to age 65, benefit amount is adjusted by an Early Retirement Adjustment Factor.	(31491, 31491.3 (b)&(c))
Plan G:	**General members** Final Compensation x General Plan percentage x Years of Service.	(7522.20(a))

Social Security Integration

Plans A-C:	**General Members** For County service covered by Social Security prior to January 1, 1983, the 1/60 factor is replaced by 1/90 for the first $350 of compensation.	(31808)
Plan D:	The 1/90 factor is applied to the first $1,050 of compensation.	

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SERVICE RETIREMENT ALLOWANCE (continued)

Sample Plan Age Factors

Plan	Age 50	Age 55	Age 60	Age 65 & Up	
General A	0.8850	1.1686	1.4638	1.5668	(31676.14)
General B	0.7454	1.0000	1.3093	1.5668	(31676.11)
General C&D	0.7091	0.8954	1.1500	1.4593	(31676.1)
General E	N/A	0.3748	0.6009	1.0000	(31491.3(a))
Safety A&B	1.0000	1.3099	1.3099	1.3099	(31664)

Sample Plan Age Percentages

Plan	Age 50	Age 55	Age 60	Age 65 & Up	
General G	N/A	1.30%	1.80%	2.30%*	(7522.20(a))
Safety C	2.00%	2.50%	2.70%	2.70%	(7522.25(d))

**Maximum percentage for General Plan G is 2.50% at age 67.*

Maximum Allowance

Plans A-D, G: Allowance may not exceed 100% of final compensation. (31676.1, 31676.11, 31676.14)

Plan E: The sum of the normal retirement allowance and the estimated PIA cannot exceed 70% of Final Compensation for a member with 35 or less years of service, and cannot exceed 80% of Final Compensation if service exceeds 35 years. (31491)

Unmodified Retirement Allowance (Normal Form)

Plans A-D, G: Life Annuity payable to retired member with 65% continuance to an eligible survivor (or eligible children). (31760.12, 31785.4)

Plan E: Life Annuity payable to retired member with 55% continuance to an eligible survivor (or eligible children). (31492.1)

Eligible survivor includes certain domestic partners. (31780.2)

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SERVICE RETIREMENT ALLOWANCE (continued)

Optional Retirement Allowance

A member may elect to have the actuarial equivalent of the service or disability retirement allowance applied to a lesser retirement allowance during the retired member's life in order to provide an optional survivor allowance. (31760)

Unmodified Plus:	Members with eligible survivors may elect a higher percent than the standard unmodified continuance, up to 100%. The benefit is actuarially reduced from the unmodified amount. The elected percent of the member's reduced allowance is payable to the eligible survivor.	(31760.5)
Option 1:	Member's allowance is reduced to pay a cash refund of any unpaid annuity payments (up to the amount of the member's contributions at retirement) to the member's estate or to a beneficiary having an insurable interest in the life of the member.	(31761)
Option 2:	100% of member's reduced allowance is payable to a beneficiary having an insurable interest in the life of the member.	(31762)
Option 3:	50% of member's reduced allowance is payable to a beneficiary having an insurable interest in the life of the member.	(31763)
Option 4:	Other % of member's reduced allowance is payable to a beneficiary(ies) having an insurable interest in the life of the member.	(31764)

A member may not revoke and name another beneficiary if the member elects Option 2, 3, or 4. (31782)

Pension Advance Option:	The Pension Advance Option is available to members who are fully insured under Social Security for the purpose of coordinating a member's retirement allowance with benefits receivable from Social Security. It is not available to disability retirees or members who elect Option 2, 3, or 4. The allowance is increased prior to age 62 and then reduced after 62 by amounts which have equivalent actuarial values. The automatic 65% continuance for eligible spouses of members who elect the Pension Advance Option is based on the unmodified allowance the member would have received if the member had not elected the option.	(31810, 31811)

All Allowances (31452.7, 31600)

All allowances are made on a pro-rata basis (based on the number of days in that month) if not in effect for the entire month of retirement. For deaths that occur mid-month, the full month's payment is made.

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SERVICE-CONNECTED DISABILITY RETIREMENT ALLOWANCE

Eligibility

Plans A-D, G:	Any age or years of service; disability must result from occupational injury or disease, and member must be permanently incapacitated for the performance of duty.	(31720)
Plan E:	Not available under Plan E.	(31487)

Monthly Allowance

Greater of (1) 50% of final compensation, and (2) the service retirement allowance, if eligible to retire. (31727.4)

Normal Form Of Payment

Life Annuity with 100% continuance to a surviving spouse (or eligible children). (31786)

NONSERVICE-CONNECTED DISABILITY RETIREMENT ALLOWANCE

Eligibility

Plans A-D, G:	Any age with five years of service, and permanently incapacitated for the performance of duty.	(31720)
Plan E:	Not available under Plan E.	(31487)

Monthly Allowance

The monthly allowance is equal to a service retirement allowance if a General member is age 65 or a Safety member is age 55; otherwise the monthly allowance is the greater of that to which the member would be entitled as service retirement or the sum of (a) or (b) where: (31726, 31726.5)

General Members:	(a) 90% of 1/60 of Final Compensation x years of service, if member must rely on service in another retirement plan in order to be eligible to retire, or allowance exceeds 1/3 of final compensation.	(31727(a))
	(b) 90% of 1/60 of Final Compensation x years of service projected to age 65, not to exceed 1/3 of Final Compensation.	(31727(b))
Safety Members:	1/60 is replaced by 1/50 and age 65 is replaced by age 55 in (a) and (b) above.	(31727.2)

Normal Form of Payment

Life Annuity with 65% continuance to a surviving spouse (or eligible children). (31760.1, 31760.12, 31785, 31785.4)

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SERVICE-CONNECTED PRE-RETIREMENT DEATH BENEFITS

Eligibility (31787)

Plans A-D, G: Active members who die in service as a result of injury or disease arising out of and in the course of employment.

Plan E: Not available under Plan E. (31487)

Monthly Allowance (31787)

A monthly allowance payable to an eligible survivor (or eligible children) equal to the retirement allowance the deceased member would have received under a service-connected disability retirement.

Optional Combined Benefit (31781.3)

In lieu of the monthly allowance above, a surviving spouse may elect:

(a) A lump sum equal to 1/12 of the compensation earned in the preceding 12 months x years of service (benefit not to exceed 50% of the 12 months' compensation), plus

(b) A monthly payment equal to 50% of the member's Final Compensation, reduced by a monthly amount, which is the actuarial equivalent of (a) above based on the age of surviving spouse.

Death Benefit (Lump Sum) (31781)

The member's accumulated contributions with interest, plus 1/12 of the compensation earned in the preceding 12 months x years of service (benefit not to exceed 50% of the 12 months' compensation).

Additional Allowance for Children (31787.5)

25% of death allowance (whether or not the monthly allowance or combined benefit is chosen) for one child, 40% for two children, and 50% for three or more children.

Additional Amount for Spouse of Safety Member (31787.6)

A surviving spouse of a safety member is also entitled to receive a lump-sum death benefit equal to 12 x monthly rate of compensation at the time of member's death in addition to all other benefits.

Note: For valuation purposes, an unmarried member is assumed to take the lump sum benefit. A married member is assumed to take the monthly allowance or the lump sum, whichever is more valuable.

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NONSERVICE-CONNECTED PRE-RETIREMENT DEATH BENEFITS

Eligibility (31780)

Plans A-D, G: Active members who die while in service or while physically or mentally incapacitated for the performance of duty.

Plan E: Not available under Plan E. (31487)

Death Benefit (Lump Sum) (31781)

The member's accumulated contributions with interest, plus 1/12 of the compensation earned in preceding 12 months x the number of completed years of service (benefit not to exceed 50% of the 12 months' compensation).

Optional Death Benefit

In lieu of the lump-sum death benefit, the following several optional death benefits are available to provide flexibility to survivors.

First Optional Death Benefit (31781.1, 31781.12)

If a member who would have been entitled to a non-service-connected disability retirement allowance dies prior to retirement as a result of such disability, the surviving spouse (or eligible children) may elect to receive an optional death allowance equal to 65% of the monthly retirement allowance to which the member would have been entitled as of the date of death.

Second Optional Death Benefit (31781.2, 31765.2)

If a member dies prior to reaching the minimum retirement age but has 10 or more years of County service, a surviving spouse (or eligible children) may elect to leave the amount of the death benefit on deposit until the earliest date the member could have retired and at that time receive the allowance provided for in Section 31765 (an Option 3 benefit) or 31765.2 (a 65% continuance).

Third Optional Death Benefit

A surviving spouse of a member who dies after five years of County service may elect a combined benefit equal to:

(a) A lump sum equal to 1/12 of the compensation earnable in the preceding 12 months x the number of completed years of service (benefit not to exceed 50% of the 12 months' compensation), plus (31781.3)

(b) A monthly payment equal to 65% of the monthly retirement allowance to which the member would have been entitled if the member retired or could have retired for a non-service-connected disability as of the date of death, reduced by a monthly amount which is the actuarial equivalent of (a) above based on the age of surviving spouse. (31781.1, 31781.12)

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Fourth Optional Death Benefit

If a member dies while eligible for a service retirement and the surviving spouse is designated as beneficiary, the spouse (or eligible children) may elect to receive 65% of the monthly retirement allowance to which the member would have been entitled as of the date of death. (31765.1, 31765.2)

Fifth Optional Death Benefit

If a member dies while eligible for a service retirement and the surviving spouse is designated as beneficiary and survives the member by not less than 30 days, the spouse (or eligible children) may elect to receive the same retirement allowance as the spouse would have received had the member retired on the date of death and selected Option 3. (31765)

Note: For valuation purposes, an unmarried member is assumed to take the lump sum benefit. A married member is assumed to take the first optional death benefit or the lump sum, whichever is more valuable.

POSTRETIREMENT DEATH/BURIAL BENEFIT

Plans A-E:	A one-time lump-sum benefit of $5,000 is payable to the estate or to the beneficiary designated by the member upon the death of any member while receiving a retirement allowance. This is in addition to any other death or survivor benefits. The amount is currently paid by the County based on agreement with LACERA. It is not included for valuation purposes.	(31789.3)

DEFERRED RETIREMENT ALLOWANCE

Eligibility

Plans A, B, D and General Plan C:

	Five years of county or reciprocal service. Member contributions must be left on deposit.	(31700)
Safety Plan C:	Age 50 with 5 years of service.	(7522.25(d))
Plan E:	Age 55 with 10 years of service.	(31491)
Plan G:	Age 52 with 5 years of service.	(7522.20(a))

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DEFERRED RETIREMENT ALLOWANCE (continued)

Monthly Allowance

Plans A-D, G:	Same as service retirement allowance; payable any time after the member would have been eligible for service retirement.	(31703, 31704, 31705)
	If a former member dies before the effective date of the deferred retirement allowance, the member's accumulated contributions are paid to the estate or to the named beneficiary.	(31702)
Plan E:	Same as service retirement allowance at normal retirement age 65 or in an actuarially equivalent reduced amount at early retirement, after age 55.	(31491)

TRANSFERS BETWEEN PLAN D AND PLAN E

Members in Plan D may transfer to Plan E on a prospective basis. Members in Plan E may transfer to Plan D on a prospective basis.	(31494.2, 31494.5)

RECIPROCITY

All Plans:	Reciprocal benefits are may be granted to members who are entitled to retirement benefits from two or more retirement plans established under the CERL or from a County retirement plan and the California Public Employees' Retirement System (CalPERS). Reciprocity also applies to the members of the State Teachers' Retirement System Defined Benefit Plan.	(31830, 31840.4, 31840.8)
	Final Compensation may be based on service with CalPERS or another County retirement plan, if greater.	(31835)
	Vested former members are eligible for disability and death benefits from LACERA, if disabled while a member of CalPERS or another County retirement plan, but combined benefits are limited.	(31837, 31838, 31838.5, 31839)

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TRANSFER FROM CALPERS

Whenever firefighting or law enforcement functions performed by a public agency or the state subject to the California Public Employees Retirement Law are transferred to the County, fire authority, or district, employees performing those functions become members of LACERA. LACERA and CalPERS may enter into an agreement whereby the members' service credit plus the members' and the cities' or states' retirement contributions are transferred from CalPERS to LACERA. (31657)

COST-OF-LIVING INCREASES

Cost-of-living increases (or decreases) are applied to all retirement allowances (service and disability), optional death allowances, and annual death allowances effective April 1, based on changes in the Consumer Price Index (CPI) from the previous January 1 to the current January 1, to the nearest ½ of 1%. (31870, 31870.1)

Plan A:	Members (and their beneficiaries) are limited to a maximum 3% cost-of-living increase.	(31870.1)
Plans B-D, G:	Members (and their beneficiaries) are limited to a maximum 2% cost-of-living increase. When the CPI exceeds 2% or 3%, the difference between the actual CPI and the maximum cost-of-living increase given in any year is credited to the COLA Accumulation. It may be used in future years to provide cost-of-living increases when the CPI falls below 2% or 3%, depending on the retirement plan.	(31870)
Plan E:	Members (and their beneficiaries) are limited to a maximum 2% cost-of-living increase. The 2% is pro-rated based on service earned after June 4, 2002. "Elective COLA" increases for service earned prior to June 4, 2002 may be purchased by the member.	(31495.5)

STAR PROGRAM

Contributory plan members who have a COLA Accumulation of more than 20% resulting from CPI increases that exceeded the maximum cost-of-living increases that could be granted are eligible for a supplemental cost-of-living increase effective January 1 known as the Supplemental Targeted Adjustment for Retirees Cost-of-Living Adjustment (STAR COLA). These benefits are not evaluated in this report, or as part of the actuarially required funding amount, unless they have been vested by the Board of Retirement. (31874.3(b))

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Appendix C Valuation Data and Schedules

On the following table, Exhibit C-1, we present a summary of LACERA membership at June 30, 2019 for active members. Similar information is shown in Exhibit C-2 Retired for retired members and C-2 Former for vested former members.

Note that salary amounts shown are the prior year annual pensionable earnings for those members of plans with a one-year final compensation period. For plans with a three-year final compensation period, the monthly rate of pay at June 2019 is shown.

Additional statistical data on both active and retired members is shown in the following tables. Additional detailed summaries are supplied to LACERA staff in a supplementary report.

Exhibit C-3: Age Distribution of Active Members

Exhibit C-4: Age, Service, Compensation Distribution of Active Members

Exhibit C-5: Age, Retirement Year, Benefit Amount and Plan Distribution of Retired Members

Exhibits C-4 and C-5 are shown for all plans combined as well as for each plan separately.

Data on LACERA membership as of June 30, 2019 was supplied to us by LACERA staff. Based on our review of this data and discussions with LACERA staff, all retiree and beneficiary records were included in our valuation.

All records for active and former members supplied by LACERA were included in the valuation.

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Exhibit C-1
LACERA Membership – Active Members as of June 30, 2019

	Sex	Vested	NonVested	Total Number	Annual Salary	Average Age	Average Monthly Salary	Average Service
General Members								
Plan A	M	35	-	35	$ 4,665,924	72.7	$ 11,109	40.6
	F	70	-	70	6,025,260	69.4	7,173	38.8
Plan B	M	9	-	9	944,400	68.8	8,744	35.3
	F	25	-	25	2,848,608	64.2	9,495	37.5
Plan C	M	9	-	9	748,368	64.3	6,929	37.7
	F	33	-	33	3,193,512	65.4	8,064	38.9
Plan D	M	13,448	118	13,566	1,280,978,172	50.5	7,869	18.2
	F	27,956	210	28,166	2,421,096,708	50.1	7,163	18.4
Plan E	M	5,140	376	5,516	486,231,336	54.8	7,346	21.8
	F	11,222	593	11,815	862,925,232	54.7	6,086	22.8
Plan G	M	1,633	7,520	9,153	624,942,852	38.2	5,690	3.0
	F	2,972	15,023	17,995	1,120,990,752	37.5	5,191	2.9
Total		62,552	23,840	86,392	$ 6,815,591,124	47.3	$ 6,574	14.4
Safety Members								
Plan A	M	5	-	5	$ 717,780	64.0	$ 11,963	37.2
	F	-	-	-	-	N/A	N/A	N/A
Plan B	M	8,233	76	8,309	1,086,584,160	45.8	10,898	19.2
	F	1,400	16	1,416	174,607,944	43.5	10,276	17.0
Plan C	M	353	2,295	2,648	239,858,532	31.0	7,548	2.8
	F	80	336	416	38,418,624	30.4	7,696	2.9
Total		10,071	2,723	12,794	$ 1,540,187,040	42.0	$ 10,032	15.1
Grand Total		72,623	26,563	99,186	$ 8,355,778,164	46.6	$ 7,020	14.5

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Exhibit C-2
Retired LACERA Membership – Retired Members as of June 30, 2019

	Sex	Number	Annual Allowance	Average Age	Average Monthly Benefit
General Members					
Plan A	M	7,707	$ 528,165,018	79.7	$ 5,711
	F	13,461	656,643,406	79.5	4,065
Plan B	M	223	14,491,701	74.2	5,415
	F	521	26,687,269	74.2	4,269
Plan C	M	150	8,270,582	73.0	4,595
	F	345	14,845,155	74.0	3,586
Plan D	M	5,971	259,950,065	68.5	3,628
	F	10,981	416,606,859	68.5	3,162
Plan E	M	4,600	143,436,120	72.2	2,598
	F	9,573	246,512,032	71.8	2,146
Plan G	M	13	217,064	68.1	1,391
	F	15	169,505	64.8	942
Total		53,560	$ 2,315,994,776	73.9	$ 3,603
Safety Members					
Plan A	M	4,790	$ 488,796,695	76.1	$ 8,504
	F	2,020	141,362,102	78.0	5,832
Plan B	M	5,008	476,409,784	60.2	7,927
	F	1,122	76,725,758	57.3	5,699
Plan C	M	5	552,393	56.2	9,207
	F	2	68,851	37.5	2,869
Total		12,947	$ 1,183,915,583	68.6	$ 7,620
Grand Total		66,507	$ 3,499,910,359	72.9	$ 4,385

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Exhibit C-2 Former
LACERA Membership – Vested Former Members as of June 30, 2019[1]
Subtotaled by Plan and Retirement Type

	Sex	Number	Average Age
General Members			
Plan A	M	24	72.3
	F	44	71.3
Plan B	M	3	71.3
	F	12	68.2
Plan C	M	5	66.0
	F	13	64.8
Plan D	M	2,586	48.7
	F	5,326	47.9
Plan E	M	1,059	56.8
	F	2,301	56.7
Plan G	M	978	37.3
	F	2,222	36.8
Total		14,573	47.8
Safety Members			
Plan A	M	4	67.0
	F	-	-
Plan B	M	687	43.7
	F	131	43.7
Plan C	M	151	31.4
	F	21	31.2
Total		994	41.6
Grand Total		15,567	47.4

1. *Includes non-vested former members who still have member contributions with LACERA.*

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Exhibit C-2a
LACERA Membership – Retired Members as of June 30, 2019
Subtotaled by Plan and Retirement Type

Plan	Retirement Type	Number	Annual Benefits in Thousands	Average Monthly Benefit
General Plans:				
Plan A				
	Healthy	15,190	$ 965,291	$ 5,296
	Disabled	1,509	61,160	3,378
	Beneficiaries	4,469	158,357	2,953
	Total	21,168	$ 1,184,808	$ 4,664
Plan B				
	Healthy	618	$ 36,876	$ 4,972
	Disabled	58	2,107	3,027
	Beneficiaries	68	2,196	2,691
	Total	744	$ 41,179	$ 4,612
Plan C				
	Healthy	377	$ 19,844	$ 4,386
	Disabled	51	1,714	2,800
	Beneficiaries	67	1,558	1,938
	Total	495	$ 23,116	$ 3,892
Plan D				
	Healthy	13,458	$ 574,354	$ 3,556
	Disabled	2,054	70,264	2,851
	Beneficiaries	1,440	31,940	1,848
	Total	16,952	$ 676,558	$ 3,326
Plan E				
	Healthy	12,996	$ 373,101	$ 2,392
	Disabled	N/A	N/A	N/A
	Beneficiaries	1,177	16,847	1,193
	Total	14,173	$ 389,948	$ 2,293
Plan G				
	Healthy	25	$ 323	$ 1,077
	Disabled	1	49	4,056
	Beneficiaries	2	15	619
	Total	28	$ 387	$ 1,151
Safety Plans:				
Plan A				
	Healthy	2,224	$ 237,911	$ 8,915
	Disabled	2,999	286,460	7,960
	Beneficiaries	1,587	105,788	5,555
	Total	6,810	$ 630,159	$ 7,711
Plan B				
	Healthy	2,625	$ 263,301	$ 8,359
	Disabled	3,216	273,258	7,081
	Beneficiaries	289	16,576	4,780
	Total	6,130	$ 553,135	$ 7,520
Plan C				
	Healthy	4	$ 518	$ 10,798
	Disabled	3	103	2,859
	Beneficiaries	0	0	N/A
	Total	7	$ 621	$ 7,396
Grand Totals		66,507	3,499,910	4,385

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Exhibit C-2b
LACERA Membership – Retired Members as of June 30, 2019
Subtotaled by Retirement Type and Plan

Type	Plan	Number	Annual Benefits in Thousands	Average Monthly Benefit
Healthy Retirees				
	General A	15,190	$ 965,291	$ 5,296
	General B	618	36,876	4,972
	General C	377	19,844	4,386
	General D	13,458	574,354	3,556
	General E	12,996	373,101	2,392
	General G	25	323	1,077
	Safety A	2,224	237,911	8,915
	Safety B	2,625	263,301	8,359
	Safety C	4	518	10,798
	Total	47,517	$ 2,471,519	$ 4,334
Disabled Retirees				
	General A	1,509	$ 61,160	$ 3,378
	General B	58	2,107	3,027
	General C	51	1,714	2,800
	General D	2,054	70,264	2,851
	General E	N/A	N/A	N/A
	General G	1	49	4,056
	Safety A	2,999	286,460	7,960
	Safety B	3,216	273,258	7,081
	Safety C	3	103	2,859
	Total	9,891	$ 695,115	$ 5,856
Beneficiaries				
	General A	4,469	$ 158,357	$ 2,953
	General B	68	2,196	2,691
	General C	67	1,558	1,938
	General D	1,440	31,940	1,848
	General E	1,177	16,847	1,193
	General G	2	15	619
	Safety A	1,587	105,788	5,555
	Safety B	289	16,576	4,780
	Safety C	0	0	N/A
	Total	9,099	$ 333,277	$ 3,052
Grand Totals		66,507	$ 3,499,910	$ 4,385

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Exhibit C-3
Age Distribution of Active Members as of June 30, 2019

	Age Groups						
	0-29	30-39	40-49	50-59	60-69	70+	Total
General Plans:							
Plan A							
Male	-	-	-	-	11	24	35
Female	-	-	-	-	43	27	70
Plan B							
Male	-	-	-	-	6	3	9
Female	-	-	-	1	21	3	25
Plan C							
Male	-	-	-	-	8	1	9
Female	-	-	-	6	20	7	33
Plan D							
Male	32	1,901	4,351	4,708	2,294	280	13,566
Female	27	4,103	9,413	9,702	4,449	472	28,166
Plan E							
Male	4	423	1,232	1,937	1,599	321	5,516
Female	8	806	2,443	4,654	3,460	444	11,815
Plan G							
Male	1,781	4,038	1,939	1,013	355	27	9,153
Female	3,671	8,323	3,557	1,886	529	29	17,995
Safety Plans:							
Plan A							
Male	-	-	-	-	5	-	5
Female	-	-	-	-	-	-	-
Plan B							
Male	68	1,972	3,176	2,921	168	4	8,309
Female	14	460	603	325	14	-	1,416
Plan C							
Male	1,268	1,162	168	45	5	-	2,648
Female	221	170	20	5	-	-	416
Grand Totals:	7,094	23,358	26,902	27,203	12,987	1,642	99,186

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Exhibit C-4
Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2019
All Plans

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	507	253	119	50	8	1	-	-	-	-	-	-	938
25-29	1,496	1,415	1,291	915	546	487	6	-	-	-	-	-	6,156
30-34	1,314	1,312	1,488	1,430	1,293	2,748	1,188	19	-	-	-	-	10,792
35-39	770	933	937	983	845	2,694	4,612	744	47	1	-	-	12,566
40-44	501	573	632	536	538	1,746	4,334	3,207	959	73	-	-	13,099
45-49	358	366	395	418	356	1,249	3,073	3,390	3,009	1,095	89	5	13,803
50-54	263	297	298	295	257	860	2,247	2,491	2,703	3,167	1,630	153	14,661
55-59	151	195	195	188	207	749	1,746	1,884	1,774	2,286	2,274	893	12,542
60-64	83	94	82	126	109	480	1,309	1,418	1,213	1,366	1,420	1,411	9,111
65 & Over	26	18	50	30	53	278	897	1,040	945	778	603	800	5,518
Total Count	5,469	5,456	5,487	4,971	4,212	11,292	19,412	14,193	10,650	8,766	6,016	3,262	99,186

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	52,288	58,619	61,217	58,794	71,183	48,792	-	-	-	-	-	-	55,633
25-29	54,702	58,331	62,954	64,867	65,153	73,287	84,284	-	-	-	-	-	61,204
30-34	60,549	62,253	66,036	65,872	70,360	77,352	81,644	89,538	-	-	-	-	70,045
35-39	64,907	67,421	70,230	69,852	75,033	84,917	87,228	90,048	89,516	87,060	-	-	80,623
40-44	65,059	65,333	68,779	73,829	73,745	88,473	86,835	90,747	97,627	115,481	-	-	85,246
45-49	64,024	66,818	69,602	70,911	72,390	84,604	85,644	93,496	102,438	106,980	116,293	100,042	90,728
50-54	60,436	69,594	68,324	68,232	70,537	80,473	82,298	90,476	99,686	107,623	114,780	118,374	94,822
55-59	65,163	63,722	67,632	70,383	71,570	82,411	75,815	82,635	92,512	99,288	107,082	104,531	90,992
60-64	67,142	68,623	70,981	71,557	72,097	81,275	73,750	81,102	86,515	92,529	102,614	96,682	87,668
65 & Over	93,664	71,626	109,371	110,148	82,071	86,388	75,115	77,454	79,045	84,275	91,179	93,310	83,125
Avg. Annual Compensation	$ 59,818	$ 63,174	$ 67,145	$ 68,406	$ 71,491	$ 82,463	$ 83,481	$ 88,303	$ 95,707	$ 101,008	$ 106,655	$ 99,026	$ 84,244

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Exhibit C-4a
Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2019
General Plan A

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	1	1	2	-	7	11
65 & Over	-	-	-	-	-	-	2	6	11	4	3	68	94
Total Count	-	-	-	-	-	-	2	7	12	6	3	75	105

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	32,460	92,856	48,132	-	81,835	72,220
65 & Over	-	-	-	-	-	-	97,842	98,520	116,893	71,322	83,848	107,166	105,285
Avg. Annual Compensation	$ -	$ -	$ -	$ -	$ -	$ -	$ 97,842	$ 89,083	$ 114,890	$ 63,592	$ 83,848	$ 104,802	$ 101,821

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Exhibit C-4b
Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2019
General Plan B

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	1	1
60-64	-	-	-	-	-	-	-	-	1	-	-	14	15
65 & Over	-	-	-	-	-	-	-	2	1	3	1	11	18
Total Count	-	-	-	-	-	-	-	2	2	3	1	26	34

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	73,644	73,644
60-64	-	-	-	-	-	-	-	-	57,444	-	-	91,628	89,349
65 & Over	-	-	-	-	-	-	-	133,674	57,444	126,592	129,804	140,433	132,174
Avg. Annual Compensation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 133,674	$ 57,444	$ 126,592	$ 129,804	$ 111,584	$ 111,559

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Exhibit C-4c
Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2019
General Plan C

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	1	-	-	5	6
60-64	-	-	-	-	-	-	-	-	-	-	2	16	18
65 & Over	-	-	-	-	-	-	-	-	1	-	1	16	18
Total Count	-	-	-	-	-	-	-	-	2	-	3	37	42

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	63,096	-	-	85,517	81,780
60-64	-	-	-	-	-	-	-	-	-	-	93,930	80,737	82,203
65 & Over	-	-	-	-	-	-	-	-	132,768	-	199,656	102,446	109,531
Avg. Annual Compensation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 97,932	$ -	$ 129,172	$ 90,770	$ 93,854

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Exhibit C-4d
Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2019
General Plan D

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	3	-	-	-	53	3	-	-	-	-	-	59
30-34	3	11	6	9	11	782	575	14	-	-	-	-	1,411
35-39	10	14	20	18	20	1,169	2,857	446	38	1	-	-	4,593
40-44	3	8	15	14	14	836	2,948	1,983	584	54	-	-	6,459
45-49	4	7	16	10	13	569	2,147	2,127	1,723	621	63	5	7,305
50-54	4	11	18	12	7	399	1,591	1,607	1,615	1,517	705	122	7,608
55-59	3	2	4	6	10	301	1,215	1,293	1,143	1,253	1,057	515	6,802
60-64	1	2	6	4	4	198	920	934	796	788	689	496	4,838
65 & Over	-	1	2	2	-	115	587	632	540	383	252	143	2,657
Total Count	28	59	87	75	79	4,422	12,843	9,036	6,439	4,617	2,766	1,281	41,732

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	56,844	-	-	-	56,864	69,268	-	-	-	-	-	57,494
30-34	72,784	86,984	83,888	80,747	76,200	74,485	68,941	81,878	-	-	-	-	72,486
35-39	84,444	69,912	76,130	94,911	100,776	85,567	80,404	83,820	86,626	87,060	-	-	82,206
40-44	133,012	86,558	88,090	87,314	82,296	92,102	83,966	86,654	90,312	107,847	-	-	86,657
45-49	116,403	88,635	104,562	106,945	85,651	89,723	84,136	91,214	94,343	97,791	107,757	100,042	90,516
50-54	197,034	136,916	85,203	97,229	92,319	83,688	82,355	90,377	95,255	97,689	100,134	107,810	92,150
55-59	149,652	94,002	72,246	104,072	77,251	87,231	78,485	84,319	93,563	97,514	105,056	108,548	92,478
60-64	177,924	90,738	84,374	92,421	158,556	84,220	76,018	84,956	92,318	95,102	109,205	105,444	91,732
65 & Over	-	43,392	84,972	58,038	-	86,763	76,837	79,577	79,945	89,043	96,911	115,993	84,300
Avg. Annual Compensation	$ 119,373	$ 90,474	$ 86,426	$ 93,385	$ 90,789	$ 84,948	$ 80,913	$ 87,237	$ 92,564	$ 96,613	$ 104,154	$ 108,074	$ 88,711

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Exhibit C-4e
Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2019
General Plan E

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	12	-	-	-	-	-	-	12
30-34	-	-	-	-	1	130	191	-	-	-	-	-	322
35-39	-	-	-	-	-	182	614	109	2	-	-	-	907
40-44	-	-	-	-	-	143	690	604	125	3	-	-	1,565
45-49	-	-	-	-	-	131	578	680	527	189	5	-	2,110
50-54	-	-	-	-	-	89	478	580	592	821	430	5	2,995
55-59	-	-	-	-	-	122	480	499	482	791	915	307	3,596
60-64	-	-	-	-	-	94	375	458	389	536	700	843	3,395
65 & Over	-	-	-	-	-	65	301	398	387	380	344	554	2,429
Total Count	-	-	-	-	1	968	3,707	3,328	2,504	2,720	2,394	1,709	17,331

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	58,931	-	-	-	-	-	-	58,931
30-34	-	-	-	-	59,568	67,325	61,160	-	-	-	-	-	63,644
35-39	-	-	-	-	-	73,432	68,461	67,174	50,442	-	-	-	69,264
40-44	-	-	-	-	-	82,652	71,186	70,178	71,211	100,500	-	-	71,903
45-49	-	-	-	-	-	80,067	73,816	73,234	80,829	76,591	97,080	-	76,072
50-54	-	-	-	-	-	80,172	68,454	71,384	82,098	82,690	78,730	83,172	77,469
55-59	-	-	-	-	-	79,901	64,891	69,654	76,811	87,890	89,598	81,072	80,386
60-64	-	-	-	-	-	88,552	66,799	71,303	71,677	84,998	93,488	88,523	82,338
65 & Over	-	-	-	-	-	96,470	70,264	72,806	75,894	78,135	86,289	83,620	78,826
Avg. Annual Compensation	$ -	$ -	$ -	$ -	$ 59,568	$ 79,142	$ 68,942	$ 71,305	$ 77,667	$ 83,617	$ 88,323	$ 85,579	$ 77,846

This work product was prepared solely for LACERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Exhibit C-4f
Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2019
General Plan G

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	355	163	72	34	4	1	-	-	-	-	-	-	629
25-29	1,236	1,156	1,015	708	452	256	-	-	-	-	-	-	4,823
30-34	1,211	1,148	1,276	1,267	1,135	1,282	10	-	-	-	-	-	7,329
35-39	720	858	821	873	759	997	4	-	-	-	-	-	5,032
40-44	478	541	584	493	504	602	9	-	-	-	-	-	3,211
45-49	350	350	368	395	336	478	6	2	-	-	-	-	2,285
50-54	256	279	277	281	243	349	5	-	1	-	-	-	1,691
55-59	146	191	190	179	192	302	6	2	-	-	-	-	1,208
60-64	81	92	76	122	104	183	6	3	-	-	-	-	667
65 & Over	26	17	48	28	53	96	4	1	-	-	-	-	273
Total Count	4,859	4,795	4,727	4,380	3,782	4,546	50	8	1	-	-	-	27,148

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	42,629	47,327	47,804	45,260	48,693	48,792	-	-	-	-	-	-	44,629
25-29	49,769	52,615	55,288	56,243	58,509	58,445	-	-	-	-	-	-	53,843
30-34	59,304	58,713	61,883	62,102	66,480	67,493	64,246	-	-	-	-	-	62,695
35-39	63,781	65,800	67,378	66,558	71,996	76,801	170,592	-	-	-	-	-	69,098
40-44	63,865	63,798	66,769	71,924	72,528	78,983	71,299	-	-	-	-	-	69,834
45-49	63,163	65,322	67,302	69,058	71,319	76,387	91,498	47,076	-	-	-	-	69,205
50-54	57,900	65,667	66,859	66,748	68,631	75,144	123,509	-	34,956	-	-	-	67,401
55-59	63,015	62,329	67,280	67,370	69,978	75,200	119,196	157,188	-	-	-	-	68,810
60-64	64,768	68,142	69,924	70,873	68,699	73,145	88,974	62,416	-	-	-	-	70,056
65 & Over	93,664	73,287	110,387	113,871	82,071	78,169	130,371	249,648	-	-	-	-	90,818
Avg. Annual Compensation	$ 57,363	$ 59,961	$ 63,363	$ 64,734	$ 68,447	$ 73,030	$ 98,071	$ 105,678	$ 34,956	$ -	$ -	$ -	$ 64,312

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Exhibit C-4g
Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2019
Safety Plan A

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	1	-	-	3	4
65 & Over	-	-	-	-	-	-	-	-	-	-	-	1	1
Total Count	-	-	-	-	-	-	-	-	1	-	-	4	5

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	184,968	-	-	131,232	144,666
65 & Over	-	-	-	-	-	-	-	-	-	-	-	139,116	139,116
Avg. Annual Compensation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 184,968	$ -	$ -	$ 133,203	$ 143,556

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Exhibit C-4h
Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2019
Safety Plan B

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	2	-	2	75	3	-	-	-	-	-	82
30-34	1	8	6	1	8	360	411	5	-	-	-	-	800
35-39	3	3	6	12	8	268	1,136	189	7	-	-	-	1,632
40-44	3	4	5	6	3	138	685	619	250	16	-	-	1,729
45-49	-	4	1	-	1	58	342	579	759	285	21	-	2,050
50-54	-	3	-	-	1	17	172	303	495	829	495	26	2,341
55-59	-	1	-	-	-	12	45	90	148	242	302	65	905
60-64	-	-	-	-	-	3	8	22	25	40	29	32	159
65 & Over	-	-	-	-	-	1	3	1	5	8	2	7	27
Total Count	7	23	20	19	23	932	2,805	1,808	1,689	1,420	849	130	9,725

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	103,992	-	92,424	105,836	99,300	-	-	-	-	-	105,225
30-34	77,988	97,107	97,632	86,220	98,754	107,979	109,245	110,986	-	-	-	-	108,305
35-39	108,476	105,976	92,818	104,697	110,069	113,775	114,220	117,936	116,367	-	-	-	114,392
40-44	103,212	115,968	101,407	106,768	123,788	110,096	115,116	123,931	127,923	144,056	-	-	119,919
45-49	-	129,189	115,944	-	102,348	108,568	114,998	125,833	135,816	147,156	146,476	-	130,399
50-54	-	157,868	-	-	96,396	107,699	118,809	127,508	135,310	150,494	166,955	174,714	145,405
55-59	-	189,504	-	-	-	120,839	114,494	128,761	135,728	145,725	167,142	185,442	150,568
60-64	-	-	-	-	-	121,488	127,271	126,260	129,604	144,974	166,907	186,003	150,892
65 & Over	-	-	-	-	-	135,396	136,044	174,636	136,006	138,293	147,432	160,774	145,364
Avg. Annual Compensation	$ 101,865	$ 119,066	$ 98,683	$ 104,379	$ 105,458	$ 110,057	$ 114,135	$ 124,774	$ 134,319	$ 148,714	$ 166,467	$ 182,106	$ 129,686

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Exhibit C-4i
Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2019
Safety Plan C

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	152	90	47	16	4	-	-	-	-	-	-	-	309
25-29	260	256	274	207	92	91	-	-	-	-	-	-	1,180
30-34	99	145	200	153	138	194	1	-	-	-	-	-	930
35-39	37	58	90	80	58	78	1	-	-	-	-	-	402
40-44	17	20	28	23	17	27	2	1	-	-	-	-	135
45-49	4	5	10	13	6	13	-	2	-	-	-	-	53
50-54	3	4	3	2	6	6	1	1	-	-	-	-	26
55-59	2	1	1	3	5	12	-	-	-	-	-	-	24
60-64	1	-	-	-	1	2	-	-	-	-	-	-	4
65 & Over	-	-	-	-	-	1	-	-	-	-	-	-	1
Total Count	575	579	653	497	327	424	5	4	-	-	-	-	3,064

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	74,849	79,071	81,766	87,552	93,672	-	-	-	-	-	-	-	78,032
25-29	78,150	84,159	91,054	94,364	97,203	99,673	-	-	-	-	-	-	88,440
30-34	75,236	86,482	91,045	96,081	100,235	103,940	128,988	-	-	-	-	-	93,573
35-39	78,007	88,816	93,432	94,932	101,063	106,566	108,888	-	-	-	-	-	95,333
40-44	79,927	88,243	94,529	97,863	93,972	107,969	97,740	88,848	-	-	-	-	94,950
45-49	86,922	91,054	93,684	99,481	98,618	101,480	-	94,422	-	-	-	-	96,846
50-54	94,720	92,172	102,304	102,840	117,986	103,996	122,244	103,068	-	-	-	-	104,717
55-59	95,208	143,388	116,244	182,784	121,358	130,121	-	-	-	-	-	-	131,944
60-64	148,716	-	-	-	79,644	131,406	-	-	-	-	-	-	122,793
65 & Over	-	-	-	-	-	127,848	-	-	-	-	-	-	127,848
Avg. Annual Compensation	$ 77,149	$ 84,774	$ 90,990	$ 95,628	$ 99,679	$ 104,616	$ 111,120	$ 95,190	$ -	$ -	$ -	$ -	$ 90,822

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Exhibit C-5
Distribution of Retired Members by Age and Retirement Year
as of June 30, 2019
All Plans

	Retirement Year											
Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	1	1	12	13	113	140	$ 880
35-39	-	-	-	-	-	-	3	7	21	69	100	2,611
40-44	-	-	-	-	-	1	3	23	72	112	211	2,985
45-49	-	-	-	-	1	6	58	67	103	152	387	3,209
50-54	-	-	-	1	24	85	126	118	198	701	1,253	3,327
55-59	-	-	-	10	74	153	163	166	661	2,515	3,742	5,337
60-64	-	1	19	52	114	136	175	595	2,343	3,277	6,712	4,901
65-69	-	21	69	98	113	180	617	2,314	3,441	5,092	11,945	4,519
70-74	13	118	205	167	205	811	2,619	3,307	4,158	2,415	14,018	4,563
75-79	31	135	185	223	763	1,889	2,705	2,409	1,607	1,257	11,204	4,523
80-84	64	114	165	582	1,369	1,521	1,543	851	560	1,012	7,781	4,052
85-89	91	109	451	746	1,238	842	455	293	261	732	5,218	3,758
90-94	54	213	420	469	506	220	154	153	175	366	2,730	3,459
95-99	46	137	176	182	100	56	55	50	53	90	945	2,991
100 & Over	19	30	22	12	7	8	7	5	8	3	121	2,754
Total Count	318	878	1,712	2,542	4,514	5,909	8,684	10,370	13,674	17,906	**66,507**	
Avg Monthly Benefit	$ 2,290	$ 2,924	$ 3,052	$ 3,484	$ 4,402	$ 4,297	$ 5,000	$ 4,344	$ 4,424	$ 4,472		**$ 4,385**

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Exhibit C-5a
Distribution of Retired Members by Age and Retirement Year
as of June 30, 2019
General Plan A

Age	Retirement Year										Total Count	Average Monthly Benefit
	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	-	-	3	2	10	15	$ 430
35-39	-	-	-	-	-	-	1	3	2	1	7	1,932
40-44	-	-	-	-	-	-	-	3	6	-	9	2,258
45-49	-	-	-	-	-	-	-	3	3	5	11	3,062
50-54	-	-	-	1	1	1	3	2	3	6	17	1,931
55-59	-	-	-	-	-	4	2	10	4	15	35	3,049
60-64	-	-	4	6	1	7	11	48	105	121	303	4,476
65-69	-	12	26	23	14	28	227	518	813	258	1,919	5,321
70-74	7	52	70	52	60	456	977	1,420	618	313	4,025	5,532
75-79	16	66	79	87	534	881	1,570	682	235	445	4,595	5,240
80-84	38	71	81	453	874	984	674	183	144	564	4,066	4,509
85-89	48	74	355	515	991	476	157	97	99	478	3,290	3,895
90-94	35	166	324	406	400	112	77	84	109	278	1,991	3,434
95-99	37	117	166	165	64	45	40	35	37	70	776	2,972
100 & Over	17	30	22	12	5	5	5	5	7	1	109	2,895
Total Count	198	588	1,127	1,720	2,944	2,999	3,744	3,096	2,187	2,565	**21,168**	
Avg Monthly Benefit	$ 1,725	$ 2,382	$ 2,477	$ 3,013	$ 4,275	$ 4,386	$ 5,908	$ 6,023	$ 5,955	$ 3,700		**$ 4,664**

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Exhibit C-5b
Distribution of Retired Members by Age and Retirement Year
as of June 30, 2019
General Plan B

Age	Retirement Year										Total Count	Average Monthly Benefit
	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	-	-	-	-	-	-	$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	1	1	2,684
50-54	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	1	1	1	3	1,444
60-64	-	-	-	-	1	1	-	15	17	40	74	5,212
65-69	-	-	-	1	1	1	13	26	87	54	183	6,134
70-74	-	-	2	5	3	12	23	55	60	14	174	4,789
75-79	-	-	1	4	5	12	38	27	18	5	110	4,147
80-84	-	-	1	1	4	19	33	20	8	5	91	3,954
85-89	-	-	-	5	9	24	5	8	2	9	62	2,847
90-94	-	-	3	4	14	6	3	1	-	6	37	1,967
95-99	-	-	-	3	3	-	-	1	-	1	8	2,139
100 & Over	-	-	-	-	-	-	-	-	-	1	1	777
Total Count	-	-	7	23	40	75	115	154	193	137	**744**	
Avg Monthly Benefit	$ -	$ -	$ 1,312	$ 1,362	$ 1,985	$ 2,422	$ 3,589	$ 4,596	$ 6,207	$ 5,924		**$ 4,612**

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Exhibit C-5c
Distribution of Retired Members by Age and Retirement Year
as of June 30, 2019
General Plan C

Age	Retirement Year										Total Count	Average Monthly Benefit
	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	-	-	-	-	2	2	$ 4,905
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	2	-	2	1,446
45-49	-	-	-	-	-	-	-	-	1	-	1	1,591
50-54	-	-	-	-	-	-	-	-	-	1	1	1,259
55-59	-	-	-	-	-	-	1	-	1	2	4	4,284
60-64	-	-	1	2	-	1	-	5	12	32	53	4,534
65-69	-	1	2	3	2	3	10	15	40	36	112	5,463
70-74	-	-	3	2	1	5	16	24	43	15	109	4,546
75-79	-	-	-	3	10	8	14	25	14	4	78	3,082
80-84	-	-	-	8	8	13	22	7	6	5	69	2,645
85-89	-	-	1	3	6	10	7	5	1	4	37	2,128
90-94	-	-	1	2	9	1	1	1	1	7	23	1,737
95-99	-	-	-	1	2	-	-	-	-	1	4	1,092
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	1	8	24	38	41	71	82	121	109	**495**	
Avg Monthly Benefit	$ -	$ 1,808	$ 1,477	$ 991	$ 1,316	$ 2,040	$ 2,815	$ 3,351	$ 5,786	$ 5,325		**$ 3,892**

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Exhibit C-5d
Distribution of Retired Members by Age and Retirement Year
as of June 30, 2019
General Plan D

Age	Retirement Year										Total Count	Average Monthly Benefit
	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	-	-	3	6	52	61	$ 697
35-39	-	-	-	-	-	-	1	2	7	23	33	1,651
40-44	-	-	-	-	-	1	1	6	29	31	68	1,980
45-49	-	-	-	-	1	3	14	13	39	59	129	2,214
50-54	-	-	-	-	3	5	24	39	86	413	570	2,025
55-59	-	-	-	-	8	34	50	59	424	862	1,437	2,648
60-64	-	-	2	7	23	41	62	351	698	1,688	2,872	3,548
65-69	-	1	3	14	28	50	220	473	1,196	2,242	4,227	3,961
70-74	-	-	2	12	27	140	275	639	1,461	1,060	3,616	3,558
75-79	-	-	2	10	44	132	311	664	623	330	2,116	3,153
80-84	-	-	4	13	46	127	325	307	181	138	1,141	2,597
85-89	-	-	2	9	31	126	126	74	52	67	487	2,287
90-94	-	-	2	4	29	38	20	21	10	31	155	1,897
95-99	-	1	-	5	15	6	3	1	2	5	38	1,489
100 & Over	-	-	-	-	-	1	-	-	-	1	2	1,691
Total Count	-	2	17	74	255	704	1,432	2,652	4,814	7,002	**16,952**	
Avg Monthly Benefit	$ -	$ 5,677	$ 1,638	$ 1,576	$ 1,717	$ 1,991	$ 2,321	$ 2,730	$ 3,459	$ 3,880		**$ 3,326**

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Exhibit C-5e
Distribution of Retired Members by Age and Retirement Year
as of June 30, 2019
General Plan E

Age	Retirement Year										Total Count	Average Monthly Benefit
	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	1	-	3	2	15	21	$ 475
35-39	-	-	-	-	-	-	1	2	5	9	17	1,019
40-44	-	-	-	-	-	-	-	1	6	18	25	1,500
45-49	-	-	-	-	-	-	-	2	12	15	29	1,271
50-54	-	-	-	-	-	-	2	7	15	23	47	1,056
55-59	-	-	-	-	-	-	2	3	19	364	388	955
60-64	-	-	-	-	-	-	3	9	515	703	1,230	1,662
65-69	-	-	-	-	-	4	8	604	834	2,306	3,756	2,799
70-74	-	-	-	-	1	6	435	718	1,879	868	3,907	2,607
75-79	-	-	-	-	1	241	349	972	671	314	2,548	2,261
80-84	-	-	-	-	80	177	459	313	187	141	1,357	1,733
85-89	-	-	-	29	71	185	132	78	64	60	619	1,405
90-94	-	-	1	10	47	48	26	20	19	9	180	1,202
95-99	-	-	2	8	13	4	4	3	6	5	45	610
100 & Over	-	-	-	-	2	2	-	-	-	-	4	450
Total Count	-	-	3	47	215	668	1,421	2,735	4,234	4,850	**14,173**	
Avg Monthly Benefit	$ -	$ -	$ 266	$ 314	$ 586	$ 823	$ 1,282	$ 1,686	$ 2,576	$ 2,982		**$ 2,293**

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Exhibit C-5f
Distribution of Retired Members by Age and Retirement Year
as of June 30, 2019
General Plan G

Age	Retirement Year										Total Count	Average Monthly Benefit
	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	-	-	-	-	-	-	$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	1	1	891
50-54	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	2	2	257
60-64	-	-	-	-	-	-	-	-	-	9	9	778
65-69	-	-	-	-	-	-	-	-	-	8	8	1,240
70-74	-	-	-	-	-	-	-	-	-	5	5	991
75-79	-	-	-	-	-	-	-	-	-	1	1	5,544
80-84	-	-	-	-	-	-	-	-	-	2	2	1,694
85-89	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	-	-	-	-	-	-	-	28	**28**	
Avg Monthly Benefit	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,151		**$ 1,151**

Exhibit C-5g
Distribution of Retired Members by Age and Retirement Year
as of June 30, 2019
Safety Plan A

	Retirement Year											
Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	-	-	-	2	7	9	$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	1	1	2	6,472
45-49	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	1	3	-	1	2	7	5,517
55-59	-	-	-	-	2	-	1	-	3	12	18	5,743
60-64	-	1	3	2	2	4	5	10	87	25	139	10,056
65-69	-	7	30	31	29	58	75	399	141	88	858	9,179
70-74	6	66	120	85	97	165	837	338	53	117	1,884	8,265
75-79	15	69	102	119	163	610	401	34	40	155	1,708	7,760
80-84	26	43	79	106	356	199	29	21	33	155	1,047	6,978
85-89	43	35	92	184	128	21	27	31	43	111	715	6,355
90-94	19	47	89	43	7	15	27	26	36	35	344	5,763
95-99	9	19	8	-	3	1	8	10	8	8	74	5,604
100 & Over	2	-	-	-	-	-	2	-	1	-	5	2,336
Total Count	120	287	523	570	787	1,074	1,415	869	449	716	**6,810**	
Avg Monthly Benefit	$ 3,223	$ 4,021	$ 4,436	$ 5,739	$ 7,357	$ 8,109	$ 9,556	$ 9,968	$ 8,891	$ 6,571		**$ 7,711**

This work product was prepared solely for LACERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Exhibit C-5h
Distribution of Retired Members by Age and Retirement Year
as of June 30, 2019
Safety Plan B

Age	Retirement Year										Total Count	Average Monthly Benefit
	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	-	1	3	1	25	30	$ 1,625
35-39	-	-	-	-	-	-	-	-	7	36	43	4,088
40-44	-	-	-	-	-	-	2	13	28	61	104	4,026
45-49	-	-	-	-	-	3	44	49	48	71	215	4,096
50-54	-	-	-	-	20	78	94	70	93	256	611	4,732
55-59	-	-	-	10	64	115	107	93	209	1,255	1,853	8,398
60-64	-	-	9	35	87	82	94	157	909	659	2,032	8,501
65-69	-	-	8	26	39	36	64	279	330	99	881	7,798
70-74	-	-	8	11	16	27	56	113	43	23	297	5,816
75-79	-	-	1	-	6	5	22	5	6	3	48	4,321
80-84	-	-	-	1	1	2	1	-	1	2	8	3,554
85-89	-	-	1	1	2	-	1	-	-	3	8	1,342
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	27	84	235	348	486	782	1,675	2,493	**6,130**	
Avg Monthly Benefit	$ -	$ -	$ 2,370	$ 2,563	$ 3,420	$ 3,761	$ 4,158	$ 6,263	$ 8,357	$ 9,140		**$ 7,520**

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Exhibit C-5i
Distribution of Retired Members and Beneficiaries by Age and Retirement Year
as of June 30, 2019
Safety Plan C

Age	Retirement Year										Total Count	Average Monthly Benefit
	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	-	-	-	-	2	2	$ 2,830
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	1	1	2,917
45-49	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	2	2	1,100
60-64	-	-	-	-	-	-	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-	-	1	1	23,144
70-74	-	-	-	-	-	-	-	-	1	-	1	17,848
75-79	-	-	-	-	-	-	-	-	-	-	-	-
80-84	-	-	-	-	-	-	-	-	-	-	-	-
85-89	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	-	-	-	-	-	-	1	6	**7**	
Avg Monthly Benefit	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 17,848	$ 5,654		**$ 7,396**

This work product was prepared solely for LACERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Appendix D Member Contribution Rates

This section illustrates the member normal contribution rates and the normal plus cost-of-living contribution rates by entry age.

This work product was prepared solely for LACERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Exhibit D-1
Normal Member Contribution Rates

	General					Safety		
Entry Age	Plan A	Plan B	Plan C	Plan D	Plan G	Plan A	Plan B	Plan C
16	2.68%	5.36%	4.57%	4.57%	7.36%	4.17%	8.34%	11.27%
17	2.74%	5.48%	4.66%	4.66%	7.36%	4.17%	8.34%	11.27%
18	2.80%	5.59%	4.76%	4.76%	7.36%	4.17%	8.34%	11.27%
19	2.86%	5.71%	4.87%	4.87%	7.36%	4.25%	8.50%	11.27%
20	2.92%	5.83%	4.97%	4.97%	7.36%	4.34%	8.67%	11.27%
21	2.98%	5.95%	5.07%	5.07%	7.36%	4.42%	8.85%	11.27%
22	3.04%	6.08%	5.18%	5.18%	7.36%	4.51%	9.03%	11.27%
23	3.10%	6.21%	5.29%	5.29%	7.36%	4.61%	9.21%	11.27%
24	3.17%	6.34%	5.40%	5.40%	7.36%	4.70%	9.40%	11.27%
25	3.24%	6.47%	5.52%	5.52%	7.36%	4.74%	9.48%	11.27%
26	3.30%	6.61%	5.63%	5.63%	7.36%	4.78%	9.55%	11.27%
27	3.37%	6.75%	5.75%	5.75%	7.36%	4.87%	9.75%	11.27%
28	3.45%	6.89%	5.87%	5.87%	7.36%	4.97%	9.95%	11.27%
29	3.52%	7.04%	6.00%	6.00%	7.36%	5.08%	10.15%	11.27%
30	3.59%	7.19%	6.12%	6.12%	7.36%	5.14%	10.28%	11.27%
31	3.67%	7.34%	6.25%	6.25%	7.36%	5.20%	10.40%	11.27%
32	3.75%	7.50%	6.38%	6.38%	7.36%	5.31%	10.61%	11.27%
33	3.83%	7.66%	6.52%	6.52%	7.36%	5.41%	10.83%	11.27%
34	3.91%	7.82%	6.66%	6.66%	7.36%	5.52%	11.04%	11.27%
35	3.99%	7.98%	6.80%	6.80%	7.36%	5.63%	11.27%	11.27%
36	4.07%	8.14%	6.95%	6.95%	7.36%	5.75%	11.49%	11.27%
37	4.15%	8.30%	7.10%	7.10%	7.36%	5.86%	11.72%	11.27%
38	4.23%	8.47%	7.25%	7.25%	7.36%	5.98%	11.95%	11.27%
39	4.32%	8.63%	7.40%	7.40%	7.36%	6.09%	12.19%	11.27%
40	4.40%	8.80%	7.55%	7.55%	7.36%	6.21%	12.43%	11.27%
41	4.49%	8.97%	7.70%	7.70%	7.36%	6.34%	12.67%	11.27%
42	4.57%	9.15%	7.85%	7.85%	7.36%	6.45%	12.91%	11.27%
43	4.66%	9.32%	8.01%	8.01%	7.36%	6.56%	13.12%	11.27%
44	4.75%	9.49%	8.17%	8.17%	7.36%	6.65%	13.30%	11.27%
45	4.83%	9.66%	8.33%	8.33%	7.36%	6.70%	13.40%	11.27%
46	4.91%	9.83%	8.49%	8.49%	7.36%	6.70%	13.40%	11.27%
47	4.99%	9.97%	8.66%	8.66%	7.36%	6.70%	13.40%	11.27%
48	5.04%	10.09%	8.82%	8.82%	7.36%	6.70%	13.40%	11.27%
49	5.09%	10.18%	8.98%	8.98%	7.36%	6.70%	13.40%	11.27%
50	5.12%	10.23%	9.14%	9.14%	7.36%	6.70%	13.40%	11.27%
51	5.13%	10.25%	9.30%	9.30%	7.36%	6.70%	13.40%	11.27%
52	5.13%	10.25%	9.43%	9.43%	7.36%	6.70%	13.40%	11.27%
53	5.13%	10.25%	9.54%	9.54%	7.36%	6.70%	13.40%	11.27%
54	5.13%	10.25%	9.63%	9.63%	7.36%	6.70%	13.40%	11.27%
55	5.13%	10.25%	9.68%	9.68%	7.36%	6.70%	13.40%	11.27%
56	5.13%	10.25%	9.70%	9.70%	7.36%	6.70%	13.40%	11.27%
57	5.13%	10.25%	9.70%	9.70%	7.36%	6.70%	13.40%	11.27%
58	5.13%	10.25%	9.70%	9.70%	7.36%	6.70%	13.40%	11.27%
59	5.13%	10.25%	9.70%	9.70%	7.36%	6.70%	13.40%	11.27%
60	5.13%	10.25%	9.70%	9.70%	7.36%	6.70%	13.40%	11.27%

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Exhibit D-2
Normal Plus Cost-of-Living Member Contribution Rates

	General					Safety		
Entry Age	Plan A	Plan B	Plan C	Plan D	Plan G	Plan A	Plan B	Plan C
16	4.94%	6.75%	5.80%	5.76%	9.11%	7.80%	11.09%	14.54%
17	5.05%	6.90%	5.91%	5.87%	9.11%	7.80%	11.09%	14.54%
18	5.16%	7.04%	6.04%	5.99%	9.11%	7.80%	11.09%	14.54%
19	5.28%	7.19%	6.18%	6.13%	9.11%	7.95%	11.31%	14.54%
20	5.39%	7.34%	6.30%	6.26%	9.11%	8.12%	11.53%	14.54%
21	5.50%	7.49%	6.43%	6.39%	9.11%	8.27%	11.77%	14.54%
22	5.61%	7.65%	6.57%	6.52%	9.11%	8.44%	12.01%	14.54%
23	5.72%	7.82%	6.71%	6.66%	9.11%	8.63%	12.25%	14.54%
24	5.85%	7.98%	6.85%	6.80%	9.11%	8.80%	12.50%	14.54%
25	5.98%	8.15%	7.00%	6.95%	9.11%	8.87%	12.61%	14.54%
26	6.09%	8.32%	7.14%	7.09%	9.11%	8.95%	12.70%	14.54%
27	6.22%	8.50%	7.29%	7.24%	9.11%	9.11%	12.97%	14.54%
28	6.36%	8.67%	7.44%	7.39%	9.11%	9.30%	13.24%	14.54%
29	6.49%	8.86%	7.61%	7.56%	9.11%	9.51%	13.50%	14.54%
30	6.62%	9.05%	7.76%	7.71%	9.11%	9.62%	13.68%	14.54%
31	6.77%	9.24%	7.93%	7.87%	9.11%	9.73%	13.84%	14.54%
32	6.92%	9.44%	8.09%	8.03%	9.11%	9.94%	14.11%	14.54%
33	7.06%	9.64%	8.27%	8.21%	9.11%	10.12%	14.41%	14.54%
34	7.21%	9.85%	8.45%	8.39%	9.11%	10.33%	14.69%	14.54%
35	7.36%	10.05%	8.62%	8.56%	9.11%	10.54%	14.99%	14.54%
36	7.51%	10.25%	8.81%	8.75%	9.11%	10.76%	15.29%	14.54%
37	7.66%	10.45%	9.00%	8.94%	9.11%	10.97%	15.59%	14.54%
38	7.80%	10.66%	9.19%	9.13%	9.11%	11.19%	15.90%	14.54%
39	7.97%	10.87%	9.38%	9.32%	9.11%	11.40%	16.22%	14.54%
40	8.12%	11.08%	9.57%	9.51%	9.11%	11.62%	16.54%	14.54%
41	8.28%	11.29%	9.76%	9.70%	9.11%	11.87%	16.85%	14.54%
42	8.43%	11.52%	9.95%	9.89%	9.11%	12.07%	17.17%	14.54%
43	8.60%	11.73%	10.16%	10.09%	9.11%	12.28%	17.45%	14.54%
44	8.76%	11.95%	10.36%	10.29%	9.11%	12.45%	17.69%	14.54%
45	8.91%	12.16%	10.56%	10.49%	9.11%	12.54%	17.83%	14.54%
46	9.06%	12.38%	10.77%	10.69%	9.11%	12.54%	17.83%	14.54%
47	9.20%	12.55%	10.98%	10.91%	9.11%	12.54%	17.83%	14.54%
48	9.30%	12.70%	11.18%	11.11%	9.11%	12.54%	17.83%	14.54%
49	9.39%	12.82%	11.39%	11.31%	9.11%	12.54%	17.83%	14.54%
50	9.44%	12.88%	11.59%	11.51%	9.11%	12.54%	17.83%	14.54%
51	9.46%	12.90%	11.79%	11.71%	9.11%	12.54%	17.83%	14.54%
52	9.46%	12.90%	11.96%	11.88%	9.11%	12.54%	17.83%	14.54%
53	9.46%	12.90%	12.10%	12.01%	9.11%	12.54%	17.83%	14.54%
54	9.46%	12.90%	12.21%	12.13%	9.11%	12.54%	17.83%	14.54%
55	9.46%	12.90%	12.28%	12.19%	9.11%	12.54%	17.83%	14.54%
56	9.46%	12.90%	12.30%	12.22%	9.11%	12.54%	17.83%	14.54%
57	9.46%	12.90%	12.30%	12.22%	9.11%	12.54%	17.83%	14.54%
58	9.46%	12.90%	12.30%	12.22%	9.11%	12.54%	17.83%	14.54%
59	9.46%	12.90%	12.30%	12.22%	9.11%	12.54%	17.83%	14.54%
60	9.46%	12.90%	12.30%	12.22%	9.11%	12.54%	17.83%	14.54%

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Appendix E Historical Information

This section presents historical statistical information on LACERA's membership and the calculated contribution rates.

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Exhibit E-1
Active Membership Data

	General Members					Safety Members					Total Members				
Valuation Date (June 30)	Number	Annual Salary (in millions)	Average Age	Average Service	Average Monthly Salary	Number	Annual Salary (in millions)	Average Age	Average Service	Average Monthly Salary	Number	Annual Salary (in millions)	Average Age	Average Service	Average Monthly Salary
1998	65,782	$ 2,837	44.7	12.9	$ 3,594	10,947	$ 725	39.9	13.8	$ 5,519	76,729	$ 3,562	44.0	13.0	$ 3,870
1999	68,652	$ 3,105	44.6	12.7	$ 3,769	11,024	$ 753	40.0	13.7	$ 5,696	79,676	$ 3,858	43.9	12.8	$ 4,035
2000	71,940	$ 3,353	44.4	12.5	$ 3,884	11,264	$ 790	39.8	13.8	$ 5,849	83,204	$ 4,143	43.8	12.6	$ 4,150
2001	75,048	$ 3,608	44.5	12.3	$ 4,006	12,021	$ 860	39.6	13.0	$ 5,967	87,069	$ 4,468	43.9	12.4	$ 4,277
2002	77,062	$ 3,833	44.7	12.3	$ 4,145	12,190	$ 894	39.6	13.8	$ 6,115	89,252	$ 4,727	44.0	12.5	$ 4,414
2003	75,995	$ 3,954	45.2	12.7	$ 4,336	11,765	$ 899	40.1	13.7	$ 6,370	87,760	$ 4,853	44.5	12.9	$ 4,609
2004	74,826	$ 3,967	45.6	13.1	$ 4,418	11,409	$ 885	40.6	14.7	$ 6,467	86,235	$ 4,852	44.9	13.3	$ 4,689
2005	75,167	$ 4,046	45.8	13.2	$ 4,486	11,217	$ 905	41.0	14.9	$ 6,722	86,384	$ 4,951	45.2	13.4	$ 4,777
2006	77,167	$ 4,267	45.7	13.0	$ 4,608	11,464	$ 969	41.2	15.0	$ 7,047	88,631	$ 5,236	45.1	13.3	$ 4,924
2007	79,829	$ 4,673	45.7	12.8	$ 4,878	12,267	$ 1,104	40.8	14.4	$ 7,499	92,096	$ 5,777	45.1	13.0	$ 5,227
2008	81,664	$ 5,017	45.8	12.8	$ 5,119	12,828	$ 1,187	40.5	13.7	$ 7,714	94,492	$ 6,204	45.1	12.9	$ 5,471
2009	82,878	$ 5,348	46.1	13.1	$ 5,377	12,910	$ 1,240	40.8	14.0	$ 8,002	95,788	$ 6,588	45.4	13.2	$ 5,731
2010	81,413	$ 5,318	46.6	13.6	$ 5,444	12,997	$ 1,257	41.3	14.5	$ 8,062	94,410	$ 6,575	45.9	13.7	$ 5,804
2011	80,145	$ 5,295	47.0	14.0	$ 5,506	12,641	$ 1,240	41.9	15.1	$ 8,172	92,786	$ 6,535	46.3	14.2	$ 5,869
2012	79,467	$ 5,272	47.3	14.4	$ 5,528	12,485	$ 1,230	42.3	15.5	$ 8,209	91,952	$ 6,502	46.7	14.6	$ 5,892
2013	79,006	$ 5,253	47.6	14.8	$ 5,541	12,539	$ 1,235	42.3	15.7	$ 8,207	91,545	$ 6,488	46.9	14.9	$ 5,906
2014	79,943	$ 5,488	47.6	14.9	$ 5,720	12,523	$ 1,253	42.6	15.8	$ 8,337	92,466	$ 6,741	47.0	15.0	$ 6,075
2015	81,228	$ 5,706	47.6	14.8	$ 5,854	12,446	$ 1,300	42.8	16.0	$ 8,702	93,674	$ 7,006	46.9	15.0	$ 6,233
2016	82,916	$ 5,950	47.4	14.6	$ 5,980	12,528	$ 1,343	42.8	16.0	$ 8,931	95,444	$ 7,293	46.8	14.8	$ 6,367
2017	84,513	$ 6,290	47.3	14.5	$ 6,202	12,698	$ 1,388	42.5	15.6	$ 9,110	97,211	$ 7,678	46.7	14.6	$ 6,582
2018	85,703	$ 6,610	47.2	14.4	$ 6,428	12,771	$ 1,452	42.2	15.3	$ 9,471	98,474	$ 8,062	46.6	14.5	$ 6,822
2019	86,392	$ 6,816	47.3	14.4	$ 6,574	12,794	$ 1,540	42.0	15.1	$ 10,032	99,186	$ 8,356	46.6	14.5	$ 7,020

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Exhibit E-2
Retired Membership Data

	General Members				Safety Members				Total Members			
Valuation Date (June 30)	Number	Annual Allowance (in millions)	Average Age	Average Monthly Benefit	Number	Annual Allowance (in millions)	Average Age	Average Monthly Benefit	Number	Annual Allowance (in millions)	Average Age	Average Monthly Benefit
1998	35,462	$ 692	71.1	$ 1,626	7,425	$ 267	62.5	$ 3,001	42,887	$ 959	69.6	$ 1,864
1999	35,837	$ 725	71.4	$ 1,686	7,674	$ 291	63.1	$ 3,166	43,511	$ 1,016	70.0	$ 1,947
2000	36,596	$ 780	71.4	$ 1,778	8,032	$ 324	63.1	$ 3,358	44,628	$ 1,104	69.9	$ 2,062
2001	37,077	$ 890	71.6	$ 2,001	8,319	$ 382	63.4	$ 3,828	45,396	$ 1,272	70.1	$ 2,336
2002	37,618	$ 914	71.8	$ 2,025	8,624	$ 403	63.7	$ 3,892	46,242	$ 1,317	70.3	$ 2,374
2003	38,283	$ 984	71.9	$ 2,142	8,949	$ 443	63.9	$ 4,128	47,232	$ 1,427	70.4	$ 2,518
2004	39,097	$ 1,056	72.0	$ 2,250	9,235	$ 478	64.2	$ 4,318	48,332	$ 1,534	70.5	$ 2,645
2005	40,251	$ 1,138	72.1	$ 2,355	9,518	$ 514	64.6	$ 4,504	49,769	$ 1,652	70.7	$ 2,766
2006	41,309	$ 1,224	72.2	$ 2,469	9,683	$ 549	65.0	$ 4,728	50,992	$ 1,773	70.8	$ 2,898
2007	41,584	$ 1,280	72.2	$ 2,565	9,808	$ 578	65.4	$ 4,914	51,392	$ 1,858	70.9	$ 3,013
2008	42,298	$ 1,356	72.4	$ 2,671	10,052	$ 623	65.8	$ 5,167	52,350	$ 1,979	71.1	$ 3,150
2009	42,825	$ 1,423	72.6	$ 2,768	10,244	$ 663	66.3	$ 5,394	53,069	$ 2,086	71.4	$ 3,275
2010	43,752	$ 1,514	72.7	$ 2,883	10,444	$ 706	66.7	$ 5,638	54,196	$ 2,220	71.6	$ 3,414
2011	44,726	$ 1,597	72.9	$ 2,976	10,645	$ 746	67.0	$ 5,836	55,371	$ 2,343	71.7	$ 3,526
2012	45,899	$ 1,686	73.0	$ 3,061	10,871	$ 789	67.3	$ 6,049	56,770	$ 2,475	71.9	$ 3,633
2013	46,939	$ 1,774	73.2	$ 3,149	11,147	$ 837	67.5	$ 6,261	58,086	$ 2,611	72.1	$ 3,746
2014	47,867	$ 1,836	73.4	$ 3,196	11,362	$ 876	67.8	$ 6,427	59,229	$ 2,712	72.3	$ 3,816
2015	48,958	$ 1,898	73.5	$ 3,231	11,648	$ 914	68.0	$ 6,541	60,606	$ 2,813	72.5	$ 3,867
2016	50,034	$ 1,988	73.6	$ 3,311	11,880	$ 965	68.3	$ 6,766	61,914	$ 2,952	72.6	$ 3,974
2017	51,083	$ 2,079	73.8	$ 3,391	12,241	$ 1,030	68.4	$ 7,012	63,324	$ 3,109	72.7	$ 4,091
2018	52,292	$ 2,192	73.9	$ 3,493	12,588	$ 1,104	68.5	$ 7,308	64,880	$ 3,296	72.8	$ 4,233
2019	53,560	$ 2,316	73.9	$ 3,603	12,947	$ 1,184	68.6	$ 7,620	66,507	$ 3,500	72.9	$ 4,385

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Exhibit E-3
Contribution Rates

	General Plans					Safety Plans					Total All Plans				
Valuation Date (June 30)	Calculated Normal Cost	Member Contributions	Net Employer Normal Cost	UAAL Rate	Total Employer Contribution	Calculated Normal Cost	Member Contributions	Net Employer Normal Cost	UAAL Rate	Total Employer Contribution	Calculated Normal Cost	Member Contributions	Net Employer Normal Cost	UAAL Rate	Total Employer Contribution
1998	10.27%	3.06%	7.21%	0.00%	7.21%	25.00%	8.70%	16.30%	0.00%	16.30%	13.27%	4.21%	9.06%	0.00%	9.06%
1999	10.98%	3.20%	7.78%	0.00%	7.78%	25.41%	9.12%	16.29%	0.00%	16.29%	13.81%	4.36%	9.45%	0.00%	9.45%
2000	10.91%	3.33%	7.58%	0.00%	7.58%	25.22%	9.44%	15.78%	0.00%	15.78%	13.66%	4.51%	9.15%	0.00%	9.15%
2001	11.27%	3.45%	7.82%	0.00%	7.82%	25.47%	9.27%	16.20%	0.00%	16.20%	14.01%	4.57%	9.44%	0.00%	9.44%
2002	12.04%	3.53%	8.51%	0.21%	8.72%	25.92%	9.37%	16.55%	0.21%	16.76%	14.66%	4.63%	10.03%	0.21%	10.24%
2003	12.25%	3.72%	8.53%	4.66%	13.19%	25.89%	9.55%	16.34%	4.66%	21.00%	14.80%	4.81%	9.99%	4.66%	14.65%
2004	12.20%	3.82%	8.38%	6.41%	14.79%	24.61%	9.61%	15.00%	6.41%	21.41%	14.48%	4.88%	9.60%	6.41%	16.01%
2005	12.22%	3.91%	8.31%	5.33%	13.64%	24.69%	9.68%	15.01%	5.33%	20.34%	14.50%	4.97%	9.53%	5.33%	14.86%
2006	12.22%	4.07%	8.15%	3.49%	11.64%	24.70%	9.70%	15.00%	3.49%	18.49%	14.54%	5.12%	9.42%	3.49%	12.91%
2007	13.15%	4.38%	8.77%	2.24%	11.01%	26.04%	10.18%	15.86%	2.24%	18.10%	15.67%	5.51%	10.16%	2.24%	12.40%
2008	13.18%	4.47%	8.71%	1.99%	10.70%	26.01%	10.22%	15.79%	1.99%	17.78%	15.68%	5.59%	10.09%	1.99%	12.08%
2009	13.29%	4.57%	8.72%	4.12%	12.84%	26.08%	10.21%	15.87%	4.12%	19.99%	15.75%	5.65%	10.10%	4.12%	14.22%
2010	13.32%	4.68%	8.64%	6.47%	15.11%	25.00%	10.19%	14.81%	6.47%	21.28%	15.59%	5.75%	9.84%	6.47%	16.31%
2011	13.36%	4.91%	8.45%	7.89%	16.34%	25.09%	10.50%	14.59%	7.89%	22.48%	15.65%	6.00%	9.65%	7.89%	17.54%
2012	13.50%	5.01%	8.49%	10.09%	18.58%	25.42%	10.52%	14.90%	10.09%	24.99%	15.81%	6.08%	9.73%	10.09%	19.82%
2013	13.25%	5.01%	8.24%	11.90%	20.14%	24.67%	10.26%	14.41%	11.90%	26.31%	15.47%	6.03%	9.44%	11.90%	21.34%
2014	13.14%	5.09%	8.05%	10.04%	18.09%	24.71%	10.23%	14.48%	10.04%	24.52%	15.37%	6.08%	9.29%	10.04%	19.33%
2015	13.28%	5.22%	8.06%	8.49%	16.55%	24.71%	10.26%	14.45%	8.49%	22.94%	15.46%	6.18%	9.28%	8.49%	17.77%
2016	14.51%	5.72%	8.79%	9.73%	18.52%	25.54%	10.57%	14.97%	9.73%	24.70%	16.62%	6.65%	9.97%	9.73%	19.70%
2017	14.62%	5.87%	8.75%	10.10%	18.85%	25.69%	10.56%	15.13%	10.10%	25.23%	16.70%	6.76%	9.94%	10.10%	20.04%
2018	14.77%	6.04%	8.73%	10.99%	19.72%	25.70%	10.59%	15.11%	10.99%	26.10%	16.80%	6.88%	9.92%	10.99%	20.91%
2019	16.24%	6.74%	9.50%	11.73%	21.23%	28.58%	11.78%	16.80%	11.73%	28.53%	18.54%	7.68%	10.86%	11.73%	22.59%

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Exhibit E-4
Funded Status History

(Dollars in Millions)

		Market Value Basis			Actuarial Value Basis						
Valuation Year	Actuarial Accrued Liability (AAL)	Market Value of Assets (MVA)[1]	Unfunded AAL (UAAL)/Surplus MVA Basis	Funded Ratio MVA Basis	Actuarial Value of Assets (AVA)[1]	Unfunded AAL (UAAL)/Surplus AVA Basis	Funded Ratio AVA Basis	Annual Total Payroll	Asset Smoothing Ratio (AVA / MVA)	Asset Volatility Ratio (MVA / Payroll)	Liability Volatility Ratio (AAL / Payroll)
1996 [2]	17,300	18,600	1,300	107.5%	17,700	400	102.3%	3,356	95.2%	5.5	5.2
1997 [2]	19,300	21,100	1,800	109.3%	19,600	300	101.6%	3,373	92.9%	6.3	5.7
1998	20,960	22,332	1,372	106.5%	20,851	(109)	99.5%	3,562	93.4%	6.3	5.9
1999	22,785	24,382	1,597	107.0%	23,536	751	103.3%	3,858	96.5%	6.3	5.9
2000	24,721	27,257	2,536	110.3%	25,427	706	102.9%	4,143	93.3%	6.6	6.0
2001	26,490	23,916	(2,574)	90.3%	26,490	-	100.0%	4,469	110.8%	5.4	5.9
2002	28,437	24,085	(4,352)	84.7%	28,262	(175)	99.4%	4,730	117.3%	5.1	6.0
2003	30,474	24,616	(5,858)	80.8%	26,564	(3,910)	87.2%	4,934	107.9%	5.0	6.2
2004	32,700	28,094	(4,606)	85.9%	27,089	(5,611)	82.8%	4,942	96.4%	5.7	6.6
2005	34,375	30,904	(3,471)	89.9%	29,497	(4,878)	85.8%	5,051	95.4%	6.1	6.8
2006	36,259	34,256	(2,003)	94.5%	32,820	(3,439)	90.5%	5,333	95.8%	6.4	6.8
2007	39,503	40,073	570	101.4%	37,042	(2,461)	93.8%	5,886	92.4%	6.8	6.7
2008	41,975	37,834	(4,141)	90.1%	39,662	(2,313)	94.5%	6,257	104.8%	6.0	6.7
2009	44,469	29,723	(14,746)	66.8%	39,542	(4,927)	88.9%	6,673	133.0%	4.5	6.7
2010	46,646	32,629	(14,017)	69.9%	38,839	(7,807)	83.3%	6,739	119.0%	4.8	6.9
2011	48,599	38,587	(10,012)	79.4%	39,194	(9,405)	80.6%	6,705	101.6%	5.8	7.2
2012	50,809	37,453	(13,356)	73.7%	39,039	(11,770)	76.8%	6,675	104.2%	5.6	7.6
2013	53,247	41,334	(11,913)	77.6%	39,932	(13,315)	75.0%	6,656	96.6%	6.2	8.0
2014	54,942	47,223	(7,719)	86.0%	43,654	(11,288)	79.5%	6,815	92.4%	6.9	8.1
2015	56,819	48,308	(8,511)	85.0%	47,328	(9,491)	83.3%	7,078	98.0%	6.8	8.0
2016	62,199	47,347	(14,852)	76.1%	49,358	(12,841)	79.4%	7,390	104.2%	6.4	8.4
2017	65,311	52,217	(13,094)	80.0%	52,166	(13,145)	79.9%	7,749	99.9%	6.7	8.4
2018	68,527	55,737	(12,790)	81.3%	55,233	(13,294)	80.6%	8,079	99.1%	6.9	8.5
2019	74,635	57,712	(16,923)	77.3%	57,617	(17,018)	77.2%	8,423	99.8%	6.9	8.9

1. *Asset values exclude non-valuation reserves*
2. *Only rounded values are available.*

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Exhibit E-5
Reconciliation of Changes in Unfunded Actuarial Accrued Liability or Surplus

(Dollars in Millions)

Valuation Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Prior Year UAAL	4,927	7,807	9,405	11,770	13,315	11,288	9,491	12,841	13,145	13,294
Normal Cost	1,219	1,200	1,237	1,430	1,163	1,068	1,118	1,246	1,243	1,352
Contributions	(1,322)	(1,461)	(1,646)	(1,455)	(1,824)	(1,936)	(1,902)	(1,880)	(2,116)	(2,303)
Interest	382	605	724	895	999	814	682	954	968	976
Changes in Assumptions/Methodology	54	221	457	511	-	-	2,922	-	-	2,528
Changes in Benefit Provisions	-	-	-	-	-	-	-	-	-	-
Expected Current Year UAAL	5,260	8,372	10,177	13,151	13,653	11,234	12,311	13,161	13,240	15,847
Actual Current Year UAAL	7,807	9,405	11,770	13,315	11,288	9,491	12,841	13,145	13,294	17,018
Total (Gain)/Loss on UAAL	2,547	1,033	1,593	164	(2,365)	(1,743)	530	(16)	54	1,171
Asset (Gains)/Losses	2,879	1,761	2,337	893	(1,664)	(1,263)	496	(421)	(411)	477
Ventura Settlement/Court Cases	-	-	-	-	-	-	-	-	-	-
Salary Increases	(353)	(579)	(629)	(563)	(291)	79	162	277	223	486
All Other Actuarial (Gains)/Losses	21	(149)	(115)	(166)	(410)	(559)	(128)	128	242	208

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Exhibit E-6
Reconciliation of Changes in Calculated Employer Contribution Rate

Valuation Year	Prior Year Contribution Rate	Changes in Existing Amortization Bases	Assumption/ Method Changes	Salary/Payroll Variations	Plan Amendments	Asset (Gains)/Losses	Demographic/Other (Gains)/Losses	Current Year Contribution Rate
2004	14.65%	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	16.01%
2005	16.01%	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	14.86%
2006	14.86%	-0.29%	0.00%	0.02%	0.00%	-1.82%	0.14%	12.91%
2007	12.91%	-0.28%	1.34%	0.61%	0.00%	-2.14%	-0.04%	12.40%
2008	12.40%	-0.17%	0.00%	0.21%	0.00%	-0.24%	-0.12%	12.08%
2009	12.08%	-0.04%	-1.76%	0.21%	0.00%	3.91%	-0.18%	14.22%
2010	14.22%	0.00%	-0.27%	-0.10%	0.00%	2.29%	0.17%	16.31%
2011	16.31%	0.00%	0.25%	-0.14%	0.00%	1.39%	-0.27%	17.54%
2012	17.54%	0.00%	0.54%	-0.11%	0.00%	1.92%	-0.07%	19.82%
2013	19.82%	0.00%	0.82%	-0.01%	0.00%	0.74%	-0.03%	21.34%
2014	21.34%	0.00%	0.00%	-0.15%	0.00%	-1.43%	-0.43%	19.33%
2015	19.33%	0.00%	0.00%	0.04%	0.00%	-1.04%	-0.56%	17.77%
2016	17.77%	0.00%	2.87%	0.20%	0.00%	0.39%	-0.02%	21.21%
2017	21.21%	0.00%	0.00%	0.05%	0.00%	-0.32%	0.06%	21.00%
2018	21.00%	0.00%	0.00%	0.04%	0.00%	-0.30%	0.17%	20.91%
2019	20.91%	0.00%	1.10%	0.20%	0.00%	0.42%	-0.04%	22.59%

1. Data not available.

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Exhibit E-7
Funding Policy History

	Description of changes, if any	Effective Date	Impact on Contribution Rate	Impact on Funded Ratio	Rationale
2009	Changed from 3-year to 5-year asset smoothing. Included STAR reserve as a valuation asset. Adopted 30-year layered amortization period.	June 30, 2009	-1.68% [1]	4.40%	See June 30, 2009 valuation report.
2010	Included STAR reserve as a valuation asset.	June 30, 2010	-0.52% [1]	1.40%	See June 30, 2010 valuation report.
2011	Included STAR reserve as a valuation asset.	June 30, 2011	-0.52% [1]	1.20%	See June 30, 2011 valuation report.
2012	Included STAR reserve as a valuation asset for 2012 and future valuations (adopted February 2013).	June 30, 2012	-0.53% [1]	1.20%	See June 30, 2012 valuation report.
2019	Adopted 20-year layered amortization period for new layers. Existing layers are set to be no greater than 22 years, so they are fully amortized no later than 2042.	June 30, 2019	0.30%	0.00%	See June 30, 2019 valuation report.

1. Note that savings due to inclusion of STAR reserve as valuation asset are not cumulative from year to year.

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Exhibit E-8
History of Changes in Economic Assumptions

(Years with no changes excluded)

Valuation Year	Price Inflation	Wage Inflation	Real Wage Inflation[1]	Investment Return Assumption	Real Investment Return[2]	Effective Date	Change in Contribution Rate	Change in Funded Ratio	Rationale
2004	3.50%	3.75%	0.25%	7.75%	4.25%	July 1, 2004	1.65%	N/A[3]	See 2004 Investigation of Experience Report.
2007	3.50%	4.00%	0.50%	7.75%	4.25%	July 1, 2007	0.66%	-1.3%	See 2007 Investigation of Experience Report.
2011	3.45%	3.95%	0.50%	7.70%	4.25%	July 1, 2011	0.25%	-0.3%	See 2010 Investigation of Experience Report.
2012	3.35%	3.85%	0.50%	7.60%	4.25%	July 1, 2012	0.54%	-0.7%	See 2010 Investigation of Experience Report.
2013	3.00%	3.50%	0.50%	7.50%	4.50%	July 1, 2013	0.37%	-0.1%	See 2013 Investigation of Experience Report.
2016	2.75%	3.25%	0.50%	7.25%	4.50%	July 1, 2016	1.14%	-1.4%	See 2016 Investigation of Experience Report.
2019	2.75%	3.25%	0.50%	7.00%	4.25%	July 1, 2019	2.20%	-2.3%	2019 Investigation of Experience.

1. *Excess of assumed wage inflation over price inflation.*
2. *Excess of assumed investment return over price inflation.*
3. *Information not available.*

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Exhibit E-9
History of Changes in Demographic and Other Non-Economic Assumptions

(Years with no changes excluded)

	Demographic Assumption Revisions	Effective Date	Change in Contribution Rate	Change in Funded Ratio	Rationale
2004	Mortality, merit salary scale, retirement, termination, probability of refund, probability of eligible survivor revised.	July 1, 2004	-0.63%	N/A[1]	Refer to the 2004 Investigation of Experience Report.
2007	Mortality, retirement, termination, probability of refund, merit salary scale for Safety members revised.	July 1, 2007	0.68%	N/A[1]	Refer to the 2007 Investigation of Experience Report.
2010	Mortality, retirement, termination, probability of refund, assumed benefit commencement age revised.	July 1, 2010	-0.27%	-0.1%	Refer to the 2010 Investigation of Experience Report.
2013	Mortality, retirement, termination, probability of refund, merit salary scale for Safety members, probability of eligible survivor, assumption for beneficiary age, reciprocity assumption revised.	July 1, 2013	0.45%	-0.6%	Refer to the 2013 Investigation of Experience Report.
2016	Mortality, retirement, termination, probability of eligible survivor, assumed benefit commencement age, reciprocity assumption revised.	July 1, 2016	1.73%	-2.5%	Refer to the 2016 Investigation of Experience Report.
2019	Mortality, retirement, termination, probability of refund, merit salary scale, assumed benefit commencement age.	July 1, 2019	0.80%	-0.4%	2019 Investigation of Experience.

1. Information not available.

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Appendix F Glossary

The following definitions include excerpts from a list adopted by the major actuarial organizations in the United States. In some cases, the definitions have been modified for specific applicability to LACERA and include terms used exclusively by LACERA. Defined terms are capitalized throughout this Appendix.

Accrued Benefit

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

Actuarial Accrued Liability

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

Actuarial Gain (Loss)

A measure of the difference between actual experience and that expected based on a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

Actuarial Present Value

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

Actuarial Valuation

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

Actuarial Value of Assets

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

Amortization Payment

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Contingency Reserve

Reserves accumulated for future earning deficiencies, investment losses, and other contingencies. Additions include investment income and other revenues; deductions include investment expense, administrative expense, interest allocated to other reserves, funding the STAR Reserve, and distributions to the Contribution Credit Reserve. Amounts are allocated to the Contingency Reserve to the extent there are positive recognized earnings

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to allocate. The California Government Code (Sections 31592 and 31592.2) requires the Contingency Reserve to be set at a minimum of 1.0% of the market value of total assets.

County Contribution Credit Reserve

The accumulated balance of the County's proportionate share of excess earnings as stipulated in the Retirement System Funding Agreement between LACERA and the County. Additions include distributions from excess earning during the fiscal years ending 1994 through 1998 and related earnings. Deductions include payments, as the County authorizes, for future employer contributions due LACERA and for funding a portion of the Retiree Healthcare Program under the provisions of Internal Revenue Code 401(h).

Employer Reserve

The accumulation of employer contributions for future retirement benefit payments. Additions include contributions from employers and related earnings. Deductions include annuity payments to retired members and survivors, lump sum death benefit payments to member survivors, and supplemental disability payments.

Entry Age Actuarial Cost Method

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.

Funded Ratio

A measurement of the funded status of the Plan. The Funded Ratio is calculated by dividing the Valuation Assets by the Actuarial Accrued Liability. For example, a Funded Ratio of 90% indicates assets are 10% less than liabilities.

Funding Goal

The Funding Goal is the funded status the Board of Investments would like LACERA to achieve. The main goal is to provide benefit security for its members as well as to achieve and maintain stable employer contributions that are as low as possible. A Funded Ratio equal to 100% is the Funding Goal.

Layered Amortization Period

Payment of each year's change in the Unfunded Actuarial Accrued Liability (UAAL) is amortized over separate closed periods. For LACERA, the original UAAL as of June 30, 2009 is being amortized over a closed 30-year period. Subsequent changes in the UAAL were amortized over new closed 30-year periods. Effective with the June 30, 2019 valuation all existing layers with more than 22 years remaining as of June 30, 2020 were re-amortized over closed 22-year periods. All new UAAL layers thereafter are amortized over closed 20-year periods beginning with the date the contribution is first expected to be made. All amortization payments are based on a level percent of pay.

Member Reserve

The accumulation of member contributions. Additions include member contributions and related earnings. Deductions include annuity payments to retirees and refunds to members.

Non-Valuation Reserves

Reserves excluded from the calculation of contribution rates, including the Contingency Reserve, the County Contribution Credit Reserve, and any other reserves specifically excluded by the Board of Investments.

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Normal Cost

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

Plan Year

A 12-month period beginning July 1 and ending June 30.

Projected Benefits

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.

STAR Reserve

Reserves accumulated for the payment of cost-of-living benefits as defined in California Government Code Section 31874.3.

Supplemental Targeted Adjustment for Retirees (STAR) Benefits Supplemental cost-of-living payments to retired members to restore purchasing power at a specified percentage level, as described in California Government Code Section 31874.3.

Surplus Funding

The excess, if any, of the Actuarial Value of Assets over the Actuarial Accrued Liability. Standard actuarial terminology defines this as the “Funding Excess.” LACERA uses the term “Surplus Funding.”

Unfunded Actuarial Accrued Liability

The excess, if any, of the Actuarial Accrued Liability over the Actuarial Value of Assets.

Valuation Date

The date upon which the Normal Cost, Actuarial Accrued Liability, and Actuarial Value of Assets are determined. Generally, the Valuation Date will coincide with the ending of a Plan Year.

Valuation Reserves

All reserves excluding the Non-Valuation Reserves.

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