



Los Angeles County Employees Retirement Association

Actuarial Valuation of Retirement Benefits June 30, 2018

Prepared by:

Mark C. Olleman, FSA, EA, MAAA

Nick J. Collier, ASA, EA, MAAA

Craig Glyde, ASA, EA, MAAA

Julie D. Smith, FSA, EA, MAAA

Milliman, Inc.
1301 Fifth Avenue, Suite 3800
Seattle, WA 98101-2605
Tel +1 206 624 7940
milliman.com



1301 Fifth Avenue
Suite 3800
Seattle, WA 98101-2605
USA

Tel +1 206 624 7940
Fax +1 206 623 3485

milliman.com

November 29, 2018

Board of Investments
LACERA
300 North Lake Avenue, Suite 820
Pasadena, CA 91101-4199

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, 2018 to be used in determining the contribution rates effective July 1, 2019. 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, 2018, 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.

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.

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 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 has provided LACERA financial reporting results relevant to GASB Statements No. 67 and 68 in separate reports.

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

- (a) LACERA may provide a copy of Milliman's work, in its entirety, to LACERA's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit LACERA.
- (b) LACERA may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

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

The consultants who worked on this assignment are pension 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 Mr. Robert Hill, Interim Chief Executive Officer of LACERA, and to members of his staff, who gave substantial assistance in supplying the data on which this report is based.

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.



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

Sincerely,

A handwritten signature in black ink that reads "Mark C. Olleman".

Mark Olleman, FSA, EA, MAAA
Consulting Actuary

A handwritten signature in black ink that reads "Nick Collier".

Nick Collier, ASA, EA, MAAA
Consulting Actuary

A handwritten signature in black ink that reads "Craig Glyde".

Craig Glyde, ASA, EA, MAAA
Consulting Actuary

A handwritten signature in black ink that reads "Julie D. Smith".

Julie Smith, FSA, EA, MAAA
Consulting Actuary

MO/NC/CG/JS/nlo

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.

Table of Contents

	Page
Section 1	Summary of the Findings 1
Exhibit 1	Summary of Significant Valuation Results9
Section 2	Scope of the Report 11
Section 3	Assets 13
Exhibit 2	Statement of Fiduciary Net Position As of June 30, 2018 and June 30, 2017..... 17
Exhibit 3	Statement of Changes in Fiduciary Net Position For the Years Ended June 30, 2018 and 2017 .18
Exhibit 4	Allocation of Assets by Accounting Reserve Amounts..... 19
Exhibit 5	Five-Year Smoothing of Gains and Losses on Market Value20
Exhibit 6	Allocation of Valuation and Non-Valuation Assets21
Section 4	Actuarial Liabilities..... 23
Exhibit 7	Actuarial Balance Sheet – June 30, 2018 24
Exhibit 8a	Analysis of Change in Unfunded Actuarial Accrued Liability.....28
Exhibit 8b	History of Changes in Unfunded Actuarial Accrued Liability29
Section 5	Member Contributions 31
Exhibit 9	Sample Member Contribution Rates33
Section 6	Employer Contributions..... 35
Exhibit 10	Calculated Normal Cost Contribution Rates – June 30, 2018.....37
Exhibit 11	Total Employer Contributions 38
Exhibit 12	Unfunded Actuarial Accrued Liability Detail 39
Section 7	Supplemental Information 41
Exhibit 13	Schedule of Funding Progress 42
Exhibit 14	Schedule of Contributions from the Employer.....43
Exhibit 15	Solvency Test 44
Exhibit 16	Actuarial Analysis of Financial Experience.....45
Exhibit 17	Retirants and Beneficiaries added to and removed from Retiree Payroll46
Section 8	Cash Flow History and Projections 47
Exhibit 18a	Cash Flow History and Projections – Dollars48
Exhibit 18b	Cash Flow History and Projections – Graphs.....49
Appendix A	Actuarial Procedures and Assumptions A-1
Appendix B	Summary of Plan Provisions..... B-1
Appendix C	Valuation Data and Schedules C-1
Appendix D	Member Contribution Rates D-1
Appendix E	Historical Information E-1
Appendix F	Glossary F-1

Section 1 Summary of the Findings



Overview

2018 Valuation Results

	June 30, 2018	June 30, 2017
Employer Contribution Rate	20.91% ⁽¹⁾	20.04% ⁽²⁾
Funded Ratio	80.6%	79.9%

1. The impact of the 2016 assumption changes is fully phased into the employer contribution rate for the FYB 2019.
2. The FYB 2018 employer contribution rate without phase-in is 21.00%.

This report presents the results of the June 30, 2018 actuarial valuation. This valuation determines the required contribution rates payable starting July 1, 2019. Several key points are summarized as follows:

- Funding:** The Funded Ratio increased from 79.9% to 80.6% primarily due to employer contributions to amortize the Unfunded Actuarial Accrued Liability (UAAL) and the recognition of current and prior year investment gains. On a market value basis, the Funded Ratio increased from 80.0% to 81.3%.
 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 2018, the fund returned 9.0% on a market value basis (net of investment expenses). In total, there was an \$858 million gain 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 8.1%, equivalent to a gain of \$411 million relative to the assumed return.
- Employer Contribution Rates:** The total calculated employer contribution rate increased from the prior valuation by 0.87% (from 20.04% to 20.91%) of payroll. The increase in the employer contribution rate is primarily due to the additional year of phase-in of the cost impact of the 2016 assumption changes. This increase was partially offset by typical year-to-year fluctuations, including the impact of strong investment returns discussed above. The cost impact of the assumption changes has been fully phased into the employer contribution rate as of the June 30, 2018 valuation.

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.

**Overview
 (continued)**

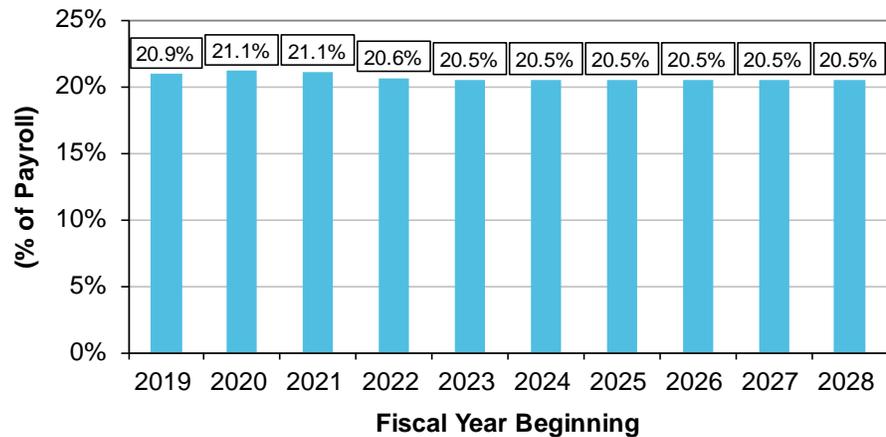
- Member Contribution Rates:** New member contribution rates are recommended for Safety Plan C effective July 1, 2019, based on the normal cost rates calculated in the 2018 valuation. The recommended member rate for Safety Plan C is 13.69%, compared to 13.87% effective July 1, 2018. No changes in member rates are recommended for the other plans. Note that although General Plan G member rates are subject to change every year, the Plan G Normal Cost rate was identical to last year, and therefore the associated member rate remains the same.

**Projected Future
 Employer Contribution
 Rates**

The employer contribution rate beginning July 1, 2019 is 20.91% 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 on page 38.

The new calculated rate is effective for the fiscal year beginning July 1, 2019. 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 this impact, we have performed a 10-year projection of the employer contribution rate that assumes all actuarial assumptions are met and reflects the projected recognition of the remaining deferred asset gains and losses as of June 30, 2018. This projection is shown in the graph below.

Projected Future Employer Contribution Rates⁽¹⁾



1. Projections assume that all actuarial assumptions are met after June 30, 2018, and reflect the scheduled recognition of asset gains and losses currently being deferred. Actual results will vary.

Analysis of Change

The following table shows an analysis of the primary causes of the change in employer contribution rate and Funded Ratio over the last year. The impact of the phase-in of the assumption changes was the most significant factor affecting the employer contribution rate.

Sources of Change	Employer Contribution Rate	Funded Ratio
June 30, 2017 Actuarial Valuation	20.04%	79.9%
Expected Year-to-Year Change	0.00%	0.6%
Assumption Changes	0.00%	0.0%
Recognized Asset Gain/Loss		
From Current Year	-0.09%	0.2%
From Prior Years	-0.21%	0.4%
Combined Asset Gain/Loss	<u>-0.30%</u>	<u>0.6%</u>
Contributions > Assumed	-0.03%	0.1%
Payroll Increase > Assumed	-0.11%	0.0%
Liability Gain/Loss		
Salary Increase > Assumed	0.15%	-0.3%
Retiree COLAs > Assumed	0.03%	-0.1%
Other	0.17%	-0.2%
Combined Liability Gain/Loss	<u>0.35%</u>	<u>-0.6%</u>
Recognition of 2016 Assumptions	<u>0.96%</u>	<u>0.0%</u>
Total Change	<u>0.87%</u>	<u>0.7%</u>
June 30, 2018 Actuarial Valuation	20.91%	80.6%

Based on the 2017 valuation, the expected UAAL as of June 30, 2018 was \$13.29 billion, which is equal to actual UAAL. Although the expected and actual UAAL is equal as of June 30, 2018, there were several offsetting sources of actuarial gains and losses. An analysis of the difference between expected and actual UAAL is shown in Exhibit 8a on page 28.

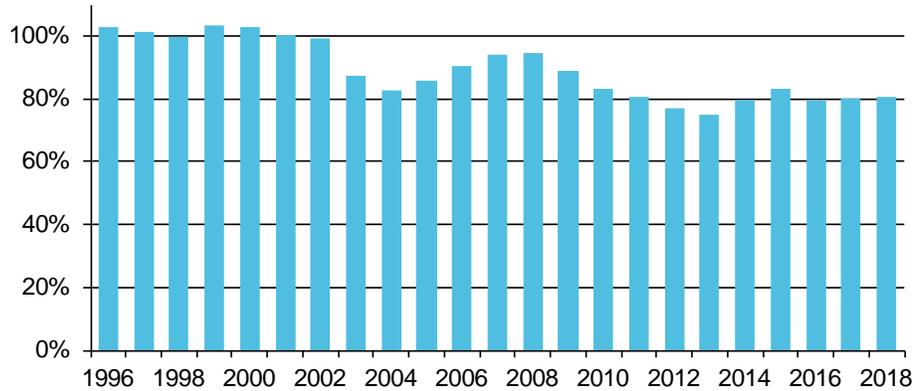
Funding Progress

One measure of the funding adequacy of the Plan is the Funded Ratio, which compares the value of the actuarial value of assets (net of certain non-valuation reserves) to the Actuarial Accrued Liability (AAL), for all LACERA plans combined. LACERA's Funded Ratio was 94.5% as of June 30, 2008. As shown in the graph that follows, the Funded Ratio 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.

**Funding Progress
 (continued)**

On June 30, 2018, the market value of the fund (including non-valuation reserves) was \$56.3 billion. The actuarial value of assets was \$55.8 billion, split between \$0.6 billion of Non-Valuation Assets and \$55.2 billion of Valuation Assets. The Valuation Assets are equal to 80.6% of the \$68.5 billion AAL. The actuarial value of assets is approximately 99% of the market value of assets. A historical perspective of the Funded Ratio is shown in the following table.

Funded Ratio History



Association Assets

- **Market Value:** The market value of assets has increased over the past 10 years. The average rate of return for the fund over that period is 6.3% (net of investment expenses), as reported by LACERA. However, due to benefit payments being greater than contributions, the annual increase in the market value has averaged less. This is typical of a mature retirement plan. The values shown in the market value column are total assets net of liabilities and include all reserves.
- **Actuarial Assets:** The market value of total assets is used in calculating the actuarial value of assets. Under the actuarial asset method, the market value returns in excess of (or less than) the assumed return are smoothed over a five-year period.
- **Valuation Reserves:** The reserves represent the ownership of LACERA's assets. The reserves are established in compliance with the County Employees Retirement Law of 1937 as administered by the Board of Investments. These assets also reflect five-year smoothing. On a smoothed basis, the fund returned 8.1% for the prior year.
- **Non-Valuation Reserves:** The non-valuation reserves are set aside for obligations or contingencies. They are not used to fund the retirement benefits unless explicitly stated. These assets may also reflect smoothing.
- **Valuation Assets:** This is the combination of the valuation reserves and the portion of the non-valuation reserves that are recognized for funding purposes only as specified in LACERA's Funding Policy. Under this 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.

Future Impact of Recognition of Deferred Gains/Losses

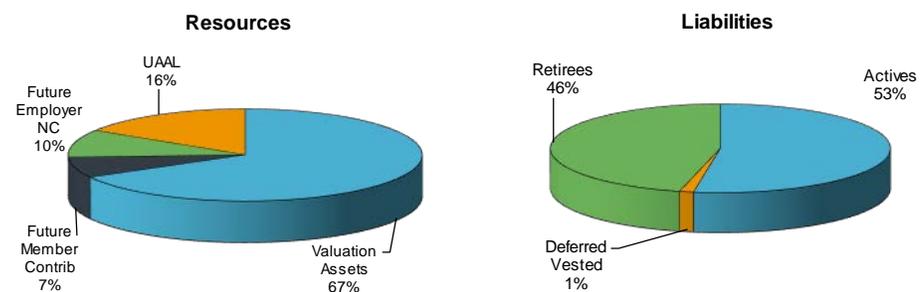
The smoothing method is currently deferring \$504 million in net asset gains. As the currently deferred gains and losses are recognized over upcoming valuations, it is projected there will be short-term increases in the calculated employer contribution rate, followed by a small decrease as the asset gain from the fiscal year ended June 30, 2018 is fully recognized over the next four years.

The potential future impact of the recognition of these deferred gains and losses on the projected employer contribution rate is illustrated in the graph on page 2.

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 equal those currently on hand at the actuarial value, and also equal 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 2018 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.



Funding Policy

The Board of Investments adopted a new Funding Policy in 2009, which was amended in 2013. Significant provisions of this policy, first reflected in the June 30, 2009 actuarial valuation, are as follows:

- **Asset Smoothing Period:** Asset gains and losses are smoothed over a five-year period.
- **Amortization Period:** The Funding Policy utilizes a “layered” amortization method. Under the policy, the UAAL amount as of the valuation for which the policy was first effective (June 30, 2009) is amortized over a closed 30-year period. Subsequent gains and losses on the UAAL are amortized over new closed 30-year periods. The employer contribution rate is not allowed to be less than the rate if LACERA amortized the total UAAL over a 30-year period. Exhibit 12 of this report illustrates in detail the calculation of the total UAAL rate for the fiscal year beginning in 2019.

If LACERA moves to a negative UAAL position, only the normal cost rate will generally be paid. If the Funded Ratio exceeds 120%, the “surplus” amount will be amortized over an open 30-year period.

**Funding Policy
 (continued)**

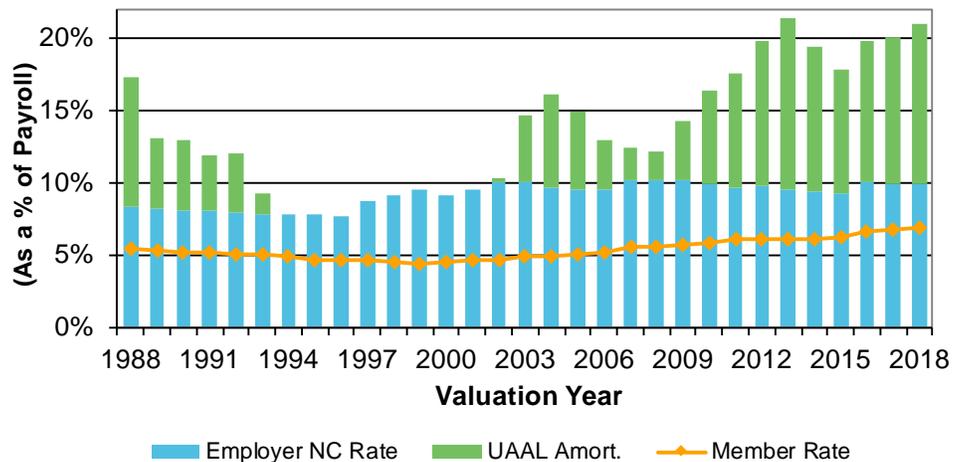
- **STAR Reserve:** The STAR reserve is included in the Valuation Assets. There is no corresponding liability for future STAR benefits included in the valuation. The inclusion of the STAR reserve in the Valuation Assets was formalized for the current and future actuarial valuations in the February 2013 amendment to LACERA's Funding Policy.

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, 2019 would increase by 0.44% of payroll, and the Funded Ratio would decrease by 0.9% to 79.7%.

**Employer Contribution
 Rate History**

Based on the results of the valuation, the calculated employer contribution rate will increase for the fiscal year beginning in 2019 to a rate of 20.91% of pay. A historical perspective of the employer contribution rates is shown in the following graph.

Employer Contribution Rate History



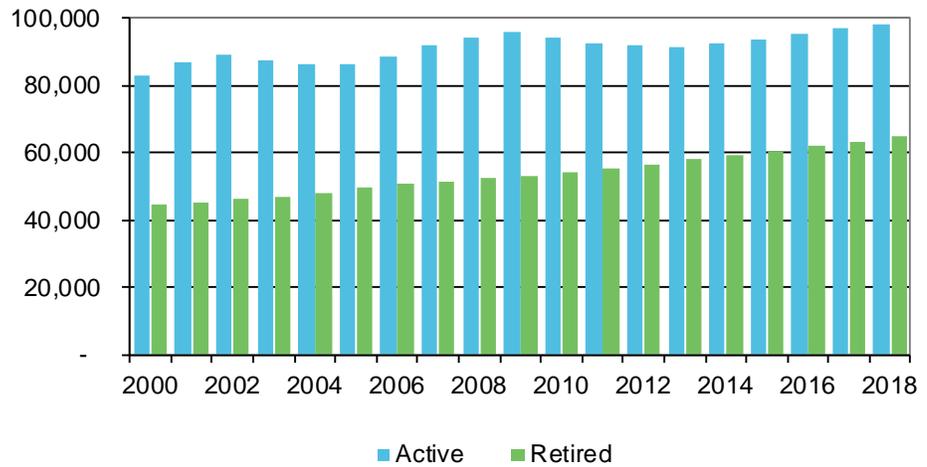
Member Rates

A new member rate for members of Safety Plan C is being recommended that is equal to one-half of the Plan's normal cost rate calculated as of the June 30, 2018 valuation. No changes in the member rates are recommended for the other plans. Note that although General Plan G member rates are subject to change every year, the Plan G Normal Cost rate was identical to last year, and therefore the associated member rate remains the same. Member rates for all plans are discussed in Section 5 and are shown in detail in Appendix D.

Member Information

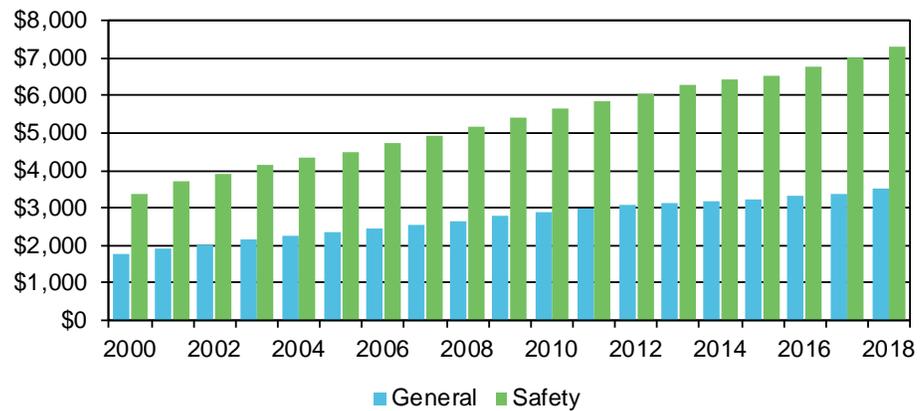
Active membership and payroll have each increased since 2017. As of June 30, 2018, the annualized payroll is \$8.1 billion for 98,474 active members. This reflects a 2.9% increase in average member pay and a 1.3% increase in the number of active members.

Membership Count



Retired member counts and average retirement benefit amounts continue to increase steadily. For 2018, there were 64,880 retired members and beneficiaries with an average benefit of \$4,233 per month. This represents a 2.5% increase in count and a 3.5% increase in the average monthly benefit.

Average Monthly Retirement Benefit



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, 2017	97,211	14,243	45,009	9,489	8,826	174,778
New Members	5,840	179	15	2	595	6,631
Status Change:						
to Active	136	(136)				-
to Inactive	(1,351)	1,351				-
to Service Retirement	(2,564)	(388)	2,952			-
to Disabled Retirement	(244)	(9)	(219)	472		-
Refunds	(357)	(329)				(686)
Terminated non-vested	(10)					(10)
Benefits Expired			(6)		(19)	(25)
Deaths	(187)	(5)	(1,455)	(256)	(525)	(2,428)
As of June 30, 2018	98,474	14,906	46,296	9,707	8,877	178,260

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 7.25%	+0.5% 7.75%	-0.5% 6.75%
Employer Contribution Rate	20.91%	17.12%	24.80%
Change		-3.79%	3.89%
Funded Ratio	80.6%	85.6%	75.7%
Change		5.0%	-4.9%

Summary Valuation Results

Exhibit 1 on the following page presents a summary of key data elements as of June 30, 2018 and June 30, 2017, 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.

Exhibit 1 Summary of Significant Valuation Results

	June 30, 2018	June 30, 2017	Percentage Change
Total Membership			
A. Active Members	98,474	97,211	1.3%
B. Retired Members & Beneficiaries	64,880	63,324	2.5%
C. Vested Former Members ⁽¹⁾	14,906	14,243	4.7%
D. Total	178,260	174,778	2.0%
Pay Rate as of June 30, 2018			
A. Annual Total (\$millions)	\$ 8,079	\$ 7,749	4.3%
B. Monthly Average per Active Member	6,837	6,643	2.9%
Average Monthly Benefit Paid to Current Retirees and Beneficiaries			
A. Service Retirement	4,200	4,078	3.0%
B. Disability Retirement	5,579	5,321	4.8%
C. Surviving Spouse and Dependents	2,934	2,832	3.6%
D. Total	4,233	4,091	3.5%
Actuarial Accrued Liability (\$millions)			
A. Active Members	29,335	28,234	3.9%
B. Retired Members	38,087	36,032	5.7%
C. Vested Former Members	1,105	1,045	5.7%
D. Total	68,527	65,311	4.9%
Assets			
A. Market Value of Fund (\$millions)	56,300	52,744	6.7%
B. Actuarial Value (\$millions)			
1. Valuation Reserves	55,233	52,166	5.9%
2. Non-valuation Reserves	563	527	6.7%
C. Annual Investment Return			
1. Market Basis (Net Return)	9.0%	12.7%	n/a
2. Valuation (Actuarial) Basis	8.1%	8.2%	n/a
Unfunded Actuarial Accrued Liability or (Surplus Funding) in \$millions			
	\$ 13,294	\$ 13,145	1.1%
Employer contribution rate for all plans combined as a percent of total payroll			
A. Gross Normal Cost	16.80%	16.70%	0.6%
B. Member Contributions ⁽²⁾	(6.88)%	(6.76)%	1.8%
C. Employer Normal Cost	9.92%	9.94%	(0.2)%
D. UAAL Amortization	10.99%	11.06%	(0.6)%
E. Calculated Contribution Rate	20.91%	21.00%	(0.4)%
F. Deferred Recognition of new assumptions	-	(0.96)%	n/a
G. Employer Contribution Rate with phase-in	20.91%	20.04%	4.3%
Funded Ratio	80.6%	79.9%	0.9%
Results Based on Market Value (Informational Purposes Only)			
Calculated Contribution Rate	20.55%	20.96%	(2.0)%
Funded Ratio (excluding non-valuation reserves)	81.3%	80.0%	1.6%

1. Includes non-vested former members with contributions on deposit.

2. Includes non-contributory members. The average rate for contributory plans increased from 8.31 % to 8.32%.

This page intentionally left blank.

Section 2 Scope of the Report



This report presents the actuarial valuation of the Los Angeles County Employees Retirement Association as of June 30, 2018. 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 2018 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 2016. 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, 2018. 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 needed to fund the benefits under the actuarial cost method in use.

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, 2018.
- 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.

This page intentionally left blank.

Section 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, 2018. 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 determination of 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 actuarial assets and the actuarial liabilities.

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

	Market Value of Total Assets	Actuarial Value		
		Non- Valuation Reserves	Valuation Assets	Total Fund Return (%) ⁽¹⁾
2009	\$ 30.5	\$ 0.8	\$ 39.5	(18.3)
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

1. As reported in the Investment Section of LACERA's CAFR for the fiscal year ended June 30, 2018. All returns are shown net of investment expenses.

On June 30, 2018, the total market value of the fund, less current liabilities, was \$56.3 billion. The actuarial value of the fund was determined to be \$55.8 billion, including the non-valuation reserves. The average total fund return for the last 10 years is 6.3% 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.

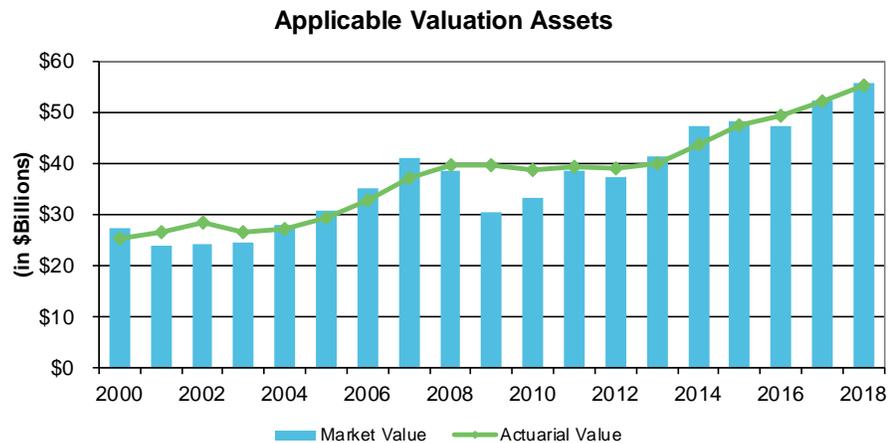
Exhibits 2-4 are taken directly from data furnished to us by LACERA in its annual financial report. We have accepted these tables for use in this report without audit, but we have reviewed them both for the prior year and the current year for reasonableness and consistency with previous reports.

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. 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 smoothed, or recognized, over a five-year period.

Actuarial Value of Assets

The development of the June 30, 2018 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, 2018 market value by \$504 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.

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.
- 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, 2018 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, 2019. Although the STAR Reserve is included in the 2018 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.

**Exhibit 2 Statement of Fiduciary Net Position
 As of June 30, 2018 and June 30, 2017**

	2018	2017
Assets		
Cash and Short-Term Investments	\$ 1,786,940,488	\$ 1,523,990,094
Cash Collateral on Loaned Securities	1,191,235,028	922,583,739
Receivables		
Contributions Receivable	89,180,657	76,586,764
Accounts Receivable - Sale of Investments	707,664,801	931,019,669
Accrued Interest and Dividends	102,733,511	106,074,155
Accounts Receivable - Other	47,090,340	33,278,035
Total Receivables	<u>946,669,308</u>	<u>1,146,958,623</u>
Investments at Fair Value		
Equity	25,661,002,621	25,471,070,361
Fixed Income	15,934,586,918	14,126,188,089
Private Equity	5,929,098,297	5,050,441,901
Real Estate	6,326,245,674	6,139,831,656
Hedge Funds	1,592,125,696	1,437,924,968
Total Investments	<u>55,443,059,206</u>	<u>52,225,456,976</u>
Total assets	<u>59,367,904,030</u>	<u>55,818,989,432</u>
Liabilities		
Accounts Payable - Purchase of Investments	1,803,896,893	2,074,418,652
Retiree Payroll and Other Payables	912,029	1,148,844
Accrued Expenses	35,830,507	38,780,205
Tax Withholding Payable	32,848,312	34,913,612
Obligations under Securities Lending Program	1,191,235,028	922,583,739
Accounts Payable - Other	3,199,091	3,493,409
Total liabilities	<u>3,067,921,859</u>	<u>3,075,338,461</u>
Fiduciary Net Position restricted for pension benefits	<u>\$ 56,299,982,171</u>	<u>\$ 52,743,650,971</u>

**Exhibit 3 Statement of Changes in Fiduciary Net Position
 For the Fiscal Years Ended June 30, 2018 and 2017**

	2018	2017
Additions		
Contributions		
Employer	\$ 1,564,284,149	\$ 1,370,921,787
Member	551,800,960	487,016,114
Total Contributions	<u>2,116,085,109</u>	<u>1,857,937,901</u>
Investment Income		
From Investing Activities:		
Net Appreciation/(Depreciation) in Fair Value of Investments	974,529,583	3,600,947,713
Investment Income/(Loss)	3,925,181,008	2,672,282,072
Total Investing Activity Income	<u>4,899,710,590</u>	<u>6,273,229,785</u>
Less Expenses From Investing Activities	<u>(188,753,319)</u>	<u>(150,350,042)</u>
Net Investing Activity Income	4,710,957,272	6,122,879,743
From Securities Lending Activities:		
Securities Lending Income	18,795,978	11,596,901
Less Expenses From Securities Lending Activities:		
Borrower Rebates	(11,786,852)	(3,709,500)
Management Fees	(1,326,534)	(1,467,113)
Total Expenses from Securities Lending Activities	<u>(13,113,386)</u>	<u>(5,176,613)</u>
Net Securities Lending Income	5,682,591	6,420,288
Total Net Investment Income	<u>4,716,639,863</u>	<u>6,129,300,031</u>
Miscellaneous	5,613,034	6,370,288
Total Additions	<u>6,838,338,006</u>	<u>7,993,608,220</u>
Deductions		
Retiree Payroll	3,177,726,363	3,002,929,279
Administrative Expenses	67,490,603	58,779,188
Investment Expenses	10,690,610	8,051,288
Refunds	23,220,662	24,451,924
Lump Sum Death Benefits	2,428,048	2,251,344
Miscellaneous	450,521	188,062
Total Deductions	<u>3,282,006,806</u>	<u>3,096,651,085</u>
Net increase/(decrease)	3,556,331,199	4,896,957,136
Fiduciary Net Position restricted for pension benefits		
Beginning of Year	52,743,650,971	47,846,693,836
End of Year	<u>\$ 56,299,982,171</u>	<u>\$ 52,743,650,971</u>

Exhibit 4 Allocation of Assets by Accounting Reserve Amounts
 (Dollars in Thousands)

	June 30, 2018	June 30, 2017
1. Member Reserves		
a. Active Members	\$ 21,438,279	\$ 20,380,431
b. Unclaimed Deposits	-	-
c. Total Member Reserves	<u>21,438,279</u>	<u>20,380,431</u>
2. Employer Reserves		
a. Actual Employer Contributions	22,610,763	21,086,809
b. Advanced Employer Contributions	-	-
c. Total Employer Contributions	<u>22,610,763</u>	<u>21,086,809</u>
3. County Contribution Credit Reserve	-	-
4. STAR Reserve	614,011	614,011
5. Contingency Reserve	-	-
6. Total Reserves at Book Value	<u>44,663,053</u>	<u>42,081,251</u>
7. Unrealized Investment Portfolio Appreciation	<u>11,636,929</u>	<u>10,662,400</u>
8. Total Reserves at Fair Value	<u>\$ 56,299,982</u>	<u>\$ 52,743,651</u>

Note: These amounts were determined by LACERA for accounting purposes and are reported in the CAFR for the fiscal year ended June 30, 2018.

**Exhibit 5 Five-Year Smoothing of Gains and Losses on Market Value
 (Dollars in Thousands)**

June 30, 2018 Valuation					
Plan Year Ending	Contributions	Benefit Payments	Expected Market Value	Actual Market Value	Phase-Out of Gain / (Loss)
06/30/2018	\$ 2,116,085	\$ 3,203,375	\$ 55,441,551	\$ 56,299,982	80.00% x \$ 858,431 = \$ 686,745
06/30/2017	1,857,938	3,029,633	50,102,154	52,743,651	60.00% x 2,641,497 = 1,584,898
06/30/2016	1,901,795	2,889,186	51,455,977	47,846,694	40.00% x (3,609,283) = (1,443,713)
06/30/2015	1,936,233	2,768,410	50,438,628	48,818,350	20.00% x (1,620,278) = (324,056)
06/30/2014	1,759,443	2,662,401	43,970,326	47,722,277	0.00% x 3,751,951 = <u>0</u>
					(a) Total Phase-Out of Gain / (Loss) = \$ 503,874
					(b) Total Market Value of Assets = \$ 56,299,982
					(c) Total Actuarial Value of Assets [(b) - (a)] = \$ 55,796,108

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.

**Exhibit 6 Allocation of Valuation and Non-Valuation Assets
 (Dollars in Thousands)**

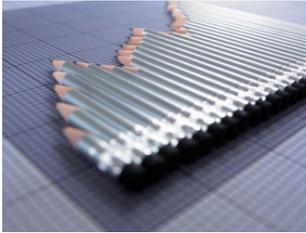
	June 30, 2018	June 30, 2017
1. Total Market Value of Assets	\$ 59,367,904	\$ 55,818,989
2. Current Liabilities	<u>3,067,922</u>	<u>3,075,338</u>
3. Net Assets Held in Trust for Pension Benefits	56,299,982	52,743,651
4. Market Stabilization Reserve ⁽¹⁾	<u>503,874</u>	<u>49,907</u>
5. Actuarial Value of Fund Assets	55,796,108	52,693,744
6. Non-Valuation Reserves ⁽²⁾		
a. Unclaimed Deposits	-	-
b. Contingency Reserve	563,000	527,437
c. Advanced Employer Contributions	-	-
d. County Contribution Credit Reserve	-	-
e. Reserve for STAR Program	-	-
f. Total	<u>563,000</u>	<u>527,437</u>
7. Valuation Assets ⁽²⁾		
a. Member Reserves	21,438,279	20,380,431
b. Employer Reserves for Funding Purposes	<u>33,794,829</u>	<u>31,785,876</u>
c. Total	55,233,108	52,166,307

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.

This page intentionally left blank.

Section 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, 2018. 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 2016 Investigation of Experience Report. New assumptions were adopted by the Board effective with the June 30, 2016 actuarial valuation. See Appendix A of this report for details.

All liabilities reflect the benefits effective through June 30, 2018. 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.

Exhibit 7 Actuarial Balance Sheet – June 30, 2018
 (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	\$ 11,788	\$ 457	\$ 257	\$ 7,273	\$ 3,635	\$ 3	\$ 7,344	\$ 7,323	\$ 7	\$ 38,087
- Vested Former	8	4	1	535	425	18	0	112	2	1,105
- Inactive Total	11,796	461	258	7,808	4,060	21	7,344	7,435	9	39,192
Present Value of Benefits - Actives										
- Service Retirement	131	43	52	18,765	6,037	3,434	7	7,273	619	36,361
- Transfer Service (prior LACERA plan)	0	0	0	217	438	2	0	14	0	671
- Disability Retirement	2	1	1	950	N/A	282	1	3,578	403	5,218
- Death	1	0	0	365	N/A	80	0	62	11	519
- Termination	0	0	0	203	84	219	0	38	29	573
- Active Total	134	44	53	20,500	6,559	4,017	8	10,965	1,062	43,342
Total Actuarial Liabilities	\$ 11,930	\$ 505	\$ 311	\$ 28,308	\$ 10,619	\$ 4,038	\$ 7,352	\$ 18,400	\$ 1,071	\$ 82,534
ASSETS										
Valuation Assets	(1,356)	423	304	26,025	12,753	1,149	(717)	16,448	204	55,233
PV Future Member Contributions	1	1	1	2,723	N/A	1,792	0	977	495	5,990
PV Future Employer Normal Cost Contributions	4	1	1	3,111	1,130	1,622	0	1,700	448	8,017
UAAL or (Surplus Funding)	13,281	80	5	(3,551)	(3,264)	(525)	8,069	(725)	(76)	13,294
Total Current and Future Assets	\$ 11,930	\$ 505	\$ 311	\$ 28,308	\$ 10,619	\$ 4,038	\$ 7,352	\$ 18,400	\$ 1,071	\$ 82,534

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.

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 then compared to the value of assets available to fund benefits, and the difference is referred to as the UAAL. The results for LACERA for all plans are summarized below:

(Dollars in millions)	2018	2017	Percent Change
A. Actuarial present value of all future benefits for contributing members, former contributing members, and their survivors	\$ 82,534	\$ 78,576	5.0%
B. Actuarial present value of total future normal costs for current members	14,007	13,265	5.6%
C. Actuarial accrued liability [A-B]	68,527	65,311	4.9%
D. Valuation Assets	55,233	52,166	5.9%
E. UAAL or (Surplus Funding) [C-D]	13,294	13,145	1.1%
F. Funded Ratio [D/C]	80.6%	79.9%	0.9%

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 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 disclosed 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 assumed 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%. All layers are amortized over 30-year periods.

If future experience is significantly more favorable than expected based on the actuarial assumptions, then LACERA may move to a Surplus Funding position. Conversely, if experience is less favorable, a larger UAAL will develop.

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 used in the valuations. 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 2018 actuarial valuation reflects an actuarial experience loss of \$3 million for the fiscal year just ended. 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 9.0% (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 gain of \$411 million.
- **Active Member Experience (non salary):** This includes gains and losses from termination, service retirement, disability retirement, and death different than expected, and from service purchases of active members. This resulted in an actuarial loss of \$119 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 \$223 million.
- **Actual CPI versus Assumption:** The actual CPI increase was greater than assumed for members of Plan A. The members who received COLA increases more than the assumption generated an actuarial loss of \$45 million.
- **Mortality Experience:** An actuarial loss due to mortality generally indicates that retired members are living longer than the current assumption would predict. This year, there was an actuarial gain of \$20 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, service purchases of inactive members, reciprocity, and transfers between plans. These factors combined resulted in an actuarial loss of \$47 million.

Change in Unfunded Actuarial Accrued Liability – History

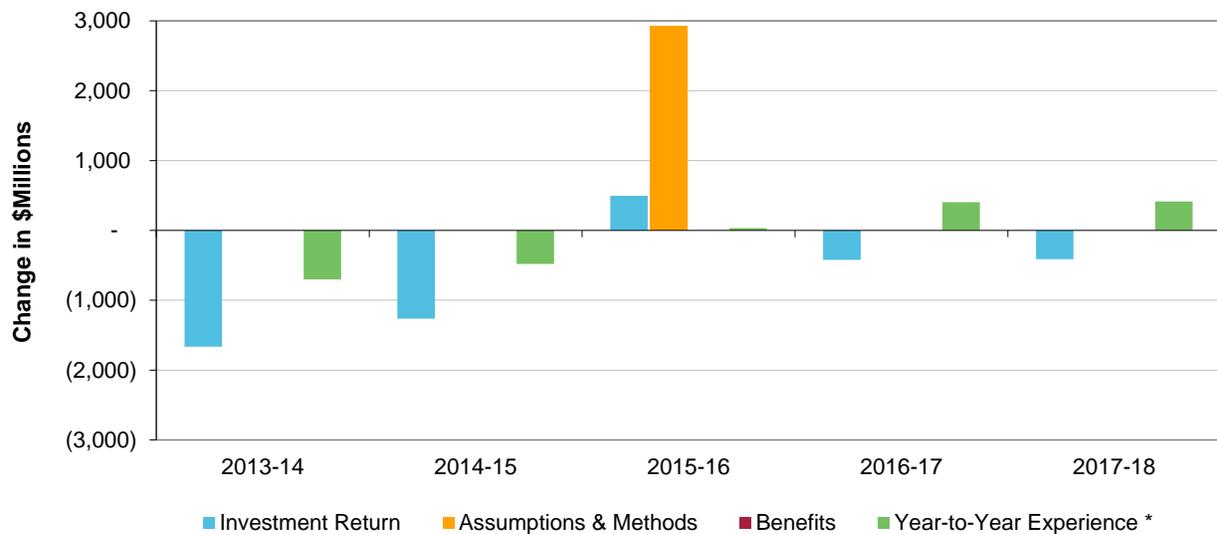
Exhibit 8b shows the sources of change in the UAAL over the past five valuations. The single biggest source of annual change in most years is the return on investments being either greater than or less than the assumption.

**Exhibit 8a Analysis of Change in Unfunded Actuarial Accrued Liability
 (Dollars in Millions)**

	Amount	As a Percent of June 30, 2018 Actuarial Accrued Liability
Unfunded Actuarial Accrued Liability - June 30, 2017	\$ 13,145	19.2%
Increase in UAAL due to New Assumptions	-	0.0%
Interest Accrued	968	1.4%
Benefits Accrued (Normal Cost)	1,294	1.9%
<u>Contributions</u>		
Employer - Cash	\$ (1,564)	-2.3%
Employer - Contribution Credit	-	0.0%
Member	(552)	-0.8%
Total	<u>(2,116)</u>	-3.1%
Expected Unfunded Actuarial Accrued Liability - June 30, 2018	\$ 13,291	19.4%
Sources of Change:		
<u>Asset (Gains) and Losses</u>		
(Gain) / Loss due to Investment Income	(411)	-0.6%
<u>Liability (Gains) and Losses</u>		
Active Member Experience (non salary)	\$ 119	0.2%
Salary Increases Greater than Expected	223	0.3%
CPI Greater than Expected	45	0.1%
Mortality Experience	(20)	0.0%
All Other Experience	47	0.1%
Total	<u>414</u>	0.6%
Total Changes	\$ 3	0.0%
Unfunded Actuarial Accrued Liability - June 30, 2018	\$ 13,294	19.4%

Exhibit 8b History of Changes in Unfunded Actuarial Accrued Liability
 (Dollars in Millions)

	2013-14	2014-15	2015-16	2016-17	2017-18	2013-18
Prior Valuation UAAL	\$ 13,315	\$ 11,288	\$ 9,491	\$ 12,841	\$ 13,145	\$ 13,315
Increase in UAAL due to:						
Expected Increase / (Decrease)	338	(54)	(102)	320	146	648
■ Asset (Gains) and Losses	(1,664)	(1,263)	496	(421)	(411)	(3,263)
■ Changes in Benefits	-	-	-	-	-	-
■ Changes in Assumptions	-	-	2,922	-	-	2,922
■ Changes in Methods	-	-	-	-	-	-
■ Salary Increases	(291)	79	162	277	223	450
■ CPI Increases	(427)	(570)	(191)	(139)	45	(1,282)
■ Mortality Experience	(26)	(59)	(4)	(51)	(20)	(160)
■ All Other Experience	43	70	67	318	166	664
Total Increase / (Decrease)	(2,027)	(1,797)	3,350	304	149	(21)
Valuation UAAL	\$ 11,288	\$ 9,491	\$ 12,841	\$ 13,145	\$ 13,294	\$ 13,294
Funded Ratio	79.5%	83.3%	79.4%	79.9%	80.6%	80.6%



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

This page intentionally left blank.

Section 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.

As no assumption changes were implemented for the current valuation, no changes are recommended to the current member contribution rates, except for General Plan G and Safety Plan C, as discussed below.

Cost-of-Living Contributions for non-PEPRA Plans

The determination of the member cost-of-living contributions is based on Section 31873 of the County Employees' Retirement Law. This section requires that the cost of this 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.

Cost-of-Living Contributions for non-PEPRA Plans (continued)

As no assumption changes were adopted for the current valuation, we are recommending no change in the member cost-of-living contribution rates. The cost-of-living contributions, expressed as a percentage of the normal contribution rates, are based on the June 30, 2016 actuarial valuation (the most recent valuation where non-PEPRA member rates were changed) and are as follows:

Plan	COLA %
General A	79.37%
General B	23.97%
General C	25.46%
General D	24.49%
General E	0.00%
Safety A	86.98%
Safety B	31.63%

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 2018 valuation.

	General Plan G	Safety Plan C
All Ages: Recommended	8.43%	13.69%
All Ages: Current	8.43%	13.87%
Ratio (Recommended / Current)	100.0%	98.7%

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 COLA for these plans.

Average Member Rates

The average member contribution rate for only those members in contributory plans at June 30, 2018 is 8.32% of covered payroll. This number compares to 6.88% of covered payroll, which is the average member contribution rate among all members. The 6.88% 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.

Exhibit 9 Sample Member Contribution Rates

Recommended Rates (Based on 2018 Valuation)						
	Entry Age	Normal	Cost of Living	Total as a % of Pay	Current Rate (Total)	Ratio (New / Current)
General Members						
Plan A	25	2.97%	2.36%	5.33%	5.33%	100.0%
	35	3.71%	2.94%	6.65%	6.65%	100.0%
	45	4.56%	3.62%	8.18%	8.18%	100.0%
	55	4.93%	3.91%	8.84%	8.84%	100.0%
Plan B	25	5.93%	1.42%	7.35%	7.35%	100.0%
	35	7.41%	1.78%	9.19%	9.19%	100.0%
	45	9.13%	2.19%	11.32%	11.32%	100.0%
	55	9.87%	2.37%	12.24%	12.24%	100.0%
Plan C	25	5.04%	1.28%	6.32%	6.32%	100.0%
	35	6.29%	1.60%	7.89%	7.89%	100.0%
	45	7.86%	2.00%	9.86%	9.86%	100.0%
	55	9.29%	2.37%	11.66%	11.66%	100.0%
Plan D	25	5.04%	1.23%	6.27%	6.27%	100.0%
	35	6.29%	1.54%	7.83%	7.83%	100.0%
	45	7.86%	1.92%	9.78%	9.78%	100.0%
	55	9.29%	2.28%	11.57%	11.57%	100.0%
Plan G	All Ages	6.82%	1.61%	8.43%	8.43%	100.0%
Safety Members						
Plan A	25	4.18%	3.64%	7.82%	7.82%	100.0%
	35	5.15%	4.48%	9.63%	9.63%	100.0%
	45	6.15%	5.35%	11.50%	11.50%	100.0%
	55	6.21%	5.40%	11.61%	11.61%	100.0%
Plan B	25	8.36%	2.64%	11.00%	11.00%	100.0%
	35	10.31%	3.26%	13.57%	13.57%	100.0%
	45	12.31%	3.89%	16.20%	16.20%	100.0%
	55	12.42%	3.93%	16.35%	16.35%	100.0%
Plan C	All Ages	10.65%	3.04%	13.69%	13.87%	98.7%

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.

This page intentionally left blank.

Section 6 Employer Contributions



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 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.

Calculated Employer Contribution Rate

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. The total calculated employer contribution rate was 21.00% for the fiscal year beginning in 2018 (prior to the phase-in recognition).

For the fiscal year beginning in 2019, the total calculated employer contribution rate decreases to 20.91%. This is equal to the net aggregate calculated Normal Cost contribution rate of 9.92% based on the 2018 valuation, plus a 30-year layered amortization payment of the UAAL.

(All values as a % of Payroll)

Employer Normal Cost	9.92%
30-year Layered Amortization of UAAL	<u>10.99%</u>
Calculated Employer Contribution Rate	20.91%

The 0.09% decrease from last year in the calculated employer contribution rate is primarily due to the recognition of investment gains, which resulted in a decrease of 0.30% in the employer contribution rate. Other sources, including COLA increases and salary increases greater than assumed, increased the UAAL rate by about 0.21%. The UAAL rate reflects a layered 30-year amortization from the valuation date with a July 1, 2019 implementation date for the new employer contribution rate.

**Employer Contribution
Rate with phase-in**

At the December 2016 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, 2016. For the fiscal year beginning July 1, 2019, the impact of the June 30, 2016 assumption changes are 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." The employer contribution rate of 20.91% is greater than the minimum contribution that would be required under Section II 1A(4) of the Funding Policy.

Exhibit 10 Calculated Normal Cost Contribution Rates – June 30, 2018

A. Normal Cost Contribution Rate	General							Safety				Grand Total
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	
Service Retirement	20.01%	14.96%	12.72%	13.37%	9.25%	14.31%	12.71%	16.11%	14.74%	15.39%	14.83%	13.10%
Disability Retirement	1.15%	0.82%	0.71%	1.17%	0.00%	1.29%	0.95%	10.24%	9.69%	10.96%	9.87%	2.61%
Death	0.28%	0.23%	0.20%	0.35%	0.00%	0.33%	0.27%	0.32%	0.29%	0.26%	0.29%	0.27%
Termination	0.39%	0.39%	0.35%	0.92%	0.55%	0.93%	0.84%	0.61%	0.70%	0.77%	0.71%	0.82%
Total	21.83%	16.40%	13.98%	15.81%	9.80%	16.86%	14.77%	27.28%	25.42%	27.38%	25.70%	16.80%
B. Member Contributions	(5.47)%	(8.06)%	(6.64)%	(7.38)%	0.00%	(8.43)%	(6.04)%	(2.95)%	(10.10)%	(13.69)%	(10.59)%	(6.88)%
C. Net Employer Normal Cost as of June 30, 2018 (A) - (B)	16.36%	8.34%	7.34%	8.43%	9.80%	8.43%	8.73%	24.33%	15.32%	13.69%	15.11%	9.92%
D. Net Employer Normal Cost as of June 30, 2017	16.38%	7.94%	6.75%	8.41%	9.74%	8.43%	8.75%	24.01%	15.27%	13.87%	15.13%	9.94%
E. Increase (Decrease) as a Percentage of Payroll (C) - (D)	(0.02)%	0.40%	0.59%	0.02%	0.06%	0.00%	(0.02)%	0.32%	0.05%	(0.18)%	(0.02)%	(0.02)%
F. Estimated Payroll for fiscal year beginning July 1, 2019*	\$ 14	\$ 4	\$ 5	\$ 3,876	\$ 1,453	\$ 1,433	\$ 6,785	\$ 1	\$ 1,340	\$ 216	\$ 1,556	\$ 8,341
G. Estimated Total Normal Cost Contribution in Dollars (A x F)**	\$ 3	\$ 1	\$ 1	\$ 613	\$ 142	\$ 242	\$ 1,002	\$ -	\$ 341	\$ 59	\$ 400	\$ 1,402

* Estimated Payroll based upon annualized salary rate as of June 30, 2018 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.

Exhibit 11 Total Employer Contributions

	General							Safety				All Plans
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	
A. Net Employer Normal Cost												
1. Basic Benefits	13.02%	6.66%	5.92%	6.91%	8.12%	6.82%	7.16%	17.76%	12.18%	10.65%	11.97%	8.05%
2. Cost-of-Living Benefits	3.34%	1.68%	1.42%	1.52%	1.68%	1.61%	1.57%	6.57%	3.14%	3.04%	3.14%	1.87%
3. Total 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%
B. UAAL Contribution Rate	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%
C. Total June 30, 2018 Contribution Rate (A) + (B)	27.35%	19.33%	18.33%	19.42%	20.79%	19.42%	19.72%	35.32%	26.31%	24.68%	26.10%	20.91%
D. Total June 30, 2017 Contribution Rate	27.44%	19.00%	17.81%	19.47%	20.80%	19.49%	19.81%	35.07%	26.33%	24.93%	26.19%	21.00%
E. Estimated Payroll for fiscal year beginning July 1, 2019*	\$ 14	\$ 4	\$ 5	\$ 3,876	\$ 1,453	\$ 1,433	\$ 6,785	\$ 1	\$ 1,340	\$ 216	\$ 1,556	\$ 8,341
F. Estimated Annual Contribution (C x E)	\$ 4	\$ 1	\$ 1	\$ 753	\$ 302	\$ 278	\$ 1,338	\$ -	\$ 353	\$ 53	\$ 406	\$ 1,744
G. Last Year's Estimated Annual Contribution	\$ 5	\$ 1	\$ 1	\$ 716	\$ 296	\$ 204	\$ 1,224	\$ -	\$ 343	\$ 37	\$ 380	\$ 1,604
H. Increase / (Decrease) in Annual Contribution	\$ (1)	\$ -	\$ -	\$ 37	\$ 6	\$ 74	\$ 114	\$ -	\$ 10	\$ 16	\$ 26	\$ 140

* Estimated Payroll based upon annualized salary rate as of June 30, 2018 increased by 3.25% wage inflation. Dollar figures in millions.

Exhibit 12 Unfunded Actuarial Accrued Liability Detail
(Dollars in Millions)

Unfunded Actuarial Accrued Liability - 30 Year Layered Amortization Detail							
Date Established	Description	Balance as of June 30, 2018	Interest on Balance	Amort. Payment on June 30, 2019 ⁽¹⁾	Balance as of June 30, 2019 ⁽²⁾	Remaining Period as of June 30, 2019	July 1, 2019 Amortization Payment
June 30, 2009	Initial UAAL	\$ 5,631.8	\$ 408.3	\$ 409.7	\$ 5,630.4	20 Years	\$ 402.6
June 30, 2010	(Gain) / Loss ⁽³⁾	3,061.2	221.9	216.1	3,067.0	21 Years	212.4
June 30, 2011	(Gain) / Loss ⁽³⁾	1,511.5	109.6	103.7	1,517.4	22 Years	101.9
June 30, 2012	(Gain) / Loss ⁽³⁾	2,462.6	178.5	164.6	2,476.5	23 Years	161.8
June 30, 2013	(Gain) / Loss ⁽³⁾	1,387.6	100.6	90.5	1,397.7	24 Years	88.9
June 30, 2014	(Gain) / Loss	(2,561.5)	(185.7)	(163.2)	(2,584.0)	25 Years	(160.4)
June 30, 2015	(Gain) / Loss	(1,995.5)	(144.7)	(124.4)	(2,015.8)	26 Years	(122.2)
June 30, 2016	(Gain) / Loss ⁽³⁾	3,824.0	277.2	233.5	3,867.7	27 Years	229.5
June 30, 2017	(Gain) / Loss	(18.4)	(1.3)	(1.1)	(18.6)	28 Years	(1.1)
June 30, 2018	(Gain) / Loss	(9.4)	(0.7)	(70.4) ⁽⁴⁾	60.4	29 Years	3.4
Total Amortization Payment July 1, 2019:							\$ 916.8
Projected Payroll July 1, 2019:							\$ 8,341.4
UAAL as of June 30, 2018:		\$ 13,294.0	UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2019:		10.99%		

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, 2018, whereas, the contribution rates are not effective until July 1, 2019. Therefore, the UAAL is adjusted to June 30, 2019 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, 2019; therefore, the UAAL amount is adjusted by one year to reflect the actual July 1, 2018 contribution rate.

This page intentionally left blank.

Section 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.

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, 2009	\$ 39,541,865	\$ 44,468,636	\$ 4,926,771	88.9%	\$ 6,547,616	75.2%
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%

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.

**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	
06/30/2009	\$ 847,172	\$ 831,672	\$ 15,500	\$ 847,172	100%
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%

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.

Exhibit 15 Solvency Test
(Dollars in Millions)

Actuarial Valuation Date	Actuarial Value of Valuation Assets	Actuarial Accrued Liabilities for			Portion of Actuarial Accrued Liabilities Covered by Assets		
		Active Member Contributions (A)	Retirees and Beneficiaries ⁽¹⁾ (B)	Active Members (Employer Financed Portion) (C)	(A)	(B)	(C)
June 30, 2009	\$ 39,542	\$ 5,795	\$ 24,692	\$ 13,982	100%	100%	65%
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%

1. Includes vested and non-vested former members.

Exhibit 16 Actuarial Analysis of Financial Experience
 (Dollars in Millions)

	Valuation as of June 30						
	2012	2013	2014	2015	2016	2017	2018
Unfunded Actuarial Accrued Liability	\$9,405	\$11,770	\$13,315	\$11,288	\$9,491	\$12,841	\$13,145
Expected Increase/(Decrease) from Prior Valuation	772	1,380	338	(54)	2,820	320	146
Salary Increases Greater/(Less) than Expected	(629)	(563)	(291)	79	162	277	223
CPI Less than Expected	(181)	(190)	(427)	(570)	(191)	(139)	45
Asset Return Less/(Greater) than Expected	2,337	893	(1,664)	(1,263)	496	(421)	(411)
All Other Experience	66	25	17	11	63	267	146
Ending Unfunded Actuarial Accrued Liability	\$11,770	\$13,315	\$11,288	\$9,491	\$12,841	\$13,145	\$13,294

Exhibit 17 Retirants and Beneficiaries added to and removed from Retiree Payroll
(Dollars in Thousands)

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Retiree Allowance	Average Annual Allowance
	Member Count	Annual Allowance ⁽¹⁾	Member Count	Annual Allowance ⁽¹⁾	Member Count	Annual Allowance ⁽¹⁾		
June 30, 2009	2,505	\$ 157,469 ⁽²⁾	(1,786)	\$ (50,619)	53,069	\$ 2,085,725	5.40%	\$ 39.3
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

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.

Section 8 Cash Flow History and Projections



Cash Flow Projection

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, 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 20.04% for the first year and 20.91% for the second year; total employer contributions for the remainder of the period reflect the expected recognition of asset gains currently being deferred. The aggregate member rate is assumed to stay at the calculated rate for June 30, 2018 of 6.88% of payroll. Expenses are based on the expenses for the year ended June 30, 2018, 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 2018 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.

Exhibit 18a Cash Flow History and Projections – Dollars

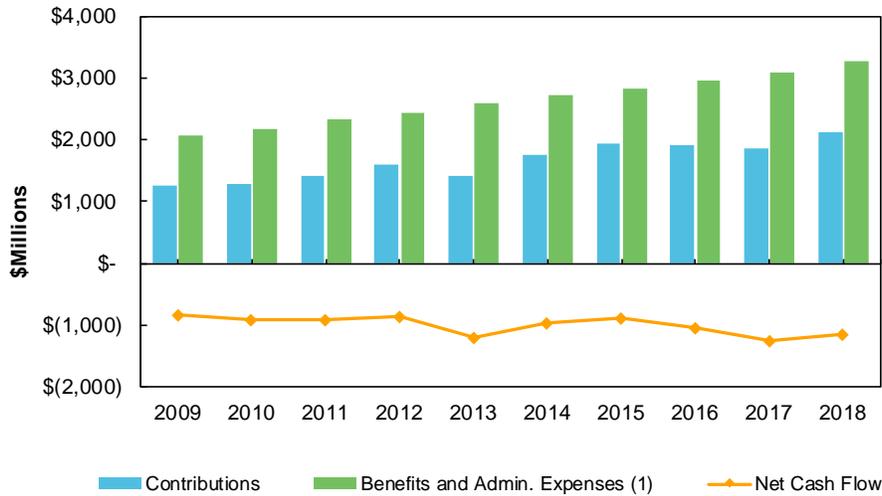
Plan Year Ending	Cash Flow History		
	Total Contributions	Benefits & Administrative Expenses ⁽¹⁾	Net Cash Flow
2009	\$ 1,247	\$ 2,065	\$ (818)
2010	1,273	2,177	(904)
2011	1,408	2,318	(910)
2012	1,586	2,439	(853)
2013	1,403	2,593	(1,190)
2014	1,759	2,719	(960)
2015	1,936	2,829	(893)
2016	1,902	2,954	(1,052)
2017	1,858	3,094	(1,236)
2018	2,116	3,268	(1,152)

Plan Year Ending	Cash Flow Projections ⁽²⁾		
	Total Contributions	Benefits & Administrative Expenses ⁽¹⁾	Net Cash Flow
2019	\$ 2,165	\$ 3,577	\$ (1,411)
2020	2,324	3,682	(1,358)
2021	2,425	3,860	(1,435)
2022	2,507	4,046	(1,539)
2023	2,548	4,240	(1,692)
2024	2,624	4,446	(1,821)
2025	2,716	4,659	(1,943)
2026	2,811	4,878	(2,067)
2027	2,910	5,102	(2,192)
2028	3,011	5,329	(2,317)

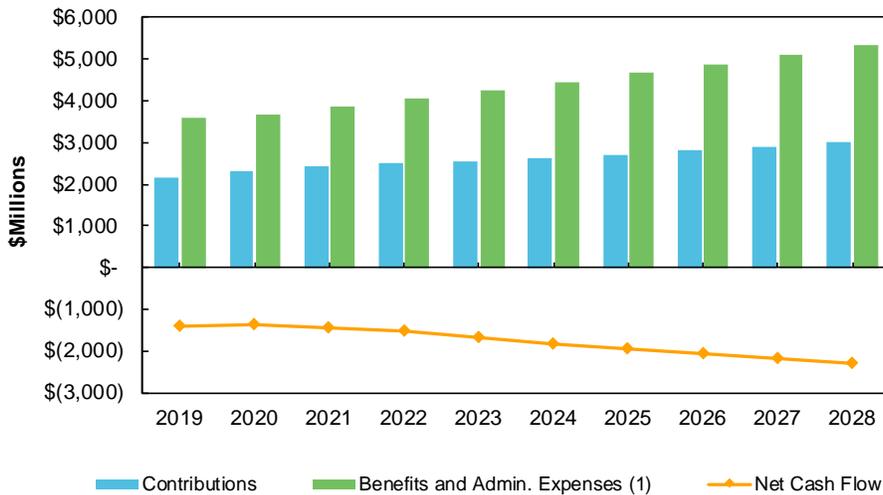
1. Investment expenses are assumed to be covered by investment return.
2. Future contributions reflect the expected impact of asset gains and losses currently being deferred.

Exhibit 18b Cash Flow History and Projections – Graphs

Cash Flow History



Cash Flow Projections⁽²⁾



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.

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, 2016 actuarial valuation as a result of the 2016 triennial Investigation of Experience Study. Please refer to that Investigation of Experience report for the data and rationale used in the selection and recommendation of each assumption.

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 rates 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 2016 Investigation of Experience Study. The rates shown are the probabilities a member will leave the Plan for various reasons.

Actuarial Cost Method

The actuarial valuation is prepared using the entry age actuarial cost method. 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 Plan.

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. Future gains and losses are amortized over new closed 30-year periods. This is referred to as "layered" amortization.

Actuarial Cost Method (continued)	<p>For all plans, the present value of future benefits minus the present value of future normal costs will be equal to the Actuarial Accrued Liability (AAL).</p> <p>For General Plan G and Safety Plan C, the normal cost rate is rounded up to the nearest 0.02%.</p>
Records and Data	<p>The data used in this valuation consist of financial information and the age, service, and salary 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.</p>
Replacement of Former Members	<p>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.</p>
Growth in Membership	<p>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 in the total number of active members is assumed.</p>
Internal Revenue Code Section 415 Limit	<p>The Internal Revenue Code Section 415 maximum benefit limitations are not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.</p>
Internal Revenue Code Section 401(a)(17)	<p>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.</p>
Employer Contributions	<p>The employer contribution rate is set by the Board of Investments based on actuarial valuations.</p>
Member Contributions	<p>The member contribution rates vary by entry age 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.</p> <p>The individual member rates by entry age, plan and class are illustrated in Appendix D of the valuation report.</p>
Valuation of Assets	<p>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.</p>

Investment Earnings and Expenses	The future investment earnings of the assets of LACERA are assumed to accrue at an annual rate of 7.25% compounded annually, net of both investment and administrative expenses. This rate was adopted effective June 30, 2016.
Postretirement Benefit Increases	Postretirement increases are assumed in accordance with the benefits described in Appendix B, with consideration of the Consumer Price Index (CPI) assumption of 2.75% per year and COLA Accumulation Banks (Plan A). This CPI rate was adopted effective June 30, 2016.
Interest on Member Contributions	The annual credited interest rate on member contributions is assumed to be 7.25% compounded semi-annually for an annualized rate of 7.38%. This rate was adopted effective June 30, 2016.
Future Salaries	<p>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 effective June 30, 2016.</p> <p>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.</p> <p>For plans with a one-year final average compensation period, actual average annual compensation is used. For other plans, the monthly rate as of June of the valuation year was annualized. Due to irregular compensation payments included as pensionable earnings, actual annual pay is preferred over annualizing a single monthly payment amount.</p>
Social Security Wage Base	<p>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, 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 effective June 30, 2016.</p> <p>Note 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.</p>
Social Security Wage Base (continued)	General Plan G and Safety Plan C members have their compensation limited pursuant to Section 7522.10 of the Government Code. The limit for 2018 is \$145,666 (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. 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 service. The retirement rates vary by age and are shown by plan in Tables A-6 through A-13.

All general members who attain or who have attained age 75 in active service and all safety members who 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).

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	57
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 to withdraw from LACERA due to death, disability, or other termination of employment until age 50. After age 50, the member could still withdraw due to death, disability, or retirement. Thus, in no year during the member's projected employment would they be eligible for both a probability of other termination of employment and a probability of retirement.

The retirement probabilities were adopted effective June 30, 2016.

Disability

The rates of disability used in the valuation are also illustrated in Tables A-6 through A-13. These rates were adopted effective June 30, 2016.

**Postretirement
 Mortality – Other Than
 Disabled Members**

The same postretirement mortality rates are used in the valuation for active members, members retired for service, and beneficiaries. These rates are illustrated in Table A-2. Current beneficiary mortality is assumed to be the same assumption as healthy members of the same sex. Future beneficiaries are assumed to be of the opposite sex, and have the same mortality as General members. Note that these assumptions include a projection for expected future mortality improvement. These rates were adopted effective June 30, 2016.

Males General members: RP-2014 Healthy Annuitant Mortality Table for Males multiplied by 105%, with MP-2014 Ultimate Projection Scale.
 Safety members: RP-2014 Healthy Annuitant Mortality Table for Males multiplied by 95%, with MP-2014 Ultimate Projection Scale.

Females General members: RP-2014 Healthy Annuitant Mortality Table for Females, with MP-2014 Ultimate Projection Scale.
 Safety members: Same as General Females.

**Postretirement
 Mortality – Disabled
 Members**

For disabled members, the mortality rates used in the valuation rates are illustrated in Table A-3. Note that these assumptions include a projection for expected future mortality improvement. These rates were adopted effective June 30, 2016.

Males General members: Average of RP-2014 Healthy Annuitant Mortality Table for Males multiplied by 105% and RP-2014 Disabled Annuitant Mortality Table for Males, both projected with MP-2014 Ultimate Projection Scale.

Safety members: RP-2014 Healthy Annuitant Mortality Table for Males, with MP-2014 Ultimate Projection Scale.

Females General members: Average of RP-2014 Healthy Annuitant Mortality Table for Females multiplied by 100% and RP-2014 Disabled Annuitant Mortality Table for Females, both projected with MP-2014 Ultimate Projection Scale.

Safety members: RP-2014 Healthy Annuitant Mortality Table for Females, with MP-2014 Ultimate Projection Scale.

**Mortality while in
 Active Status**

For active members, the mortality rates used in the valuation rates are illustrated in Tables A-6 through A-13. These rates were adopted effective June 30, 2016.

Class	Gender	Proposed Table	
General	Male	RP 2014E Male, Generational ⁽¹⁾	-2
General	Female	RP 2014E Female, Generational ⁽¹⁾	-0
Safety	Male	RP 2014E Male, Generational ⁽¹⁾	-6
Safety	Female	RP 2014E Female, Generational ⁽¹⁾	-0

1. Projection using MP-2014 Ultimate projection scale.

Note that Safety members have an additional service-connected mortality rate of 0.01% per year. No mortality improvement is applied to this assumption.

**Other Employment
Terminations**

Tables A-6 to A-13 show, for all ages, the rates assumed in this valuation for future termination from active service other than for death, disability or retirement. These rates do not apply to members eligible for service retirement. These rates were adopted effective June 30, 2016.

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 plan. All terminating members who are not eligible for vested benefits are assumed to withdraw their contributions immediately.

All terminating members are assumed not to be rehired. Table A-4 gives the assumed probabilities that vested members will withdraw their contributions and elect a refund immediately upon termination and the probability the remaining members will elect a deferred retirement allowance. All non-vested members are assumed to elect a refund and withdraw their contributions. These rates were adopted effective June 30, 2016.

**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 sex 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 allowance 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.

**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

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 2040. For Safety members, it is based on a 90% / 10% blend of the male and female annuity factors.
- 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 7.25%.
- C. The Final Compensation is based on the salary paid in the year prior to attaining the retirement age.

Example: For a 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 (for example, age 53 for General A). In these cases the member contribution rate is adjusted so that it is no less than the value for the previous entry age.

Implementation Schedule for Changes in Assumptions

LACERA implements changes in member and employer contribution rates, interest crediting rates and operating tables in the fiscal year following adoption of the valuation or investigation of experience that the rates and tables are based upon. For example, a change in the investment return assumption adopted for use in the June 30, 2016 actuarial valuation is used for crediting interest to reserves in the fiscal year beginning July 1, 2017.

Table A-1 Summary of Valuation Assumptions as of June 30, 2018

I.	Economic assumptions	
A.	General wage increases	3.25%
B.	Investment earnings	7.25%
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	Table A-2
	Basis – RP-2014 Healthy Annuitant Mortality Table for respective genders with MP-2014 Ultimate Projection Scale:	
	<u>Class of Members</u>	<u>Adjustment</u>
	General – males	105% of rates
	General – females	100% of rates
	Safety – males	95% of rates
	Safety – females	100% of rates
F.	Mortality among disabled members	Table A-3
	Basis – Average of RP-2014 Healthy Annuitant and Disabled Mortality Tables for respective genders, with MP-2014 Ultimate Projection Scale:	
	General – males	105% of Healthy Rates; 100% of Disabled Rates
	General – females	100% of rates
	Basis – RP-2014 Healthy Mortality Table, for respective genders with MP-2014 Ultimate Projection Scale:	
	Safety – males	100% of rates
	Safety – females	100% of rates
G.	Mortality for beneficiaries	Table A-2
	Basis – Beneficiaries are assumed to have the same mortality as a general member of the opposite sex 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

Table A-2 Mortality for Members Retired for Service⁽¹⁾

Age	Safety Male	Safety Female	General Male	General Female
20	0.090%	0.041%	0.103%	0.041%
25	0.108%	0.044%	0.122%	0.044%
30	0.101%	0.055%	0.114%	0.055%
35	0.116%	0.072%	0.132%	0.072%
40	0.140%	0.100%	0.159%	0.100%
45	0.217%	0.165%	0.246%	0.165%
50	0.386%	0.277%	0.427%	0.277%
55	0.545%	0.362%	0.602%	0.362%
60	0.738%	0.519%	0.816%	0.519%
65	1.046%	0.805%	1.156%	0.805%
70	1.593%	1.287%	1.761%	1.287%
75	2.548%	2.094%	2.817%	2.094%
80	4.249%	3.484%	4.696%	3.484%
85	7.362%	6.050%	8.137%	6.050%
90	12.911%	10.713%	14.270%	10.713%

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 rates are those applicable for the fiscal year beginning in 2014. Annual projected improvements are assumed in the following years under the schedule shown. For example, the annual mortality rate for an 85-year old Safety male in fiscal year beginning in 2018 is 7.072% calculated as follows:

$$\begin{aligned}
 \text{Age 85 rate in 2018} &= \text{Age 85 rate in 2014 with 4 years improvement} \\
 &= 7.362\% \times (100.0\% - 1.0\%) \times (100.0\% - 1.0\%) \times (100.0\% - 1.0\%) \times (100.0\% - 1.0\%) \\
 &= 7.072\%
 \end{aligned}$$

Table A-3 Mortality for Members Retired for Disability⁽¹⁾

Age	Safety Male	Safety Female	General Male	General Female
20	0.098%	0.041%	0.407%	0.132%
25	0.117%	0.044%	0.485%	0.141%
30	0.109%	0.055%	0.453%	0.178%
35	0.126%	0.072%	0.524%	0.233%
40	0.151%	0.100%	0.629%	0.322%
45	0.234%	0.165%	0.975%	0.535%
50	0.406%	0.277%	1.233%	0.734%
55	0.573%	0.362%	1.470%	0.905%
60	0.777%	0.519%	1.738%	1.109%
65	1.101%	0.805%	2.162%	1.445%
70	1.677%	1.287%	2.898%	2.054%
75	2.683%	2.094%	4.123%	3.099%
80	4.472%	3.484%	6.179%	4.794%
85	7.750%	6.050%	9.734%	7.546%
90	13.591%	10.713%	15.785%	11.989%

1. Mortality rates are those applicable for the fiscal year beginning in 2014. Annual projected improvements are assumed in the following years under the schedule shown on the preceding page.

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

Years of Service	Safety	General
0	100%	100%
1	100%	100%
2	100%	100%
3	100%	100%
4	100%	100%
5	35%	35%
6	35%	35%
7	35%	35%
8	33%	34%
9	31%	34%
10	29%	33%
11	27%	33%
12	25%	32%
13	22%	31%
14	19%	30%
15	16%	30%
16	13%	29%
17	10%	28%
18	6%	25%
19	2%	23%
20	0%	20%
21	0%	18%
22	0%	15%
23	0%	12%
24	0%	9%
25	0%	6%
26	0%	3%
27	0%	0%
28	0%	0%
29	0%	0%
30 or More	0%	0%

Table A-5 Annual Increase in Salary⁽¹⁾

Years of Service	General	Safety
<1	6.00%	8.00%
1	5.25%	7.00%
2	4.50%	6.00%
3	3.75%	4.00%
4	3.00%	3.00%
5	2.50%	2.50%
6	2.00%	2.00%
7	1.75%	1.75%
8	1.50%	1.50%
9	1.30%	1.30%
10	1.15%	1.15%
11	1.00%	1.00%
12	0.85%	0.85%
13	0.70%	0.70%
14	0.60%	0.60%
15	0.50%	0.50%
16	0.40%	0.50%
17	0.35%	0.50%
18	0.30%	0.50%
19	0.25%	0.50%
20 or More	0.25%	0.50%

1. The total expected increase in salary includes both merit (shown above) and the general wage increase assumption of 3.25% per annum. The total result is compounded rather than additive. For example, the total increase to service less than one year is 9.44% for General members.

**Appendix A Rates 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.
Other terminations:	Member terminates and elects a refund of member contributions, or a deferred retirement allowance.
Service-Connected Disability:	Member receives disability retirement; disability is service-connected.
Nonservice-Connected Disability:	Member receives disability retirement; disability is not service-connected.
Service-Connected Pre-Retirement Death:	Member dies before retirement; death is service-connected.
Nonservice-Connected Pre-Retirement Death:	Member dies before retirement; death is not service-connected.

Each rate represents the probability that a member will separate from service at each age due to the particular cause. For example, a rate 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 rates needed for each LACERA plan by sex:

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

**Table A-6 Rate of Separation From Active Service For General Members
 Plans A, B and C - Male**

Age	Service Retirement	Other Terminations	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death
18	0.0000	0.0050	0.0002	0.0001	N/A	0.0003
19	0.0000	0.0050	0.0002	0.0001	N/A	0.0003
20	0.0000	0.0050	0.0002	0.0001	N/A	0.0003
21	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
22	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
23	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
24	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
25	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
26	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
27	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
28	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
29	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
30	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
31	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
32	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
33	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
34	0.0000	0.0050	0.0003	0.0001	N/A	0.0005
35	0.0000	0.0050	0.0003	0.0001	N/A	0.0005
36	0.0000	0.0050	0.0004	0.0001	N/A	0.0005
37	0.0000	0.0050	0.0004	0.0001	N/A	0.0005
38	0.0000	0.0050	0.0005	0.0001	N/A	0.0005
39	0.0000	0.0050	0.0006	0.0001	N/A	0.0006
40	0.0300	0.0050	0.0006	0.0002	N/A	0.0006
41	0.0300	0.0050	0.0007	0.0002	N/A	0.0006
42	0.0300	0.0050	0.0008	0.0002	N/A	0.0006
43	0.0300	0.0050	0.0008	0.0003	N/A	0.0007
44	0.0300	0.0050	0.0009	0.0003	N/A	0.0007
45	0.0300	0.0050	0.0009	0.0003	N/A	0.0008
46	0.0300	0.0050	0.0010	0.0004	N/A	0.0009
47	0.0300	0.0050	0.0010	0.0004	N/A	0.0010
48	0.0300	0.0050	0.0010	0.0004	N/A	0.0011
49	0.0300	0.0050	0.0011	0.0004	N/A	0.0012
50	0.0300	0.0050	0.0011	0.0004	N/A	0.0014
51	0.0300	0.0050	0.0012	0.0004	N/A	0.0015
52	0.0300	0.0050	0.0012	0.0004	N/A	0.0017
53	0.0300	0.0050	0.0016	0.0005	N/A	0.0019
54	0.0600	0.0050	0.0019	0.0006	N/A	0.0021
55	0.1000	0.0050	0.0023	0.0006	N/A	0.0023
56	0.1200	0.0050	0.0026	0.0007	N/A	0.0025
57	0.1700	0.0050	0.0030	0.0008	N/A	0.0028
58	0.2200	0.0050	0.0035	0.0009	N/A	0.0031
59	0.2400	0.0050	0.0040	0.0010	N/A	0.0034
60	0.2600	0.0050	0.0045	0.0010	N/A	0.0038
61	0.3100	0.0050	0.0050	0.0011	N/A	0.0042
62	0.3500	0.0050	0.0055	0.0012	N/A	0.0047
63	0.2800	0.0050	0.0053	0.0014	N/A	0.0052
64	0.2800	0.0050	0.0051	0.0015	N/A	0.0059
65	0.2800	0.0050	0.0049	0.0017	N/A	0.0066
66	0.2800	0.0050	0.0047	0.0018	N/A	0.0074
67	0.2800	0.0050	0.0045	0.0020	N/A	0.0083
68	0.2800	0.0050	0.0045	0.0022	N/A	0.0092
69	0.2800	0.0050	0.0045	0.0023	N/A	0.0102
70	0.2800	0.0050	0.0045	0.0025	N/A	0.0113
71	0.2800	0.0050	0.0045	0.0026	N/A	0.0125
72	0.2800	0.0050	0.0045	0.0028	N/A	0.0139
73	0.2800	0.0050	0.0045	0.0030	N/A	0.0154
74	0.2800	0.0050	0.0045	0.0031	N/A	0.0170
75	1.0000	0.0000	0.0000	0.0000	N/A	0.0189

**Table A-7 Rate of Separation From Active Service For General Members
 Plans A, B and C - Female**

Age	Service Retirement	Other Terminations	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death
18	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
19	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
20	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
21	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
22	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
23	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
24	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
25	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
26	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
27	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
28	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
29	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
30	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
31	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
32	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
33	0.0000	0.0050	0.0002	0.0001	N/A	0.0003
34	0.0000	0.0050	0.0003	0.0001	N/A	0.0003
35	0.0000	0.0050	0.0003	0.0001	N/A	0.0003
36	0.0000	0.0050	0.0004	0.0001	N/A	0.0003
37	0.0000	0.0050	0.0004	0.0001	N/A	0.0003
38	0.0000	0.0050	0.0004	0.0001	N/A	0.0003
39	0.0000	0.0050	0.0004	0.0001	N/A	0.0004
40	0.0300	0.0050	0.0005	0.0002	N/A	0.0004
41	0.0300	0.0050	0.0005	0.0002	N/A	0.0004
42	0.0300	0.0050	0.0005	0.0002	N/A	0.0005
43	0.0300	0.0050	0.0006	0.0003	N/A	0.0005
44	0.0300	0.0050	0.0007	0.0003	N/A	0.0006
45	0.0300	0.0050	0.0008	0.0003	N/A	0.0007
46	0.0300	0.0050	0.0009	0.0004	N/A	0.0007
47	0.0300	0.0050	0.0010	0.0004	N/A	0.0008
48	0.0300	0.0050	0.0011	0.0004	N/A	0.0009
49	0.0300	0.0050	0.0012	0.0004	N/A	0.0010
50	0.0300	0.0050	0.0013	0.0004	N/A	0.0011
51	0.0300	0.0050	0.0014	0.0004	N/A	0.0012
52	0.0300	0.0050	0.0015	0.0004	N/A	0.0013
53	0.0300	0.0050	0.0016	0.0005	N/A	0.0014
54	0.0600	0.0050	0.0016	0.0006	N/A	0.0015
55	0.1000	0.0050	0.0017	0.0006	N/A	0.0017
56	0.1200	0.0050	0.0017	0.0007	N/A	0.0018
57	0.1700	0.0050	0.0018	0.0008	N/A	0.0019
58	0.2200	0.0050	0.0020	0.0009	N/A	0.0021
59	0.2400	0.0050	0.0023	0.0010	N/A	0.0023
60	0.2600	0.0050	0.0025	0.0010	N/A	0.0024
61	0.3100	0.0050	0.0028	0.0011	N/A	0.0026
62	0.3500	0.0050	0.0030	0.0012	N/A	0.0029
63	0.2800	0.0050	0.0030	0.0014	N/A	0.0031
64	0.2800	0.0050	0.0030	0.0015	N/A	0.0034
65	0.2800	0.0050	0.0030	0.0017	N/A	0.0037
66	0.2800	0.0050	0.0030	0.0018	N/A	0.0041
67	0.2800	0.0050	0.0030	0.0020	N/A	0.0046
68	0.2800	0.0050	0.0030	0.0022	N/A	0.0051
69	0.2800	0.0050	0.0030	0.0023	N/A	0.0057
70	0.2800	0.0050	0.0030	0.0025	N/A	0.0063
71	0.2800	0.0050	0.0030	0.0026	N/A	0.0070
72	0.2800	0.0050	0.0030	0.0028	N/A	0.0078
73	0.2800	0.0050	0.0030	0.0030	N/A	0.0087
74	0.2800	0.0050	0.0030	0.0031	N/A	0.0097
75	1.0000	0.0000	0.0000	0.0000	N/A	0.0108

**Table A-8 Rate of Separation From Active Service For General Members
 Plan D and G - Male**

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death	Years of Service	Other Terminations
18	0.0000	0.0002	0.0001	N/A	0.0003	0	0.0800
19	0.0000	0.0002	0.0001	N/A	0.0003	1	0.0550
20	0.0000	0.0002	0.0001	N/A	0.0003	2	0.0375
21	0.0000	0.0002	0.0001	N/A	0.0004	3	0.0300
22	0.0000	0.0002	0.0001	N/A	0.0004	4	0.0250
23	0.0000	0.0002	0.0001	N/A	0.0004	5	0.0233
24	0.0000	0.0002	0.0001	N/A	0.0005	6	0.0217
25	0.0000	0.0002	0.0001	N/A	0.0005	7	0.0200
26	0.0000	0.0002	0.0001	N/A	0.0005	8	0.0190
27	0.0000	0.0002	0.0001	N/A	0.0005	9	0.0180
28	0.0000	0.0002	0.0001	N/A	0.0005	10	0.0170
29	0.0000	0.0002	0.0001	N/A	0.0004	11	0.0160
30	0.0000	0.0002	0.0001	N/A	0.0004	12	0.0150
31	0.0000	0.0002	0.0001	N/A	0.0004	13	0.0140
32	0.0000	0.0002	0.0001	N/A	0.0005	14	0.0130
33	0.0000	0.0002	0.0001	N/A	0.0005	15	0.0120
34	0.0000	0.0003	0.0001	N/A	0.0005	16	0.0110
35	0.0000	0.0003	0.0001	N/A	0.0005	17	0.0100
36	0.0000	0.0004	0.0001	N/A	0.0005	18	0.0092
37	0.0000	0.0004	0.0001	N/A	0.0005	19	0.0084
38	0.0000	0.0005	0.0001	N/A	0.0005	20	0.0076
39	0.0000	0.0006	0.0001	N/A	0.0006	21	0.0068
40	0.0150	0.0006	0.0002	N/A	0.0006	22	0.0060
41	0.0150	0.0007	0.0002	N/A	0.0006	23	0.0056
42	0.0150	0.0008	0.0002	N/A	0.0006	24	0.0052
43	0.0150	0.0008	0.0003	N/A	0.0007	25	0.0048
44	0.0150	0.0009	0.0003	N/A	0.0007	26	0.0044
45	0.0150	0.0009	0.0003	N/A	0.0008	27	0.0040
46	0.0150	0.0010	0.0004	N/A	0.0009	28	0.0040
47	0.0150	0.0010	0.0004	N/A	0.0010	29	0.0040
48	0.0150	0.0010	0.0004	N/A	0.0011	30 & Above	0.0040
49	0.0150	0.0011	0.0004	N/A	0.0012		
50	0.0150	0.0011	0.0004	N/A	0.0014		
51	0.0120	0.0012	0.0004	N/A	0.0015		
52	0.0120	0.0012	0.0004	N/A	0.0017		
53	0.0150	0.0016	0.0005	N/A	0.0019		
54	0.0200	0.0019	0.0006	N/A	0.0021		
55	0.0250	0.0023	0.0006	N/A	0.0023		
56	0.0250	0.0026	0.0007	N/A	0.0025		
57	0.0300	0.0030	0.0008	N/A	0.0028		
58	0.0350	0.0035	0.0009	N/A	0.0031		
59	0.0500	0.0040	0.0010	N/A	0.0034		
60	0.0600	0.0045	0.0010	N/A	0.0038		
61	0.0800	0.0050	0.0011	N/A	0.0042		
62	0.1000	0.0055	0.0012	N/A	0.0047		
63	0.0900	0.0053	0.0014	N/A	0.0052		
64	0.1500	0.0051	0.0015	N/A	0.0059		
65	0.2000	0.0049	0.0017	N/A	0.0066		
66	0.2000	0.0047	0.0018	N/A	0.0074		
67	0.1800	0.0045	0.0020	N/A	0.0083		
68	0.1800	0.0045	0.0022	N/A	0.0092		
69	0.1800	0.0045	0.0023	N/A	0.0102		
70	0.2000	0.0045	0.0025	N/A	0.0113		
71	0.2000	0.0045	0.0026	N/A	0.0125		
72	0.2000	0.0045	0.0028	N/A	0.0139		
73	0.2000	0.0045	0.0030	N/A	0.0154		
74	0.2000	0.0045	0.0031	N/A	0.0170		
75	1.0000	0.0000	0.0000	N/A	0.0189		

**Table A-9 Rate of Separation From Active Service For General Members
 Plan D and G - Female**

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death	Years of Service	Other Terminations
18	0.0000	0.0002	0.0001	N/A	0.0002	0	0.0800
19	0.0000	0.0002	0.0001	N/A	0.0002	1	0.0550
20	0.0000	0.0002	0.0001	N/A	0.0002	2	0.0375
21	0.0000	0.0002	0.0001	N/A	0.0002	3	0.0300
22	0.0000	0.0002	0.0001	N/A	0.0002	4	0.0250
23	0.0000	0.0002	0.0001	N/A	0.0002	5	0.0233
24	0.0000	0.0002	0.0001	N/A	0.0002	6	0.0217
25	0.0000	0.0002	0.0001	N/A	0.0002	7	0.0200
26	0.0000	0.0002	0.0001	N/A	0.0002	8	0.0190
27	0.0000	0.0002	0.0001	N/A	0.0002	9	0.0180
28	0.0000	0.0002	0.0001	N/A	0.0002	10	0.0170
29	0.0000	0.0002	0.0001	N/A	0.0002	11	0.0160
30	0.0000	0.0002	0.0001	N/A	0.0002	12	0.0150
31	0.0000	0.0002	0.0001	N/A	0.0002	13	0.0140
32	0.0000	0.0002	0.0001	N/A	0.0002	14	0.0130
33	0.0000	0.0002	0.0001	N/A	0.0003	15	0.0120
34	0.0000	0.0003	0.0001	N/A	0.0003	16	0.0110
35	0.0000	0.0003	0.0001	N/A	0.0003	17	0.0100
36	0.0000	0.0004	0.0001	N/A	0.0003	18	0.0092
37	0.0000	0.0004	0.0001	N/A	0.0003	19	0.0084
38	0.0000	0.0004	0.0001	N/A	0.0003	20	0.0076
39	0.0000	0.0004	0.0001	N/A	0.0004	21	0.0068
40	0.0150	0.0005	0.0002	N/A	0.0004	22	0.0060
41	0.0150	0.0005	0.0002	N/A	0.0004	23	0.0056
42	0.0150	0.0005	0.0002	N/A	0.0005	24	0.0052
43	0.0150	0.0006	0.0003	N/A	0.0005	25	0.0048
44	0.0150	0.0007	0.0003	N/A	0.0006	26	0.0044
45	0.0150	0.0008	0.0003	N/A	0.0007	27	0.0040
46	0.0150	0.0009	0.0004	N/A	0.0007	28	0.0040
47	0.0150	0.0010	0.0004	N/A	0.0008	29	0.0040
48	0.0150	0.0011	0.0004	N/A	0.0009	30 & Above	0.0000
49	0.0150	0.0012	0.0004	N/A	0.0010		
50	0.0150	0.0013	0.0004	N/A	0.0011		
51	0.0120	0.0014	0.0004	N/A	0.0012		
52	0.0120	0.0015	0.0004	N/A	0.0013		
53	0.0150	0.0016	0.0005	N/A	0.0014		
54	0.0200	0.0016	0.0006	N/A	0.0015		
55	0.0250	0.0017	0.0006	N/A	0.0017		
56	0.0250	0.0017	0.0007	N/A	0.0018		
57	0.0300	0.0018	0.0008	N/A	0.0019		
58	0.0350	0.0020	0.0009	N/A	0.0021		
59	0.0500	0.0023	0.0010	N/A	0.0023		
60	0.0600	0.0025	0.0010	N/A	0.0024		
61	0.0800	0.0028	0.0011	N/A	0.0026		
62	0.1000	0.0030	0.0012	N/A	0.0029		
63	0.0900	0.0030	0.0014	N/A	0.0031		
64	0.1500	0.0030	0.0015	N/A	0.0034		
65	0.2000	0.0030	0.0017	N/A	0.0037		
66	0.2000	0.0030	0.0018	N/A	0.0041		
67	0.1800	0.0030	0.0020	N/A	0.0046		
68	0.1800	0.0030	0.0022	N/A	0.0051		
69	0.1800	0.0030	0.0023	N/A	0.0057		
70	0.2000	0.0030	0.0025	N/A	0.0063		
71	0.2000	0.0030	0.0026	N/A	0.0070		
72	0.2000	0.0030	0.0028	N/A	0.0078		
73	0.2000	0.0030	0.0030	N/A	0.0087		
74	0.2000	0.0030	0.0031	N/A	0.0097		
75	1.0000	0.0000	0.0000	N/A	0.0108		

**Table A-10 Rate of Separation From Active Service For General Members
 Plan E - Male**

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death	Years of Service	Other Terminations
18	0.0000	N/A	N/A	N/A	0.0003	0	0.1500
19	0.0000	N/A	N/A	N/A	0.0003	1	0.0800
20	0.0000	N/A	N/A	N/A	0.0003	2	0.0600
21	0.0000	N/A	N/A	N/A	0.0004	3	0.0450
22	0.0000	N/A	N/A	N/A	0.0004	4	0.0350
23	0.0000	N/A	N/A	N/A	0.0004	5	0.0310
24	0.0000	N/A	N/A	N/A	0.0005	6	0.0270
25	0.0000	N/A	N/A	N/A	0.0005	7	0.0230
26	0.0000	N/A	N/A	N/A	0.0005	8	0.0220
27	0.0000	N/A	N/A	N/A	0.0005	9	0.0210
28	0.0000	N/A	N/A	N/A	0.0005	10	0.0200
29	0.0000	N/A	N/A	N/A	0.0004	11	0.0190
30	0.0000	N/A	N/A	N/A	0.0004	12	0.0180
31	0.0000	N/A	N/A	N/A	0.0004	13	0.0168
32	0.0000	N/A	N/A	N/A	0.0005	14	0.0156
33	0.0000	N/A	N/A	N/A	0.0005	15	0.0144
34	0.0000	N/A	N/A	N/A	0.0005	16	0.0132
35	0.0000	N/A	N/A	N/A	0.0005	17	0.0120
36	0.0000	N/A	N/A	N/A	0.0005	18	0.0116
37	0.0000	N/A	N/A	N/A	0.0005	19	0.0112
38	0.0000	N/A	N/A	N/A	0.0005	20	0.0108
39	0.0000	N/A	N/A	N/A	0.0006	21	0.0104
40	0.0000	N/A	N/A	N/A	0.0006	22	0.0100
41	0.0000	N/A	N/A	N/A	0.0006	23	0.0100
42	0.0000	N/A	N/A	N/A	0.0006	24	0.0100
43	0.0000	N/A	N/A	N/A	0.0007	25	0.0100
44	0.0000	N/A	N/A	N/A	0.0007	26	0.0100
45	0.0000	N/A	N/A	N/A	0.0008	27	0.0100
46	0.0000	N/A	N/A	N/A	0.0009	28	0.0100
47	0.0000	N/A	N/A	N/A	0.0010	29	0.0100
48	0.0000	N/A	N/A	N/A	0.0011	30 & Above	0.0100
49	0.0000	N/A	N/A	N/A	0.0012		
50	0.0000	N/A	N/A	N/A	0.0014		
51	0.0000	N/A	N/A	N/A	0.0015		
52	0.0000	N/A	N/A	N/A	0.0017		
53	0.0000	N/A	N/A	N/A	0.0019		
54	0.0000	N/A	N/A	N/A	0.0021		
55	0.0200	N/A	N/A	N/A	0.0023		
56	0.0200	N/A	N/A	N/A	0.0025		
57	0.0200	N/A	N/A	N/A	0.0028		
58	0.0200	N/A	N/A	N/A	0.0031		
59	0.0300	N/A	N/A	N/A	0.0034		
60	0.0400	N/A	N/A	N/A	0.0038		
61	0.0600	N/A	N/A	N/A	0.0042		
62	0.0900	N/A	N/A	N/A	0.0047		
63	0.0900	N/A	N/A	N/A	0.0052		
64	0.2000	N/A	N/A	N/A	0.0059		
65	0.2500	N/A	N/A	N/A	0.0066		
66	0.1800	N/A	N/A	N/A	0.0074		
67	0.1800	N/A	N/A	N/A	0.0083		
68	0.1800	N/A	N/A	N/A	0.0092		
69	0.1800	N/A	N/A	N/A	0.0102		
70	0.2000	N/A	N/A	N/A	0.0113		
71	0.2000	N/A	N/A	N/A	0.0125		
72	0.2000	N/A	N/A	N/A	0.0139		
73	0.2000	N/A	N/A	N/A	0.0154		
74	0.2000	N/A	N/A	N/A	0.0170		
75	1.0000	N/A	N/A	N/A	0.0189		

**Table A-11 Rate of Separation From Active Service For General Members
 Plan E - Female**

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death	Years of Service	Other Terminations
18	0.0000	N/A	N/A	N/A	0.0002	0	0.1500
19	0.0000	N/A	N/A	N/A	0.0002	1	0.0800
20	0.0000	N/A	N/A	N/A	0.0002	2	0.0600
21	0.0000	N/A	N/A	N/A	0.0002	3	0.0450
22	0.0000	N/A	N/A	N/A	0.0002	4	0.0350
23	0.0000	N/A	N/A	N/A	0.0002	5	0.0310
24	0.0000	N/A	N/A	N/A	0.0002	6	0.0270
25	0.0000	N/A	N/A	N/A	0.0002	7	0.0230
26	0.0000	N/A	N/A	N/A	0.0002	8	0.0220
27	0.0000	N/A	N/A	N/A	0.0002	9	0.0210
28	0.0000	N/A	N/A	N/A	0.0002	10	0.0200
29	0.0000	N/A	N/A	N/A	0.0002	11	0.0190
30	0.0000	N/A	N/A	N/A	0.0002	12	0.0180
31	0.0000	N/A	N/A	N/A	0.0002	13	0.0168
32	0.0000	N/A	N/A	N/A	0.0002	14	0.0156
33	0.0000	N/A	N/A	N/A	0.0003	15	0.0144
34	0.0000	N/A	N/A	N/A	0.0003	16	0.0132
35	0.0000	N/A	N/A	N/A	0.0003	17	0.0120
36	0.0000	N/A	N/A	N/A	0.0003	18	0.0116
37	0.0000	N/A	N/A	N/A	0.0003	19	0.0112
38	0.0000	N/A	N/A	N/A	0.0003	20	0.0108
39	0.0000	N/A	N/A	N/A	0.0004	21	0.0104
40	0.0000	N/A	N/A	N/A	0.0004	22	0.0100
41	0.0000	N/A	N/A	N/A	0.0004	23	0.0100
42	0.0000	N/A	N/A	N/A	0.0005	24	0.0100
43	0.0000	N/A	N/A	N/A	0.0005	25	0.0100
44	0.0000	N/A	N/A	N/A	0.0006	26	0.0100
45	0.0000	N/A	N/A	N/A	0.0007	27	0.0100
46	0.0000	N/A	N/A	N/A	0.0007	28	0.0100
47	0.0000	N/A	N/A	N/A	0.0008	29	0.0100
48	0.0000	N/A	N/A	N/A	0.0009	30 & Above	0.0100
49	0.0000	N/A	N/A	N/A	0.0010		
50	0.0000	N/A	N/A	N/A	0.0011		
51	0.0000	N/A	N/A	N/A	0.0012		
52	0.0000	N/A	N/A	N/A	0.0013		
53	0.0000	N/A	N/A	N/A	0.0014		
54	0.0000	N/A	N/A	N/A	0.0015		
55	0.0200	N/A	N/A	N/A	0.0017		
56	0.0200	N/A	N/A	N/A	0.0018		
57	0.0200	N/A	N/A	N/A	0.0019		
58	0.0200	N/A	N/A	N/A	0.0021		
59	0.0300	N/A	N/A	N/A	0.0023		
60	0.0400	N/A	N/A	N/A	0.0024		
61	0.0600	N/A	N/A	N/A	0.0026		
62	0.0900	N/A	N/A	N/A	0.0029		
63	0.0900	N/A	N/A	N/A	0.0031		
64	0.2000	N/A	N/A	N/A	0.0034		
65	0.2500	N/A	N/A	N/A	0.0037		
66	0.1800	N/A	N/A	N/A	0.0041		
67	0.1800	N/A	N/A	N/A	0.0046		
68	0.1800	N/A	N/A	N/A	0.0051		
69	0.1800	N/A	N/A	N/A	0.0057		
70	0.2000	N/A	N/A	N/A	0.0063		
71	0.2000	N/A	N/A	N/A	0.0070		
72	0.2000	N/A	N/A	N/A	0.0078		
73	0.2000	N/A	N/A	N/A	0.0087		
74	0.2000	N/A	N/A	N/A	0.0097		
75	1.0000	N/A	N/A	N/A	0.0108		

**Table A-12 Rate of Separation From Active Service For Safety Members
 Plan A, B, and C - Male**

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death	Years of Service	Other Terminations
18	0.0000	0.0020	0.0000	0.0001	0.0002	0	0.0300
19	0.0000	0.0020	0.0000	0.0001	0.0002	1	0.0250
20	0.0000	0.0020	0.0000	0.0001	0.0002	2	0.0200
21	0.0000	0.0020	0.0000	0.0001	0.0002	3	0.0150
22	0.0000	0.0020	0.0000	0.0001	0.0003	4	0.0120
23	0.0000	0.0020	0.0000	0.0001	0.0003	5	0.0113
24	0.0000	0.0020	0.0000	0.0001	0.0003	6	0.0107
25	0.0000	0.0020	0.0000	0.0001	0.0004	7	0.0100
26	0.0000	0.0020	0.0000	0.0001	0.0004	8	0.0092
27	0.0000	0.0020	0.0000	0.0001	0.0004	9	0.0084
28	0.0000	0.0020	0.0000	0.0001	0.0005	10	0.0076
29	0.0000	0.0020	0.0000	0.0001	0.0005	11	0.0068
30	0.0000	0.0020	0.0000	0.0001	0.0005	12	0.0060
31	0.0000	0.0020	0.0000	0.0001	0.0005	13	0.0054
32	0.0000	0.0020	0.0000	0.0001	0.0005	14	0.0048
33	0.0000	0.0021	0.0000	0.0001	0.0004	15	0.0042
34	0.0000	0.0022	0.0000	0.0001	0.0004	16	0.0036
35	0.0000	0.0023	0.0000	0.0001	0.0004	17	0.0030
36	0.0000	0.0024	0.0000	0.0001	0.0005	18	0.0024
37	0.0000	0.0025	0.0000	0.0001	0.0005	19	0.0018
38	0.0000	0.0026	0.0000	0.0001	0.0005	20 & Above	0.0000
39	0.0000	0.0027	0.0000	0.0001	0.0005		
40	0.0100	0.0028	0.0000	0.0001	0.0005		
41	0.0100	0.0029	0.0000	0.0001	0.0005		
42	0.0100	0.0030	0.0000	0.0001	0.0005		
43	0.0100	0.0031	0.0000	0.0001	0.0006		
44	0.0100	0.0032	0.0000	0.0001	0.0006		
45	0.0100	0.0033	0.0000	0.0001	0.0006		
46	0.0100	0.0034	0.0000	0.0001	0.0006		
47	0.0100	0.0035	0.0000	0.0001	0.0007		
48	0.0100	0.0040	0.0000	0.0001	0.0007		
49	0.0100	0.0050	0.0000	0.0001	0.0008		
50	0.0100	0.0100	0.0000	0.0001	0.0009		
51	0.0200	0.0120	0.0000	0.0001	0.0010		
52	0.0250	0.0140	0.0000	0.0001	0.0011		
53	0.0300	0.0300	0.0000	0.0001	0.0012		
54	0.1200	0.0500	0.0000	0.0001	0.0014		
55	0.2400	0.1200	0.0000	0.0001	0.0015		
56	0.1500	0.0900	0.0000	0.0001	0.0017		
57	0.1600	0.1000	0.0000	0.0001	0.0019		
58	0.1800	0.1000	0.0000	0.0001	0.0021		
59	0.2500	0.1000	0.0000	0.0001	0.0023		
60	0.3000	0.1000	0.0000	0.0001	0.0025		
61	0.3000	0.1000	0.0000	0.0001	0.0028		
62	0.3000	0.1000	0.0000	0.0001	0.0031		
63	0.3000	0.1000	0.0000	0.0001	0.0034		
64	0.3000	0.1000	0.0000	0.0001	0.0038		
65	1.0000	0.0000	0.0000	0.0000	0.0042		

**Table A-13 Rate of Separation From Active Service For Safety Members
 Plan A, B, and C – Female**

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death	Years of Service	Other Terminations
18	0.0000	0.0030	0.0000	0.0001	0.0002	0	0.0300
19	0.0000	0.0030	0.0000	0.0001	0.0002	1	0.0250
20	0.0000	0.0030	0.0000	0.0001	0.0002	2	0.0200
21	0.0000	0.0030	0.0000	0.0001	0.0002	3	0.0150
22	0.0000	0.0030	0.0000	0.0001	0.0002	4	0.0120
23	0.0000	0.0030	0.0000	0.0001	0.0002	5	0.0113
24	0.0000	0.0030	0.0000	0.0001	0.0002	6	0.0107
25	0.0000	0.0030	0.0000	0.0001	0.0002	7	0.0100
26	0.0000	0.0030	0.0000	0.0001	0.0002	8	0.0092
27	0.0000	0.0030	0.0000	0.0001	0.0002	9	0.0084
28	0.0000	0.0034	0.0000	0.0001	0.0002	10	0.0076
29	0.0000	0.0038	0.0000	0.0001	0.0002	11	0.0068
30	0.0000	0.0042	0.0000	0.0001	0.0002	12	0.0060
31	0.0000	0.0046	0.0000	0.0001	0.0002	13	0.0054
32	0.0000	0.0050	0.0000	0.0001	0.0002	14	0.0048
33	0.0000	0.0056	0.0000	0.0001	0.0003	15	0.0042
34	0.0000	0.0062	0.0000	0.0001	0.0003	16	0.0036
35	0.0000	0.0068	0.0000	0.0001	0.0003	17	0.0030
36	0.0000	0.0074	0.0000	0.0001	0.0003	18	0.0024
37	0.0000	0.0080	0.0000	0.0001	0.0003	19	0.0018
38	0.0000	0.0084	0.0000	0.0001	0.0003	20 & Above	0.0000
39	0.0000	0.0088	0.0000	0.0001	0.0004		
40	0.0100	0.0092	0.0000	0.0001	0.0004		
41	0.0100	0.0096	0.0000	0.0001	0.0004		
42	0.0100	0.0100	0.0000	0.0001	0.0005		
43	0.0100	0.0104	0.0000	0.0001	0.0005		
44	0.0100	0.0108	0.0000	0.0001	0.0006		
45	0.0100	0.0112	0.0000	0.0001	0.0007		
46	0.0100	0.0116	0.0000	0.0001	0.0007		
47	0.0100	0.0120	0.0000	0.0001	0.0008		
48	0.0100	0.0130	0.0000	0.0001	0.0009		
49	0.0100	0.0150	0.0000	0.0001	0.0010		
50	0.0100	0.0180	0.0000	0.0001	0.0011		
51	0.0200	0.0200	0.0000	0.0001	0.0012		
52	0.0250	0.0240	0.0000	0.0001	0.0013		
53	0.0300	0.0280	0.0000	0.0001	0.0014		
54	0.1200	0.0320	0.0000	0.0001	0.0015		
55	0.2400	0.1100	0.0000	0.0001	0.0017		
56	0.1500	0.0700	0.0000	0.0001	0.0018		
57	0.1600	0.0700	0.0000	0.0001	0.0019		
58	0.1800	0.0800	0.0000	0.0001	0.0021		
59	0.2500	0.0800	0.0000	0.0001	0.0023		
60	0.3000	0.0800	0.0000	0.0001	0.0024		
61	0.3000	0.0800	0.0000	0.0001	0.0026		
62	0.3000	0.0800	0.0000	0.0001	0.0029		
63	0.3000	0.0800	0.0000	0.0001	0.0031		
64	0.3000	0.0800	0.0000	0.0001	0.0034		
65	1.0000	0.0000	0.0000	0.0000	0.0037		

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 Relief Act (PEPRA) with provisions adopted by the LACERA Board, effective through July 1, 2018. The benefit and contribution provisions of this law are summarized briefly below, along with corresponding references to the California State Code. 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 $\frac{3}{4}$ 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, 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.	

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: (31494.1, 31494.3)

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: January 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)

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

Final Compensation

- Plans A, B, D and General Plan C** (31462.3, 31461.45)
 Average of the member's highest monthly pensionable earnings during any 12-consecutive-month period.
- Plan E:** (31488)
 Average of the member's highest monthly pensionable earnings during any three 12-consecutive month periods.
- General Plan G and Safety Plan C** (7522.32)
 Average of the member's highest monthly pensionable earnings during any 36-consecutive month period.

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 \$145,666 for 2018. The amount of compensation taken into account shall be adjusted based on changes in the Consumer Price Index for All Urban Consumers. Adjustments shall be effective annually on January 1. (7522.10)

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.	(31676.1) (31676.11) (31676.14)
Plan C:	Safety members Final Compensation x Safety Plan percentage x Years of service.	(7522.25(d))
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) Age 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 actuarial equivalent factor (see Sample Plan Age Factors).	(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.	

SERVICE RETIREMENT ALLOWANCE (continued)

Sample Plan Age Factors

Plan	Age 50	Age 55	Age 60	Age 65 & Up	
General A	0.885	1.169	1.464	1.567	(31676.14)
General B	0.745	1.000	1.309	1.567	(31676.11)
General C&D	0.709	0.895	1.150	1.459	(31676.1)
General E	N/A	0.375	0.601	1.000	(31491.3(a))
Safety A&B	1.000	1.310	1.310	1.310	(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.	
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.	(31491.3)

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).	(31491, 31492.1)

Eligible survivor includes certain domestic partners. (31780.2)

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 surviving spouse or beneficiary having an insurable interest in the life of the member. (31762)

Option 3: 50% of member's reduced allowance is payable to a surviving spouse or beneficiary having an insurable interest in the life of the member. (31763)

Option 4: Other % of member's reduced allowance is payable to a surviving spouse or 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 (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.

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, 31720.5)

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). (31760, 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, 31836)

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

Monthly Allowance

The monthly allowance is equal to a service retirement allowance if the member is eligible to retire; otherwise allowance equals (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, 31760.1, 31760.12, 31785, 31785.4)

SERVICE-CONNECTED PRE-RETIREMENT DEATH BENEFITS

Eligibility

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.	(31787)
Plan E:	Not available under Plan E.	(31487)

Monthly Allowance

An annual death allowance is payable monthly to an eligible survivor (or eligible children) equal to 50% of the member's Final Compensation. (31787)

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.

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)

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 may be paid from surplus earnings of the Plan, if any, but 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. (31700)
 Member contributions must be left on deposit.

Safety Plan C: Age 50 with 5 years of service. (7522.20(a))

Plan E: Age 55 with 10 years of service. (31491)

Plan G: Age 52 with 5 years of service. (7522.25(d))

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.	
	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.	(31835)

TRANSFER FROM CALPERS

Whenever firefighting or law enforcement functions performed by a city of the state (31657)
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.

COST-OF-LIVING INCREASES

Cost-of-living increases (or decreases) are applied to all retirement allowances (service (31870, 31870.1)
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%.

Plan A: Members (and their beneficiaries) are limited to
a maximum 3% cost-of-living increase.

Plans B-D, G: Members (and their beneficiaries) are limited to (31870, 31870.1)
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.

Plan E: Members (and their beneficiaries) are limited to (31495.5)
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.

STAR PROGRAM

Contributory plan members who have a COLA Accumulation of more than 20% resulting (31874.3(b))
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.

Appendix C Valuation Data and Schedules



On the following table, Exhibit C-1, we present a summary of LACERA membership at June 30, 2018 for active members. Similar information is shown in Exhibit C-2 Retired for retired members and C-2 Former for vested former members.

The number of total active members increased by 1.3% and the total salary increased by 4.3% since the last valuation. The total number of retired members and their beneficiaries increased by 2.5%, while the average retirement benefit amount increased by 3.5%.

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 2018 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, 2018 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.

Exhibit C-1 LACERA Membership – Active Members as of June 30, 2018

	Sex	Vested	NonVested	Total Number	Annual Salary	Average Age	Average Monthly Salary	Average Credited Service
General Members								
Plan A	M	44	-	44	\$ 5,599,644	71.9	\$ 10,605	38.4
	F	93	-	93	7,819,668	68.2	7,007	37.9
Plan B	M	10	-	10	1,067,736	67.0	8,898	34.9
	F	33	-	33	3,032,580	63.8	7,658	37.8
Plan C	M	13	-	13	1,196,784	64.5	7,672	37.7
	F	42	-	42	3,864,624	64.2	7,668	38.4
Plan D	M	14,078	139	14,217	1,306,084,428	50.0	7,656	17.5
	F	29,026	259	29,285	2,438,644,056	49.5	6,939	17.6
Plan E	M	5,295	614	5,909	511,440,168	54.2	7,213	21.2
	F	11,583	945	12,528	895,311,336	54.1	5,955	22.2
Plan G	M	508	7,428	7,936	514,077,516	37.6	5,398	2.5
	F	978	14,615	15,593	922,174,788	36.9	4,928	2.4
Total		61,703	24,000	85,703	\$ 6,610,313,328	47.2	\$ 6,428	14.4
Safety Members								
Plan A	M	5	-	5	\$ 648,912	63.0	\$ 10,815	36.2
	F	-	-	-	-	N/A	N/A	N/A
Plan B	M	8,711	76	8,787	1,071,403,620	45.4	10,161	18.8
	F	1,459	15	1,474	169,972,764	43.0	9,609	16.5
Plan C	M	97	2,081	2,178	180,990,156	30.7	6,925	2.2
	F	13	314	327	28,441,872	30.4	7,248	2.5
Total		10,285	2,486	12,771	\$ 1,451,457,324	42.2	\$ 9,471	15.3
Grand Total		71,988	26,486	98,474	\$ 8,061,770,652	46.6	\$ 6,822	14.5

Exhibit C-2 Retired LACERA Membership – Retired Members as of June 30, 2018

	Sex	Number	Annual Allowance	Average Age	Average Monthly Benefit
General Members					
Plan A	M	8,146	\$ 537,515,892	79.1	\$ 5,499
	F	13,975	652,764,269	79.1	3,892
Plan B	M	233	14,405,198	73.9	5,152
	F	519	25,742,797	73.4	4,133
Plan C	M	147	7,780,098	72.1	4,410
	F	343	14,146,098	73.6	3,437
Plan D	M	5,453	227,046,064	68.5	3,470
	F	10,033	358,512,600	68.3	2,978
Plan E	M	4,411	131,520,889	71.9	2,485
	F	9,019	222,101,711	71.6	2,052
Plan G	M	5	164,156	75.4	2,736
	F	8	105,946	64.6	1,104
Total		52,292	\$ 2,191,805,718	73.9	\$ 3,493
Safety Members					
Plan A	M	4,985	\$ 490,156,398	75.4	\$ 8,194
	F	2,023	135,663,165	77.6	5,588
Plan B	M	4,532	410,322,062	59.7	7,545
	F	1,044	67,240,724	56.5	5,367
Plan C	M	3	506,648	54.7	14,074
	F	1	33,179	32.0	2,765
Total		12,588	\$ 1,103,922,176	68.5	\$ 7,308
Grand Total		64,880	\$ 3,295,727,894	72.8	\$ 4,233

Exhibit C-2 Former LACERA Membership – Vested Former Members as of June 30, 2018⁽¹⁾
 Subtotaled by Plan and Retirement Type

	Sex	Number	Average Age
General Members			
Plan A	M	25	71.4
	F	47	70.2
Plan B	M	4	72.0
	F	13	66.8
Plan C	M	5	65.0
	F	15	63.6
Plan D	M	2,586	48.2
	F	5,397	47.3
Plan E	M	1,059	56.5
	F	2,400	56.4
Plan G	M	705	37.0
	F	1,675	36.2
Total		13,931	48.1
Safety Members			
Plan A	M	5	67.8
	F	-	-
Plan B	M	709	42.0
	F	128	42.0
Plan C	M	118	31.0
	F	15	34.0
Total		975	40.7
Grand Total		14,906	47.6

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

**Exhibit C-2a LACERA Membership – Retired Members as of June 30, 2018
 Subtotaled by Plan and Retirement Type**

<u>Plan</u>	<u>Retirement Type</u>	<u>Number</u>	<u>Annual Benefits in Thousands</u>	<u>Average Monthly Benefit</u>
General Plans:				
Plan A				
	Healthy	15,986	\$ 974,208	\$ 5,078
	Disabled	1,612	63,299	3,272
	Beneficiaries	<u>4,523</u>	<u>152,774</u>	<u>2,815</u>
	Total	22,121	\$ 1,190,281	\$ 4,484
Plan B				
	Healthy	626	\$ 35,986	\$ 4,790
	Disabled	58	2,033	2,921
	Beneficiaries	<u>68</u>	<u>2,129</u>	<u>2,609</u>
	Total	752	\$ 40,148	\$ 4,449
Plan C				
	Healthy	376	\$ 18,806	\$ 4,168
	Disabled	51	1,680	2,745
	Beneficiaries	<u>63</u>	<u>1,440</u>	<u>1,904</u>
	Total	490	\$ 21,926	\$ 3,729
Plan D				
	Healthy	12,235	\$ 493,838	\$ 3,364
	Disabled	1,958	64,848	2,760
	Beneficiaries	<u>1,293</u>	<u>26,872</u>	<u>1,732</u>
	Total	15,486	\$ 585,558	\$ 3,151
Plan E				
	Healthy	12,343	\$ 339,182	\$ 2,290
	Disabled	N/A	N/A	N/A
	Beneficiaries	<u>1,087</u>	<u>14,440</u>	<u>1,107</u>
	Total	13,430	\$ 353,622	\$ 2,194
Plan G				
	Healthy	11	\$ 218	\$ 1,654
	Disabled	1	48	3,977
	Beneficiaries	<u>1</u>	<u>4</u>	<u>339</u>
	Total	13	\$ 270	\$ 1,731
Safety Plans:				
Plan A				
	Healthy	2,322	\$ 238,838	\$ 8,572
	Disabled	3,109	286,433	7,678
	Beneficiaries	<u>1,577</u>	<u>100,549</u>	<u>5,313</u>
	Total	7,008	\$ 625,820	\$ 7,442
Plan B				
	Healthy	2,395	\$ 231,860	\$ 8,067
	Disabled	2,916	231,404	6,613
	Beneficiaries	<u>265</u>	<u>14,299</u>	<u>4,497</u>
	Total	5,576	\$ 477,563	\$ 7,137
Plan C				
	Healthy	2	\$ 473	\$ 19,718
	Disabled	2	67	2,775
	Beneficiaries	<u>0</u>	<u>0</u>	<u>N/A</u>
	Total	4	\$ 540	\$ 11,246
Grand Totals		64,880	3,295,728	4,233

**Exhibit C-2b LACERA Membership – Retired Members as of June 30, 2018
 Subtotaled by Retirement Type and Plan**

<u>Type</u>	<u>Plan</u>	<u>Number</u>	<u>Annual Benefits in Thousands</u>	<u>Average Monthly Benefit</u>
Healthy Retirees				
	General A	15,986	\$ 974,208	\$ 5,078
	General B	626	35,986	4,790
	General C	376	18,806	4,168
	General D	12,235	493,838	3,364
	General E	12,343	339,182	2,290
	General G	11	218	1,654
	Safety A	2,322	238,838	8,572
	Safety B	2,395	231,860	8,067
	Safety C	<u>2</u>	<u>473</u>	<u>19,718</u>
	Total	46,296	\$ 2,333,409	\$ 4,200
Disabled Retirees				
	General A	1,612	\$ 63,299	\$ 3,272
	General B	58	2,033	2,921
	General C	51	1,680	2,745
	General D	1,958	64,848	2,760
	General E	N/A	N/A	N/A
	General G	1	48	3,977
	Safety A	3,109	286,433	7,678
	Safety B	2,916	231,404	6,613
	Safety C	<u>2</u>	<u>67</u>	<u>2,775</u>
	Total	9,707	\$ 649,812	\$ 5,579
Beneficiaries				
	General A	4,523	\$ 152,774	\$ 2,815
	General B	68	2,129	2,609
	General C	63	1,440	1,904
	General D	1,293	26,872	1,732
	General E	1,087	14,440	1,107
	General G	1	4	339
	Safety A	1,577	100,549	5,313
	Safety B	265	14,299	4,497
	Safety C	<u>0</u>	<u>0</u>	<u>N/A</u>
	Total	8,877	\$ 312,507	\$ 2,934
Grand Totals		64,880	\$ 3,295,728	\$ 4,233

Exhibit C-3 Age Distribution of Active Members as of June 30, 2018

	Age Groups						Total
	0-29	30-39	40-49	50-59	60-69	70+	
General Plans:							
Plan A							
Male	-	-	-	-	17	27	44
Female	-	-	-	-	63	30	93
Plan B							
Male	-	-	-	-	8	2	10
Female	-	-	-	4	26	3	33
Plan C							
Male	-	-	-	1	10	2	13
Female	-	-	-	11	24	7	42
Plan D							
Male	62	2,269	4,560	4,772	2,284	270	14,217
Female	80	4,969	9,724	9,668	4,424	420	29,285
Plan E							
Male	10	542	1,325	2,032	1,689	311	5,909
Female	17	1,003	2,714	4,886	3,491	417	12,528
Plan G							
Male	1,801	3,403	1,577	864	271	20	7,936
Female	3,730	6,940	2,956	1,544	405	18	15,593
Safety Plans:							
Plan A							
Male	-	-	-	-	5	-	5
Female	-	-	-	-	-	-	-
Plan B							
Male	121	2,177	3,400	2,916	168	5	8,787
Female	32	500	606	324	12	-	1,474
Plan C							
Male	1,109	907	118	41	3	-	2,178
Female	170	135	19	3	-	-	327
Grand Totals:	<u>7,132</u>	<u>22,845</u>	<u>26,999</u>	<u>27,066</u>	<u>12,900</u>	<u>1,532</u>	<u>98,474</u>

**Exhibit C-4 Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
 All Plans**

Count													
Age	Years of Service												Total Count
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	476	250	122	24	8	1	-	-	-	-	-	-	881
25-29	1,659	1,624	1,224	806	471	447	19	1	-	-	-	-	6,251
30-34	1,324	1,436	1,405	1,314	1,082	2,469	1,404	40	-	-	-	-	10,474
35-39	898	936	910	793	692	2,673	4,451	963	53	2	-	-	12,371
40-44	558	584	514	508	474	1,737	3,966	3,664	867	74	-	-	12,946
45-49	376	384	414	351	343	1,244	2,926	3,826	2,690	1,368	129	2	14,053
50-54	295	288	267	250	266	893	2,067	2,770	2,302	3,457	1,495	165	14,515
55-59	197	179	176	203	200	746	1,738	2,119	1,529	2,436	2,104	924	12,551
60-64	77	78	104	93	117	532	1,189	1,572	1,125	1,427	1,326	1,490	9,130
65 & Over	16	46	25	48	44	306	810	1,139	791	747	526	804	5,302
Total Count	5,876	5,805	5,161	4,390	3,697	11,048	18,570	16,094	9,357	9,511	5,580	3,385	98,474

Compensation													
Age	Years of Service												Average Comp.
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	50,181	55,095	58,238	56,869	66,228	47,088	-	-	-	-	-	-	53,016
25-29	51,378	57,188	58,160	61,252	64,919	71,093	69,444	52,404	-	-	-	-	57,974
30-34	57,475	61,297	61,560	65,084	68,688	76,324	78,229	90,232	-	-	-	-	68,010
35-39	62,052	63,924	66,198	71,938	73,170	83,417	82,741	85,267	91,920	117,408	-	-	77,758
40-44	59,248	63,977	69,108	67,857	74,318	86,083	83,360	88,474	97,631	107,580	-	-	82,848
45-49	60,545	66,494	67,034	68,391	69,256	84,556	84,027	89,811	100,766	103,075	105,796	115,986	88,552
50-54	64,768	61,910	66,771	66,235	71,278	78,694	77,858	84,704	96,772	106,223	104,915	112,447	91,044
55-59	63,989	64,406	65,916	68,646	68,678	78,874	74,204	79,919	93,804	98,064	105,301	100,290	89,004
60-64	67,876	71,569	69,023	63,832	68,859	82,272	72,473	78,045	87,886	89,227	102,308	92,555	85,911
65 & Over	70,826	107,812	124,436	83,435	61,670	85,142	73,494	74,171	81,114	82,870	95,089	94,987	82,693
Avg. Annual Compensation	\$ 56,984	\$ 61,550	\$ 63,557	\$ 66,563	\$ 69,924	\$ 81,182	\$ 80,318	\$ 84,796	\$ 95,095	\$ 99,309	\$ 103,535	\$ 96,227	\$ 81,867



**Exhibit C-4a Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
 General Plan A**

Count													
Age	Years of Service											Total Count	
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34		35&Over
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	2	5	3	1	18	29
65 & Over	-	-	-	-	-	1	5	6	11	6	4	75	108
Total Count	-	-	-	-	-	1	5	8	16	9	5	93	137

Compensation													
Age	Years of Service											Average Comp.	
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34		35&Over
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	37,620	89,162	64,028	97,248	83,635	79,855
65 & Over	-	-	-	-	-	96,948	97,229	125,666	89,463	92,510	114,972	103,565	102,810
Avg. Annual Compensation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 96,948	\$ 97,229	\$ 103,655	\$ 89,369	\$ 83,016	\$ 111,427	\$ 99,707	\$ 97,951



**Exhibit C-4b Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
 General Plan B**

Count														
Age	Years of Service											Total Count		
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34		35&Over	
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	4	4
60-64	-	-	-	-	-	-	-	-	1	-	1	15	17	17
65 & Over	-	-	-	-	-	-	-	2	2	2	-	16	22	22
Total Count	-	-	-	-	-	-	-	2	3	2	1	35	43	43

Compensation														
Age	Years of Service											Average Comp.		
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34		35&Over	
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	78,354	78,354	78,354
60-64	-	-	-	-	-	-	-	-	56,400	-	86,580	91,733	89,351	89,351
65 & Over	-	-	-	-	-	-	-	129,342	100,962	128,598	-	96,883	103,088	103,088
Avg. Annual Compensation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 129,342	\$ 86,108	\$ 128,598	\$ 86,580	\$ 92,558	\$ 95,356	\$ 95,356



**Exhibit C-4c Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
 General Plan C**

Count													
Age	Years of Service												Total Count
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	1	-	-	11	12
60-64	-	-	-	-	-	-	-	-	-	-	2	18	20
65 & Over	-	-	-	-	-	-	-	1	-	-	1	21	23
Total Count	-	-	-	-	-	-	-	1	1	-	3	50	55

Compensation													
Age	Years of Service												Average Comp.
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	61,920	-	-	76,190	75,001
60-64	-	-	-	-	-	-	-	-	-	-	92,148	85,938	86,559
65 & Over	-	-	-	-	-	-	-	130,236	-	-	195,972	100,191	105,662
Avg. Annual Compensation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 130,236	\$ 61,920	\$ -	\$ 126,756	\$ 89,780	\$ 92,026



**Exhibit C-4d Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
 General Plan D**

Count													
Age	Years of Service												Total Count
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	1	-	-	1	2	127	10	1	-	-	-	-	142
30-34	6	9	10	14	18	1,281	684	33	-	-	-	-	2,055
35-39	10	21	20	19	27	1,667	2,791	582	45	1	-	-	5,183
40-44	4	16	9	15	29	1,148	2,666	2,235	525	55	-	-	6,702
45-49	5	19	16	11	13	839	2,012	2,393	1,475	709	88	2	7,582
50-54	6	13	10	10	11	610	1,430	1,795	1,382	1,532	657	130	7,586
55-59	3	3	3	9	8	453	1,205	1,408	975	1,302	984	501	6,854
60-64	1	5	5	4	6	337	842	990	744	767	624	491	4,816
65 & Over	-	1	3	2	-	171	522	686	461	381	209	146	2,582
Total Count	36	87	76	85	114	6,633	12,162	10,123	5,607	4,747	2,562	1,270	43,502

Compensation													
Age	Years of Service												Average Comp.
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	131,160	-	-	49,512	78,510	57,363	57,290	52,404	-	-	-	-	58,086
30-34	64,554	79,369	72,289	72,032	78,640	72,801	65,362	88,363	-	-	-	-	70,623
35-39	67,320	67,841	90,031	97,470	75,673	81,602	78,014	79,536	87,671	76,992	-	-	79,466
40-44	92,304	84,002	89,060	72,678	91,488	86,829	81,617	84,757	90,314	103,135	-	-	84,460
45-49	93,324	111,563	86,087	81,667	115,117	83,958	83,587	87,970	95,166	93,612	100,008	115,986	88,534
50-54	148,566	84,747	100,410	66,058	105,572	77,834	77,918	85,305	93,898	95,288	99,321	107,452	88,560
55-59	109,420	126,356	134,512	65,101	119,750	81,157	77,158	82,508	95,614	95,344	104,800	105,292	90,721
60-64	66,264	80,539	101,626	145,641	113,070	83,706	74,844	82,705	91,601	90,420	109,161	105,120	89,821
65 & Over	-	42,564	71,028	113,412	-	79,426	75,783	76,602	82,565	85,901	105,776	115,796	83,647
Avg. Annual Compensation	\$ 92,040	\$ 86,537	\$ 89,886	\$ 81,815	\$ 92,659	\$ 80,315	\$ 78,586	\$ 84,256	\$ 92,908	\$ 93,600	\$ 104,372	\$ 106,671	\$ 86,082



**Exhibit C-4e Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
 General Plan E**

Count														
Age	Years of Service												Total Count	
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over		
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	1	25	1	-	-	-	-	-	-	27
30-34	-	-	-	-	-	231	218	1	-	-	-	-	-	450
35-39	-	-	-	-	-	306	650	139	-	-	-	-	-	1,095
40-44	-	-	-	-	-	230	702	673	88	3	-	-	-	1,696
45-49	-	-	-	-	1	198	794	576	499	258	17	-	-	2,343
50-54	-	-	-	-	-	159	474	697	529	872	460	14	-	3,205
55-59	-	-	-	-	-	176	492	626	434	819	838	328	-	3,713
60-64	-	-	-	-	-	131	331	559	350	618	674	910	-	3,573
65 & Over	-	-	-	-	-	101	281	443	311	352	308	539	-	2,335
Total Count	-	-	-	-	2	1,557	3,725	3,932	2,211	2,922	2,297	1,791	-	18,437

Compensation														
Age	Years of Service												Average Comp.	
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over		
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	56,844	54,574	65,184	-	-	-	-	-	-	55,051
30-34	-	-	-	-	-	62,492	58,978	43,764	-	-	-	-	-	60,748
35-39	-	-	-	-	-	72,746	65,369	61,677	-	-	-	-	-	66,962
40-44	-	-	-	-	-	77,210	68,826	69,769	73,365	69,016	-	-	-	70,573
45-49	-	-	-	-	52,272	80,021	71,206	71,912	80,288	74,006	85,552	-	-	74,529
50-54	-	-	-	-	-	76,489	65,239	69,015	81,784	83,439	74,844	80,473	-	75,746
55-59	-	-	-	-	-	70,850	63,561	68,577	80,786	87,290	88,752	79,376	-	79,082
60-64	-	-	-	-	-	80,438	64,472	68,504	77,384	85,022	94,412	83,071	-	80,892
65 & Over	-	-	-	-	-	94,618	68,367	68,938	77,623	78,469	86,892	87,263	-	79,172
Avg. Annual Compensation	\$ -	\$ -	\$ -	\$ -	\$ 54,558	\$ 74,751	\$ 66,440	\$ 69,312	\$ 79,634	\$ 83,407	\$ 87,354	\$ 83,636	\$ -	\$ 76,300



**Exhibit C-4f Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
 General Plan G**

Count													
Age	Years of Service											Total Count	
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34		35&Over
Under 25	338	168	79	17	4	1	-	-	-	-	-	-	607
25-29	1,396	1,322	1,022	688	364	131	1	-	-	-	-	-	4,924
30-34	1,194	1,236	1,255	1,164	914	435	3	-	-	-	-	-	6,201
35-39	829	838	819	721	629	306	-	-	-	-	-	-	4,142
40-44	537	541	480	476	428	165	8	-	-	-	-	-	2,635
45-49	360	357	388	331	324	132	5	1	-	-	-	-	1,898
50-54	284	272	255	235	250	90	3	1	-	-	-	-	1,390
55-59	193	175	170	189	183	103	4	1	-	-	-	-	1,018
60-64	76	73	99	88	110	58	4	1	-	-	-	-	509
65 & Over	15	45	22	46	44	32	-	1	-	-	-	-	205
Total Count	5,222	5,027	4,589	3,955	3,250	1,453	28	5	-	-	-	-	23,529

Compensation													
Age	Years of Service											Average Comp.	
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34		35&Over
Under 25	42,541	45,384	44,424	44,481	43,659	47,088	-	-	-	-	-	-	43,642
25-29	47,410	51,804	52,753	56,262	56,622	57,696	33,456	-	-	-	-	-	51,887
30-34	55,779	58,225	58,593	61,989	64,474	65,608	57,644	-	-	-	-	-	59,974
35-39	60,849	62,252	63,902	69,799	71,810	77,275	-	-	-	-	-	-	66,173
40-44	58,399	62,411	67,703	66,814	72,222	72,779	71,414	-	-	-	-	-	65,623
45-49	58,881	63,671	65,615	67,290	67,156	84,941	86,282	34,956	-	-	-	-	65,910
50-54	62,364	60,513	64,508	65,339	69,339	78,969	150,308	198,984	-	-	-	-	65,516
55-59	62,784	63,096	62,875	66,579	63,860	76,013	160,758	105,168	-	-	-	-	65,516
60-64	67,898	70,955	67,376	60,003	66,015	74,753	80,700	97,152	-	-	-	-	67,402
65 & Over	63,407	109,262	131,719	82,132	61,670	84,221	-	249,648	-	-	-	-	88,790
Avg. Annual Compensation	\$ 54,788	\$ 58,551	\$ 60,570	\$ 63,974	\$ 66,630	\$ 72,250	\$ 93,781	\$ 137,182	\$ -	\$ -	\$ -	\$ -	\$ 61,042



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-4g Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
 Safety Plan A**

Count													
Age	Years of Service												Total Count
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
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												Average Comp.
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	150,528	-	-	124,772	131,211
65 & Over	-	-	-	-	-	-	-	-	-	-	-	124,068	124,068
Avg. Annual Compensation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 150,528	\$ -	\$ -	\$ 124,596	\$ 129,782



**Exhibit C-4h Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
 Safety Plan B**

Count														
Age	Years of Service												Total Count	
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over		
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	1	2	1	2	3	137	7	-	-	-	-	-	-	153
30-34	3	9	3	7	5	491	498	6	-	-	-	-	-	1,022
35-39	6	4	11	4	-	369	1,010	242	8	1	-	-	-	1,655
40-44	1	4	5	4	5	187	589	755	254	16	-	-	-	1,820
45-49	4	1	-	1	1	68	333	637	716	401	24	-	-	2,186
50-54	-	-	1	1	-	32	159	277	391	1,053	378	21	-	2,313
55-59	-	-	-	1	-	9	37	84	119	315	282	80	-	927
60-64	-	-	-	-	-	5	12	20	24	39	24	35	-	159
65 & Over	1	-	-	-	-	1	2	-	6	6	4	6	-	26
Total Count	16	20	21	20	14	1,299	2,647	2,021	1,518	1,831	712	142	-	10,261

Compensation														
Age	Years of Service												Average Comp.	
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over		
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	70,272	75,684	70,500	83,442	101,232	95,571	92,556	-	-	-	-	-	-	94,796
30-34	75,436	81,683	92,916	92,546	95,782	100,152	104,412	108,256	-	-	-	-	-	101,945
35-39	93,850	86,442	89,933	101,247	-	104,503	106,985	112,600	115,818	157,824	-	-	-	107,101
40-44	71,676	86,283	96,778	105,201	101,570	103,711	108,714	116,156	121,160	130,088	-	-	-	113,082
45-49	123,825	105,456	-	98,172	99,372	103,275	108,829	119,118	126,574	138,510	141,356	-	-	123,285
50-54	-	-	274,416	93,300	-	103,778	113,485	119,879	127,207	140,999	151,233	164,688	-	135,656
55-59	-	-	-	318,384	-	129,891	110,141	120,747	126,712	137,315	156,231	159,115	-	141,127
60-64	-	-	-	-	-	112,740	124,058	117,072	124,332	134,346	147,601	168,446	-	138,712
65 & Over	182,112	-	-	-	-	123,072	136,938	-	128,720	123,740	122,727	147,182	-	133,378
Avg. Annual Compensation	\$ 100,548	\$ 84,143	\$ 99,849	\$ 107,518	\$ 99,273	\$ 101,942	\$ 107,614	\$ 117,350	\$ 125,758	\$ 139,535	\$ 152,597	\$ 161,735	\$ -	\$ 120,980



**Exhibit C-4i Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
 Safety Plan C**

Count													
Age	Years of Service												Total Count
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	138	82	43	7	4	-	-	-	-	-	-	-	274
25-29	261	300	201	115	101	27	-	-	-	-	-	-	1,005
30-34	121	182	137	129	145	31	1	-	-	-	-	-	746
35-39	53	73	60	49	36	25	-	-	-	-	-	-	296
40-44	16	23	20	13	12	7	1	1	-	-	-	-	93
45-49	7	7	10	8	4	7	-	1	-	-	-	-	44
50-54	5	3	1	4	5	2	1	-	-	-	-	-	21
55-59	1	1	3	4	9	5	-	-	-	-	-	-	23
60-64	-	-	-	1	1	1	-	-	-	-	-	-	3
65 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	602	671	475	330	317	105	3	2	-	-	-	-	2,505

Compensation													
Age	Years of Service												Average Comp.
	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	68,894	74,990	83,618	86,954	88,797	-	-	-	-	-	-	-	73,781
25-29	72,228	80,791	85,590	90,821	93,552	91,774	-	-	-	-	-	-	82,252
30-34	73,420	80,258	87,270	90,770	93,083	97,973	99,480	-	-	-	-	-	85,509
35-39	76,263	80,759	85,248	91,111	95,059	99,037	-	-	-	-	-	-	85,860
40-44	78,727	83,006	86,932	88,989	96,226	98,009	94,164	82,452	-	-	-	-	86,900
45-49	86,563	82,565	91,592	91,988	86,970	95,429	-	95,268	-	-	-	-	89,702
50-54	100,776	89,644	99,648	112,512	92,760	102,774	91,380	-	-	-	-	-	99,202
55-59	160,128	107,952	169,668	111,834	121,237	121,582	-	-	-	-	-	-	127,107
60-64	-	-	-	73,536	116,388	122,880	-	-	-	-	-	-	104,268
65 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
Avg. Annual Compensation	\$ 72,781	\$ 80,109	\$ 86,596	\$ 91,184	\$ 94,313	\$ 97,918	\$ 95,008	\$ 88,860	\$ -	\$ -	\$ -	\$ -	\$ 83,606



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-5 Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
 All Plans**

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	2	16	16	88	123	\$ 1,003
35-39	-	-	-	-	-	-	2	9	27	51	89	2,651
40-44	-	-	-	-	-	1	8	31	78	91	209	2,954
45-49	-	-	-	-	1	11	70	72	115	126	395	3,223
50-54	-	-	-	1	42	105	136	136	261	573	1,254	3,196
55-59	-	-	2	21	83	151	178	196	872	2,065	3,568	5,112
60-64	-	4	29	65	114	155	222	820	2,662	2,590	6,661	4,647
65-69	4	32	82	103	127	238	841	2,700	3,837	3,952	11,916	4,395
70-74	13	126	223	187	286	1,033	2,966	3,332	3,740	1,767	13,673	4,495
75-79	40	144	186	259	916	2,030	2,593	2,138	1,310	1,001	10,617	4,325
80-84	75	126	221	694	1,508	1,469	1,360	750	497	865	7,565	3,861
85-89	91	159	527	804	1,215	742	406	280	283	644	5,151	3,614
90-94	72	254	448	489	458	193	143	151	168	300	2,676	3,303
95-99	47	150	180	150	77	52	50	44	49	61	860	2,904
100 & Over	24	24	32	9	8	6	5	3	7	5	123	2,235
Total Count	366	1,019	1,930	2,782	4,835	6,187	8,982	10,678	13,922	14,179	64,880	
Avg Monthly Benefit	\$ 2,204	\$ 2,881	\$ 2,972	\$ 3,418	\$ 4,259	\$ 4,157	\$ 4,833	\$ 4,211	\$ 4,317	\$ 4,293		\$ 4,233



**Exhibit C-5a Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
 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	-	-	-	-	-	-	-	4	2	11	17	\$ 424
35-39	-	-	-	-	-	-	1	3	3	-	7	1,975
40-44	-	-	-	-	-	-	-	4	5	-	9	2,260
45-49	-	-	-	-	-	-	-	4	3	6	13	2,765
50-54	-	-	-	1	1	1	3	3	4	3	16	2,123
55-59	-	-	-	1	-	5	3	10	7	17	43	2,668
60-64	-	2	5	6	2	13	28	77	209	145	487	4,733
65-69	2	20	31	28	24	76	300	758	896	210	2,345	5,240
70-74	6	56	77	64	112	545	1,219	1,389	504	294	4,266	5,358
75-79	23	72	85	120	644	1,003	1,512	538	214	421	4,632	4,958
80-84	43	82	129	542	991	968	546	171	135	499	4,106	4,207
85-89	49	108	411	567	987	393	137	116	124	440	3,332	3,718
90-94	45	198	359	430	354	106	84	86	105	241	2,008	3,247
95-99	41	132	174	140	50	42	35	35	33	47	729	2,888
100 & Over	22	24	32	8	6	3	4	2	6	4	111	2,340
Total Count	231	694	1,303	1,907	3,171	3,155	3,872	3,200	2,250	2,338	22,121	
Avg Monthly Benefit	\$ 1,667	\$ 2,366	\$ 2,434	\$ 2,971	\$ 4,148	\$ 4,228	\$ 5,707	\$ 5,781	\$ 5,721	\$ 3,577		\$ 4,484



**Exhibit C-5b Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
 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	2,632
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	2	1	1	4	4	1,515
60-64	-	-	-	-	1	1	2	15	31	46	96	96	5,097
65-69	-	-	-	3	3	2	11	39	86	44	188	188	5,843
70-74	-	-	2	4	4	16	30	47	50	10	163	163	4,555
75-79	-	-	1	3	2	11	40	29	16	5	107	107	4,153
80-84	-	-	1	2	8	19	27	19	7	4	87	87	3,679
85-89	-	-	2	5	12	26	7	3	1	9	65	65	2,439
90-94	-	-	2	6	11	5	3	2	-	6	35	35	1,998
95-99	-	-	-	2	2	-	-	-	-	1	5	5	2,590
100 & Over	-	-	-	-	-	-	-	-	-	1	1	1	761
Total Count	-	-	8	25	43	80	120	156	192	128	752		
Avg Monthly Benefit	\$ -	\$ -	\$ 1,460	\$ 1,284	\$ 1,956	\$ 2,469	\$ 3,513	\$ 4,507	\$ 6,105	\$ 5,652			\$ 4,449



**Exhibit C-5c Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
 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	\$ 4,809
35-39	-	-	-	-	-	-	-	-	-	1	-	1	1,560
40-44	-	-	-	-	-	-	-	-	-	1	-	1	1,275
45-49	-	-	-	-	-	-	-	-	-	1	-	1	1,560
50-54	-	-	-	-	-	-	-	-	-	-	1	1	1,234
55-59	-	-	-	-	-	-	1	-	-	2	5	8	3,737
60-64	-	-	1	4	-	1	-	7	13	28	54	54	4,332
65-69	-	1	3	2	2	3	16	16	52	29	124	124	5,218
70-74	-	-	2	2	4	7	11	31	32	9	98	98	4,234
75-79	-	-	-	4	8	10	18	20	14	3	77	77	2,871
80-84	-	-	-	6	8	11	23	7	4	5	64	64	2,459
85-89	-	-	2	3	8	11	4	4	-	4	36	36	2,050
90-94	-	-	-	3	9	1	-	1	1	4	19	19	1,445
95-99	-	-	-	-	2	-	-	-	-	2	4	4	1,633
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	1	8	24	41	44	73	86	121	92	490		
Avg Monthly Benefit	\$ -	\$ 1,773	\$ 1,449	\$ 972	\$ 1,347	\$ 1,988	\$ 2,768	\$ 3,312	\$ 5,673	\$ 5,158			\$ 3,729



**Exhibit C-5d Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
 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	-	-	-	-	-	-	1	3	7	32	43	\$ 578
35-39	-	-	-	-	-	-	-	4	9	18	31	1,797
40-44	-	-	-	-	-	1	1	6	33	25	66	2,020
45-49	-	-	-	-	1	3	19	17	40	44	124	2,194
50-54	-	-	-	-	6	10	30	46	132	342	566	1,936
55-59	-	-	-	1	9	37	53	83	467	674	1,324	2,531
60-64	-	-	3	8	27	48	87	409	786	1,320	2,688	3,342
65-69	-	1	3	15	27	56	240	499	1,331	1,706	3,878	3,745
70-74	-	-	2	10	32	150	288	706	1,359	725	3,272	3,389
75-79	-	-	3	13	47	142	324	627	503	227	1,886	2,933
80-84	-	-	3	14	47	133	310	247	146	94	994	2,453
85-89	-	-	3	9	39	130	117	67	47	55	467	2,260
90-94	-	-	1	7	27	30	9	13	10	17	114	1,682
95-99	-	1	-	3	11	2	4	1	3	5	30	1,615
100 & Over	-	-	-	1	-	1	-	1	-	-	3	1,937
Total Count	-	2	18	81	273	743	1,483	2,729	4,873	5,284	15,486	
Avg Monthly Benefit	\$ -	\$ 5,566	\$ 1,599	\$ 1,516	\$ 1,659	\$ 1,944	\$ 2,295	\$ 2,677	\$ 3,387	\$ 3,694		\$ 3,151



**Exhibit C-5e Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
 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	-	4	3	11	19	\$ 506
35-39	-	-	-	-	-	-	1	1	4	5	11	1,254
40-44	-	-	-	-	-	-	-	1	9	16	26	1,555
45-49	-	-	-	-	-	-	1	2	11	12	26	1,175
50-54	-	-	-	-	-	-	2	7	17	11	37	904
55-59	-	-	-	-	-	-	1	4	70	317	392	987
60-64	-	-	-	-	-	-	4	85	585	609	1,283	1,536
65-69	-	-	-	-	-	4	71	645	1,149	1,833	3,702	2,691
70-74	-	-	-	-	1	41	440	831	1,709	602	3,624	2,506
75-79	-	-	-	-	11	247	419	892	512	210	2,291	2,113
80-84	-	-	-	6	84	196	425	279	166	120	1,276	1,715
85-89	-	-	1	27	81	166	109	54	62	35	535	1,284
90-94	-	-	2	14	49	37	19	20	20	8	169	1,188
95-99	-	-	-	5	10	4	5	3	6	2	35	599
100 & Over	-	-	-	-	2	2	-	-	-	-	4	450
Total Count	-	-	3	52	238	698	1,497	2,828	4,323	3,791	13,430	
Avg Monthly Benefit	\$ -	\$ -	\$ 266	\$ 312	\$ 666	\$ 832	\$ 1,297	\$ 1,687	\$ 2,552	\$ 2,893		\$ 2,194

**Exhibit C-5f Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
 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	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	-	6	6	1,019
65-69	-	-	-	-	-	-	-	-	-	1	1	3,977
70-74	-	-	-	-	-	-	-	-	-	3	3	1,219
75-79	-	-	-	-	-	-	-	-	-	2	2	3,408
80-84	-	-	-	-	-	-	-	-	-	1	1	1,944
85-89	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	-	-	-	-	-	-	-	13	13	
Avg Monthly Benefit	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,731		\$ 1,731



**Exhibit C-5g Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
 Safety 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	-	-	-	-	-	-	-	-	-	2	5	7	\$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	1	1	2	6,284
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	1	1	3	-	1	1	2	8	5,371
55-59	-	-	-	-	2	-	2	-	6	6	9	19	6,180
60-64	-	2	7	11	5	9	9	40	129	30	30	242	9,471
65-69	2	10	41	33	41	67	150	482	111	71	71	1,008	8,739
70-74	7	70	133	101	118	250	920	242	52	109	109	2,002	7,945
75-79	17	72	96	119	201	614	266	29	48	128	128	1,590	7,410
80-84	32	44	88	123	369	140	29	27	37	141	141	1,030	6,612
85-89	42	51	107	192	85	16	31	36	49	99	99	708	5,987
90-94	27	56	84	29	8	14	28	29	32	24	24	331	5,526
95-99	6	17	6	-	2	4	6	5	7	4	4	57	5,319
100 & Over	2	-	-	-	-	-	1	-	1	-	-	4	1,704
Total Count	135	322	562	608	832	1,115	1,445	890	476	623	623	7,008	
Avg Monthly Benefit	\$ 3,124	\$ 3,976	\$ 4,354	\$ 5,647	\$ 7,082	\$ 7,866	\$ 9,226	\$ 9,624	\$ 8,417	\$ 6,426	\$ 6,426		\$ 7,442



**Exhibit C-5h Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
 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	5	2	25	33	\$ 2,017
35-39	-	-	-	-	-	-	-	1	10	28	39	3,872
40-44	-	-	-	-	-	-	7	20	29	49	105	3,899
45-49	-	-	-	-	-	8	50	49	60	63	230	4,044
50-54	-	-	-	-	34	93	98	80	107	214	626	4,473
55-59	-	-	2	19	72	109	118	97	319	1,042	1,778	8,005
60-64	-	-	13	36	79	83	92	187	909	406	1,805	8,131
65-69	-	-	4	22	30	30	53	261	212	57	669	7,502
70-74	-	-	7	6	15	24	58	86	33	15	244	5,520
75-79	-	-	1	-	3	3	14	3	3	5	32	4,095
80-84	-	-	-	1	1	2	-	-	2	1	7	2,899
85-89	-	-	1	1	3	-	1	-	-	2	8	1,609
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	28	85	237	352	492	789	1,686	1,907	5,576	
Avg Monthly Benefit	\$ -	\$ -	\$ 2,315	\$ 2,514	\$ 3,365	\$ 3,682	\$ 4,082	\$ 6,123	\$ 8,194	\$ 8,794		\$ 7,137



**Exhibit C-5i Distribution of Retired Members and Beneficiaries by Age and Retirement Year as of June 30, 2018
 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	\$ 2,775
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-	-	1	1	1	22,270
70-74	-	-	-	-	-	-	-	-	1	-	1	1	17,165
75-79	-	-	-	-	-	-	-	-	-	-	-	-	-
80-84	-	-	-	-	-	-	-	-	-	-	-	-	-
85-89	-	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	-	-	-	-	-	-	1	3	4		
Avg Monthly Benefit	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17,165	\$ 9,273			\$ 11,246



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.

Exhibit D-1 Normal Member Contribution Rates

Entry Age	General					Safety		
	Plan A	Plan B	Plan C	Plan D	Plan G	Plan A	Plan B	Plan C
16	2.43%	4.86%	4.12%	4.12%	6.82%	3.63%	7.26%	10.65%
17	2.48%	4.97%	4.21%	4.21%	6.82%	3.63%	7.26%	10.65%
18	2.54%	5.08%	4.31%	4.31%	6.82%	3.63%	7.26%	10.65%
19	2.60%	5.19%	4.41%	4.41%	6.82%	3.70%	7.41%	10.65%
20	2.66%	5.31%	4.51%	4.51%	6.82%	3.78%	7.56%	10.65%
21	2.71%	5.43%	4.61%	4.61%	6.82%	3.86%	7.71%	10.65%
22	2.78%	5.55%	4.71%	4.71%	6.82%	3.94%	7.87%	10.65%
23	2.84%	5.68%	4.82%	4.82%	6.82%	4.02%	8.03%	10.65%
24	2.90%	5.80%	4.93%	4.93%	6.82%	4.10%	8.20%	10.65%
25	2.97%	5.93%	5.04%	5.04%	6.82%	4.18%	8.36%	10.65%
26	3.03%	6.06%	5.15%	5.15%	6.82%	4.27%	8.54%	10.65%
27	3.10%	6.20%	5.27%	5.27%	6.82%	4.36%	8.71%	10.65%
28	3.17%	6.34%	5.38%	5.38%	6.82%	4.45%	8.89%	10.65%
29	3.24%	6.48%	5.51%	5.51%	6.82%	4.54%	9.08%	10.65%
30	3.31%	6.63%	5.63%	5.63%	6.82%	4.63%	9.27%	10.65%
31	3.39%	6.78%	5.75%	5.75%	6.82%	4.73%	9.46%	10.65%
32	3.46%	6.93%	5.88%	5.88%	6.82%	4.83%	9.66%	10.65%
33	3.54%	7.09%	6.01%	6.01%	6.82%	4.94%	9.87%	10.65%
34	3.62%	7.25%	6.15%	6.15%	6.82%	5.04%	10.09%	10.65%
35	3.71%	7.41%	6.29%	6.29%	6.82%	5.15%	10.31%	10.65%
36	3.79%	7.59%	6.43%	6.43%	6.82%	5.27%	10.53%	10.65%
37	3.88%	7.76%	6.57%	6.57%	6.82%	5.37%	10.75%	10.65%
38	3.97%	7.93%	6.72%	6.72%	6.82%	5.48%	10.96%	10.65%
39	4.05%	8.11%	6.88%	6.88%	6.82%	5.59%	11.18%	10.65%
40	4.14%	8.28%	7.04%	7.04%	6.82%	5.69%	11.38%	10.65%
41	4.23%	8.46%	7.20%	7.20%	6.82%	5.79%	11.59%	10.65%
42	4.32%	8.63%	7.36%	7.36%	6.82%	5.89%	11.79%	10.65%
43	4.40%	8.80%	7.53%	7.53%	6.82%	5.99%	11.98%	10.65%
44	4.48%	8.97%	7.69%	7.69%	6.82%	6.08%	12.16%	10.65%
45	4.56%	9.13%	7.86%	7.86%	6.82%	6.15%	12.31%	10.65%
46	4.64%	9.28%	8.03%	8.03%	6.82%	6.21%	12.42%	10.65%
47	4.72%	9.43%	8.19%	8.19%	6.82%	6.21%	12.42%	10.65%
48	4.79%	9.57%	8.35%	8.35%	6.82%	6.21%	12.42%	10.65%
49	4.85%	9.70%	8.51%	8.51%	6.82%	6.21%	12.42%	10.65%
50	4.90%	9.79%	8.66%	8.66%	6.82%	6.21%	12.42%	10.65%
51	4.93%	9.85%	8.81%	8.81%	6.82%	6.21%	12.42%	10.65%
52	4.93%	9.87%	8.95%	8.95%	6.82%	6.21%	12.42%	10.65%
53	4.93%	9.87%	9.08%	9.08%	6.82%	6.21%	12.42%	10.65%
54	4.93%	9.87%	9.20%	9.20%	6.82%	6.21%	12.42%	10.65%
55	4.93%	9.87%	9.29%	9.29%	6.82%	6.21%	12.42%	10.65%
56	4.93%	9.87%	9.35%	9.35%	6.82%	6.21%	12.42%	10.65%
57	4.93%	9.87%	9.36%	9.36%	6.82%	6.21%	12.42%	10.65%
58	4.93%	9.87%	9.36%	9.36%	6.82%	6.21%	12.42%	10.65%
59	4.93%	9.87%	9.36%	9.36%	6.82%	6.21%	12.42%	10.65%
60	4.93%	9.87%	9.36%	9.36%	6.82%	6.21%	12.42%	10.65%

Note: For general members entering after age 60, the rate equals the rate at age 60. Likewise, for safety members entering after age 50, the rate equals the rate at age 50.

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

Entry Age	General					Safety		
	Plan A	Plan B	Plan C	Plan D	Plan G	Plan A	Plan B	Plan C
16	4.36%	6.02%	5.17%	5.13%	8.43%	6.79%	9.56%	13.69%
17	4.45%	6.16%	5.28%	5.24%	8.43%	6.79%	9.56%	13.69%
18	4.56%	6.30%	5.41%	5.37%	8.43%	6.79%	9.56%	13.69%
19	4.66%	6.43%	5.53%	5.49%	8.43%	6.92%	9.75%	13.69%
20	4.77%	6.58%	5.66%	5.61%	8.43%	7.07%	9.95%	13.69%
21	4.86%	6.73%	5.78%	5.74%	8.43%	7.22%	10.15%	13.69%
22	4.99%	6.88%	5.91%	5.86%	8.43%	7.37%	10.36%	13.69%
23	5.09%	7.04%	6.05%	6.00%	8.43%	7.52%	10.57%	13.69%
24	5.20%	7.19%	6.19%	6.14%	8.43%	7.67%	10.79%	13.69%
25	5.33%	7.35%	6.32%	6.27%	8.43%	7.82%	11.00%	13.69%
26	5.43%	7.51%	6.46%	6.41%	8.43%	7.98%	11.24%	13.69%
27	5.56%	7.69%	6.61%	6.56%	8.43%	8.15%	11.46%	13.69%
28	5.69%	7.86%	6.75%	6.70%	8.43%	8.32%	11.70%	13.69%
29	5.81%	8.03%	6.91%	6.86%	8.43%	8.49%	11.95%	13.69%
30	5.94%	8.22%	7.06%	7.01%	8.43%	8.66%	12.20%	13.69%
31	6.08%	8.41%	7.21%	7.16%	8.43%	8.84%	12.45%	13.69%
32	6.21%	8.59%	7.38%	7.32%	8.43%	9.03%	12.72%	13.69%
33	6.35%	8.79%	7.54%	7.48%	8.43%	9.24%	12.99%	13.69%
34	6.49%	8.99%	7.72%	7.66%	8.43%	9.42%	13.28%	13.69%
35	6.65%	9.19%	7.89%	7.83%	8.43%	9.63%	13.57%	13.69%
36	6.80%	9.41%	8.07%	8.00%	8.43%	9.85%	13.86%	13.69%
37	6.96%	9.62%	8.24%	8.18%	8.43%	10.04%	14.15%	13.69%
38	7.12%	9.83%	8.43%	8.37%	8.43%	10.25%	14.43%	13.69%
39	7.26%	10.05%	8.63%	8.56%	8.43%	10.45%	14.72%	13.69%
40	7.43%	10.26%	8.83%	8.76%	8.43%	10.64%	14.98%	13.69%
41	7.59%	10.49%	9.03%	8.96%	8.43%	10.83%	15.26%	13.69%
42	7.75%	10.70%	9.23%	9.16%	8.43%	11.01%	15.52%	13.69%
43	7.89%	10.91%	9.45%	9.37%	8.43%	11.20%	15.77%	13.69%
44	8.04%	11.12%	9.65%	9.57%	8.43%	11.37%	16.01%	13.69%
45	8.18%	11.32%	9.86%	9.78%	8.43%	11.50%	16.20%	13.69%
46	8.32%	11.50%	10.07%	10.00%	8.43%	11.61%	16.35%	13.69%
47	8.47%	11.69%	10.28%	10.20%	8.43%	11.61%	16.35%	13.69%
48	8.59%	11.86%	10.48%	10.39%	8.43%	11.61%	16.35%	13.69%
49	8.70%	12.03%	10.68%	10.59%	8.43%	11.61%	16.35%	13.69%
50	8.79%	12.14%	10.86%	10.78%	8.43%	11.61%	16.35%	13.69%
51	8.84%	12.21%	11.05%	10.97%	8.43%	11.61%	16.35%	13.69%
52	8.84%	12.24%	11.23%	11.14%	8.43%	11.61%	16.35%	13.69%
53	8.84%	12.24%	11.39%	11.30%	8.43%	11.61%	16.35%	13.69%
54	8.84%	12.24%	11.54%	11.45%	8.43%	11.61%	16.35%	13.69%
55	8.84%	12.24%	11.66%	11.57%	8.43%	11.61%	16.35%	13.69%
56	8.84%	12.24%	11.73%	11.64%	8.43%	11.61%	16.35%	13.69%
57	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.69%
58	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.69%
59	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.69%
60	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.69%

Note: For general members entering after age 60, the rate equals the rate at age 60. Likewise, for safety members entering after age 50, the rate equals the rate at age 50.

Appendix E Historical Information



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

Exhibit E-1 Active Membership Data

General Members						Safety Members					Total Members				
Valuation Date (June 30)	Number	Annual Salary (in millions)	Average Age	Average Credited Service	Average Monthly Salary	Number	Annual Salary (in millions)	Average Age	Average Credited Service	Average Monthly Salary	Number	Annual Salary (in millions)	Average Age	Average Credited 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	14.0	\$ 6,822

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



Exhibit E-3 Contribution Rates

Valuation Date (June 30)	General Plans					Safety Plans					Total All Plans				
	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%



Exhibit E-4 Funded Status History

(Dollars in Millions)

Valuation Year	Actuarial Accrued Liability (AAL)	Market Value Basis			Actuarial Value Basis			Annual Total Payroll	Asset Smoothing Ratio (AVA / MVA)	Asset Volatility Ratio (MVA / Payroll)	Liability Volatility Ratio (AAL / Payroll)
		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				
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

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

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

(Dollars in Millions)

Valuation Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Prior Year UAAL	2,461	2,313	4,927	7,807	9,405	11,770	13,315	11,288	9,491	12,841	13,145
Normal Cost	990	1,053	1,219	1,200	1,237	1,430	1,163	1,068	1,118	1,246	1,243
Contributions	(1,249)	(1,310)	(1,322)	(1,461)	(1,646)	(1,455)	(1,824)	(1,936)	(1,902)	(1,880)	(2,116)
Interest	191	179	382	605	724	895	999	814	682	954	968
Changes in Assumptions/Methodology	-	-	54	221	457	511	-	-	2,922	-	-
Changes in Benefit Provisions	-	-	-	-	-	-	-	-	-	-	-
Expected Current Year UAAL	2,393	2,235	5,260	8,372	10,177	13,151	13,653	11,234	12,311	13,161	13,240
Actual Current Year UAAL	2,313	4,927	7,807	9,405	11,770	13,315	11,288	9,491	12,841	13,145	13,294
Total (Gain)/Loss on UAAL	(80)	2,692	2,547	1,033	1,593	164	(2,365)	(1,743)	530	(16)	54
Asset (Gains)/Losses	(429)	2,465	2,879	1,761	2,337	893	(1,664)	(1,263)	496	(421)	(411)
Ventura Settlement/Court Cases	15	-	-	-	-	-	-	-	-	-	-
Salary Increases	298	380	(353)	(579)	(629)	(563)	(291)	79	162	277	223
All Other Actuarial (Gains)/Losses	36	(153)	21	(149)	(115)	(166)	(410)	(559)	(128)	128	242

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%

1. Data not available.

Note: 2016 and 2017 changes are based on the calculated employer contribution rate prior to the phase-in.

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.

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

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.

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

Note: 2016 changes are based on the calculated employer contribution rate prior to the phase-in.

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

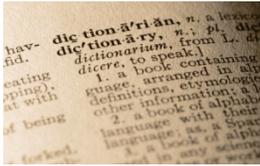
(Years with no changes excluded)

	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.

1. Information not available.

Note: 2016 changes are based on the calculated employer contribution rate prior to the phase-in.

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 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 earnings 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, while each year's subsequent gain or loss on the UAAL is amortized over a new closed 30-year period starting with that date. The 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.
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.