



March 13, 2018

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, CA 90012

Dear Supervisors:

ADOPTED

BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

35 March 13, 2018

CELIA ZAVALA
ACTING EXECUTIVE OFFICER

**ADOPTION OF NEW RETIREMENT CONTRIBUTION RATES
(ALL DISTRICTS) (3 VOTES)**

SUBJECT

Recommendation to adopt revised employer and employee contribution rates as approved by the Board of Investments of the Los Angeles County Employees Retirement Association (LACERA) to be effective no later than October 1, 2018.

IT IS RECOMMENDED THAT YOUR BOARD:

1. Adopt the revised employer and employee retirement contribution rates approved by LACERA's Board of Investments effective no later than October 1, 2018.
2. Instruct the Auditor-Controller to make the system changes necessary to implement this recommendation.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

The purpose of these recommendations is to set employer and employee contribution rates at a level sufficient to fund retirement system liabilities identified in the June 30, 2017 Actuarial Valuation Report. The LACERA Board of Investments approved these revised employer and employee rates as recommended in the 2017 Actuarial Valuation of Retirement Benefits on January 10, 2018.

The County Employees Retirement Law requires LACERA's Board of Investments to obtain an actuarial valuation, of the retirement system at intervals not to exceed three (3) years and on the basis of such valuation to recommend to the Board of Supervisors at least forty-five (45) days prior to the beginning of the succeeding fiscal year, such changes in employer and/or employee contribution rates as may be necessary to properly fund the retirement system. The Board of Supervisors is required to adopt the contribution rates approved by the Board of Investments no later than ninety (90) days following the beginning of the immediately succeeding fiscal year.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The adoption of the revised employer and employee contribution rates provided in the recommendation are directly responsive to the Strategic Plan Goals of fiscal responsibility.

FISCAL IMPACT/FINANCING

Adoption of these actuarial valuation recommendations will result in an aggregate employer contribution rate of 20.04% and will thereby increase annual employer retirement contributions by approximately \$100 million for Fiscal Year 2018-2019. This will result in an annual County retirement cost estimate of \$1.6 billion.

Employee contribution rates for General Plans A, B, C and D and Safety Plans A and B, which are specific to each Plan and the employee's entry age, will remain at their current rates. Employee contribution rates for General Plan G and Safety Plan C, which are not age specific, will both change. General Plan G will increase by about 0.1% of pay and Safety Plan C will decrease by about 0.1% of pay, as compared to the current employee contribution rates adopted for Fiscal Year 2017-2018.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

1. LEGAL REQUIREMENT FOR PERIODIC ACTUARIAL VALUATIONS AND ADJUSTMENTS IN CONTRIBUTION RATES

Provisions contained in Article XVI, Section 17, of the California Constitution and in the County Employees Retirement Law of 1937 (California Government Code, Sections 31450-31899.10) govern the actuarial process at LACERA.

The California Constitution assigns "the sole and exclusive power to provide for actuarial services" to the governing body of the public retirement system. Such power is granted by the Constitution "in order to assure the competency of the assets of the public pension or retirement system."

Section 31453 of the County Employees Retirement Law requires LACERA to obtain an actuarial valuation, at least once every three (3) years and, on the basis of such valuation to recommend to the Board of Supervisors, at least forty-five (45) days prior to the beginning of the succeeding fiscal year, such changes in employer and/or member contribution rates as may be necessary to properly fund the retirement system.

Section 31454 requires the Board of Supervisors to adjust contribution rates in accordance with LACERA's recommendations no later than ninety (90) days following the beginning of the immediately succeeding fiscal year.

Section 31454.1 exempts the independent assumptions and calculations of LACERA's actuary from "meet and confer" requirements while recognizing the "meet and confer" responsibility of the Board of Supervisors in implementing the recommendations contained in the actuarial valuation report.

2. THE ACTUARIAL VALUATION PROCESS

Actuarial valuations are performed in order to determine the cost of a retirement system. The cost of a defined benefit retirement system, such as the one administered by LACERA, consists of two (2) components - normal cost and unfunded liability. Normal cost is the amount needed to fund the service currently being earned by retirement system members through their current employment with the County. The unfunded liability represents liabilities created by past service, which have not been funded by previously collected contributions.

The cost of a retirement system is determined by a number of economic and non-economic factors such as the rate of return on assets, the rate of future salary increases, inflation, mortality, disability, and membership terminations. The actuary must make assumptions concerning the long-range impact of these cost factors in determining the amount of assets required to fund the cost of the retirement system.

There are three (3) sources of revenue for underwriting the cost of a retirement system: employee contributions, employer contributions, and investment earnings. As part of the valuation process, the actuary estimates the amount of future benefit payments that will be funded through investment earnings. After projecting the extent to which benefit payments will be funded through investment earnings, the actuary then calculates the amount of employer and employee contributions needed to complete the full funding of the retirement system.

3. ACTUARIAL AUDIT

In order to validate the accuracy of the valuations used to calculate contribution rates, the Board of Investments authorized an independent actuarial audit of the services performed by LACERA's consulting actuary, Milliman. The audit of the June 30, 2016 actuarial valuation report confirmed that the actuarial calculations are reasonable and based on generally accepted actuarial principles and practices. The auditing actuary found no financially significant actuarial issues to report. Actuarial audits are to be performed in the same cycle as the triennial investigation of experience study, and as such, the next actuarial audit will be performed on the June 30, 2019 triennial experience study and valuation report.

4. RESULTS OF THE 2017 VALUATION

According to Milliman's 2017 valuation report, the actuarial value of valuation assets totaled \$52.2 billion and the actuarial accrued liability amounted to \$65.3 billion. As a result, LACERA's June 30, 2017 funded status was 79.9%, compared to 79.4% as of June 30, 2016.

Key factors contributing to this change are summarized as follows:

- \$1.2 billion increase in liabilities due to normal benefit accruals,
- \$277 million increase in liabilities due to salary increases greater than expected,
- \$128 million increase in liabilities due to other sources, including demographic experience different than assumed, and a one-time amount to reflect a change in actuarial techniques for General Plan G and Safety Plan C that are intended to stabilize those plans' normal cost rates,
- \$1.9 billion increase in valuation assets from employer and member contributions, and
- \$421 million increase in the actuarial value of assets due to investment returns greater than expected.

The retirement system actuary estimates that had the actual market value of assets been used rather than the smoothed actuarial value of assets, the funded status would have been 80.0% with a required employer contribution rate of 20.96%.

At their February 13, 2013 meeting, the Board of Investments amended the Retirement Benefit Funding Policy to include the STAR Program Reserve as a valuation asset in the June 30, 2012 and future valuations. Had the \$614 million STAR Reserve been excluded from the actuarial value of assets as of June 30, 2017, the funding ratio would have decreased 1% and the County contribution rate would have increased by .47% of payroll.

Retirement system demographics reported in the valuation indicate a 2% increase in the size of the active member population that totals 97,211 active members, with an overall average age of 47 years. The retired population increased by 2% and now totals over 63,300 retirees. The average retirement benefit payment increased by 2.9% to \$4,091 per month. The average age of the retired population increased by approximately one (1) month to 72.7 years.

5. IMPACT ON EMPLOYER AND EMPLOYEE CONTRIBUTION RATES

As previously stated, LACERA is funded by both employer and employee contributions. Employees participating in the closed plan tiers (General Plans A, B, C, and D and Safety Plans A and B) contribute using age-based rates to fund a defined annuity at a specified age and to fund one-half the cost-of-living benefit. Employee age-based annuity contribution rates are affected by changes made in the salary, investment, and mortality assumptions and will vary according to the employee's age at first membership. As this valuation report does not include revised salary and investment actuarial assumptions, the actuary is not recommending new employee contribution rates for these plans. Employees participating in the open plan tiers (General Plan G and Safety Plan C) contribute using single rates set at one-half the plan's normal cost. As the actuary's calculations show changes to the plan tier normal cost, the actuary is recommending the employee contribution rates be increased by .12% for General Plan G and decreased by .13% for Safety Plan C. Employee contribution rates for all plans at every entry age can be found in the valuation report's Appendix D on page D-3.

Liabilities not funded through the member contribution rates are the responsibility of the employer. Changes in any of the economic and non-economic assumptions impact both member and employer contribution rates. The employer is responsible for contributing the annual cost of benefits, not covered by employee contributions, and half of the cost-of-living benefit. These contributions are known as the normal cost contributions. The employer is also responsible for contributing to cover any shortfall in funding for liabilities accrued in the past. This portion of the employer's contribution rate is known as the unfunded liability contribution.

In accordance with the Board of Investments' Retirement Benefit Funding Policy, contributions to retire the unfunded liability are required using a thirty (30) year layered amortization period should LACERA's funding ratio drop below 100%. Because the 2017 actuarial valuation determined the funding ratio to be 79.9%, the County is required to make unfunded liability contributions in Fiscal Year 2018-2019 in the amount of 11.06% of active payroll. However, the Board of Investments provided direction to the retirement system actuary to phase-in the cost of the 2016 assumption changes over a three (3) year period using a "direct rate smoothing" method. As such, the 11.06% unfunded liability contribution rate was reduced by 0.96% to 10.10%. The phase-in approach initially results in a lower employer contribution rate. Ultimately, the future employer contribution rates are projected to be greater by approximately .14% of payroll for each year into the future due to the lower employer contributions received during the phase-in period. Applying the .14% cost factor to the estimated \$8.0 billion county payroll for Fiscal Year 2018-2019 results in an estimated additional cost of \$11 million annually.

Additionally, the actuary has recommended new employer contribution rates for the normal cost. The overall employer normal cost contribution rate decreased from 9.97% to 9.94%. Applying the new 9.94% normal cost contribution rate and the 10.10% unfunded liability contribution rate to an actuarially estimated payroll, the actuary estimates the annual contributions owed by the County will increase by approximately \$100 million.

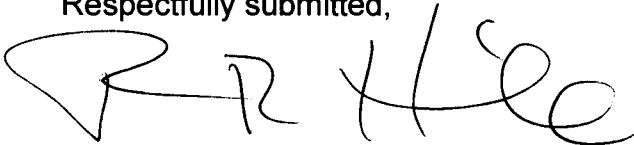
IMPACT ON CURRENT SERVICES

None.

CONCLUSION

The County has a statutory obligation to prefund the retirement benefits promised to its employees. LACERA has a statutory obligation to calculate employer and employee contribution rates and communicate the rates to the County by May 15 in order to provide the County sufficient time to implement the contribution rates no later than October 1. The employer cost for retirement system benefits will increase in Fiscal Year 2018-2019 by approximately \$100 million due primarily to revised actuarial assumptions that are being phased in to the contribution rate. Assuming the retirement system's actual experience equals its actuarial assumptions, including the 7.25% investment return assumption, the actuary forecasts on page 2 of the report that the employer's 20.04% contribution rate will increase to approximately 21%, due to the phasing in of assumption changes, and then is expected to remain constant for the next twenty (20) years.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "R R Hill". The signature is written in a cursive, flowing style.

ROBERT R. HILL
Interim Chief Executive Officer

RH:tg
ActVal17BOSJan2018-Final.docx

Attachment: 2017 Actuarial Valuation Report

c: Chief Executive Officer, Los Angeles County
Executive Officer, Board of Supervisors
Board of Investments (without attachment)
Board of Retirement (without attachment)



Los Angeles County Employees Retirement Association

Actuarial Valuation of Retirement Benefits June 30, 2017

Prepared by:

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December 20, 2017

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, 2017 to be used in determining the contribution rates effective July 1, 2018. 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, 2017, and LACERA's Funding Policy that was adopted in December of 2009 and amended as of February 2013, as well as the three-year phase-in of the employer contribution rate that was adopted at the December 2016 Board of Investments meeting. 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 (except the +/- 0.5% results shown at the end of the Executive Summary) is outside the scope of our engagement.

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
Actuary

MO/NC/CG/JS/nlo

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Section 1 Summary of the Findings



Overview

2017 Valuation Results

	June 30, 2017	June 30, 2016
Employer Contribution Rate with Phase-in	20.04% ⁽¹⁾	19.70% ⁽²⁾
Funded Ratio	79.9%	79.4%

1. FYE 2019 employer contribution rate without phase-in is 21.00%.
2. FYE 2018 employer contribution rate without phase-in is 21.21%.

This report presents the results of the June 30, 2017 actuarial valuation. This valuation determines the required contribution rates payable starting July 1, 2018. Several key points are summarized as follows:

- **Investment Returns:** For the fiscal year ending in 2017, the fund returned 12.7% on a market basis (net of investment expenses). In total, there was a \$2.6 billion gain on market assets relative to the assumed rate of return of 7.25%. However, the recognition of net asset losses from prior years partially offset this gain, resulting in a return on actuarial assets of 8.2%. The resulting gain on actuarial assets was \$421 million.
- **Employer Contribution Rates:** The total calculated employer contribution rate increased from the prior valuation by 0.34% (from 19.70% to 20.04%) of payroll. The 20.04% reflects two-thirds of the three-year phase-in of the increase in the employer contribution rate due to the new assumptions adopted prior to the 2016 valuation. Without the phase-in, the employer contribution rate would have been 0.96% higher at 21.00% of payroll. The cost impact of the assumption changes will be fully phased into the employer contribution rate with the next valuation.

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 “Analysis of Change” section that follows later in Section 1 provides an analysis of the sources of change in employer contribution rates since last year. In addition, the section “Employer Contribution Rates” shows a 10-year projection of employer contribution rates.

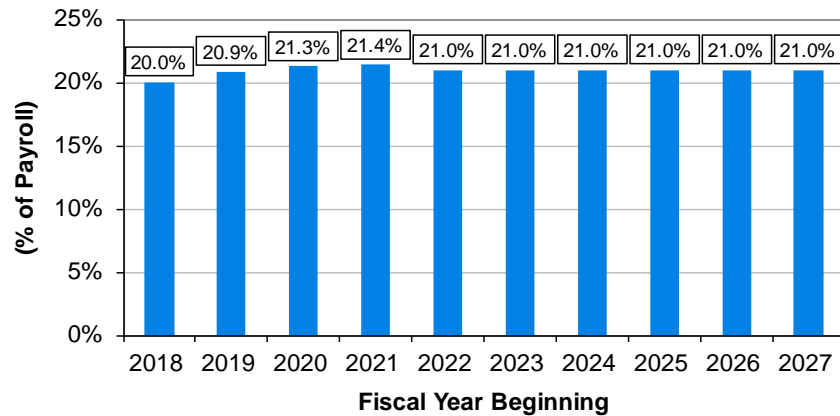
- **Member Contribution Rates:** New member contribution rates for two plans are recommended effective July 1, 2018, based on the new normal cost rates calculated in the 2017 valuation. The recommended member rates are shown in Section 5 for General Plan G (increase from 8.31% to 8.43%) and Safety Plan C (decrease from 14.00% to 13.87%). No changes in the members rates are recommended for the other plans.
- **Funding:** The Funded Ratio increased from 79.4% to 79.9% primarily due to investment performance. Recognition of current and prior year asset losses caused a 0.6% increase. The “Analysis of Change” section provides an analysis of the sources of change in the Funded Ratio since last year.

Employer Contribution Rates

The employer contribution rate beginning July 1, 2018 is 20.04% of payroll (21.00% without the phase-in). These contribution rates are 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 11b on page 38.

The new calculated rate is effective for the fiscal year beginning July 1, 2018. As a result of the phasing in of the contribution increases due to the 2016 assumptions, it is expected that the employer contribution rate will increase in 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 deferred asset gains and losses existing as of June 30, 2017. This projection is shown in the chart below.

Projected Employer Contribution Rate⁽¹⁾



1. Projections assume that all actuarial assumptions are met after June 30, 2017, and reflect the phasing in of the 2016 assumption costs and the scheduled recognition of asset gains and losses currently being deferred. Actual results will vary.

Analysis of Change

The following chart shows an analysis of the factors resulting in 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, 2016 Actuarial Valuation	19.70%	79.4%
Expected Year-to-Year Change	0.00%	0.3%
Assumption Changes	0.00%	0.0%
Recognized Asset Gain/Loss		
From Current Year	-0.38%	0.7%
From Prior Years	0.06%	-0.1%
Combined Asset Gain/Loss	<u>-0.32%</u>	<u>0.6%</u>
Contributions > Assumed	-0.07%	0.0%
Payroll Increase > Assumed	-0.18%	0.0%
Liability Gain/Loss		
Salary Increase > Assumed	0.23%	-0.4%
Retiree COLAs < Assumed	-0.12%	0.2%
Other	0.25%	-0.2%
Combined Liability Gain/Loss	<u>0.36%</u>	<u>-0.4%</u>
Recognition of 2016 Assumptions	<u>0.55%</u>	<u>0.0%</u>
Total Change	<u>0.34%</u>	<u>0.5%</u>
June 30, 2017 Actuarial Valuation	20.04%	79.9%

Based on the 2016 valuation, the expected UAAL of June 30, 2017 was \$13.16 billion. The actual UAAL for the fiscal year ending June 30, 2017 is \$13.15 billion. An analysis of the difference between expected and actual UAAL is shown in Exhibit 8a on page 28.

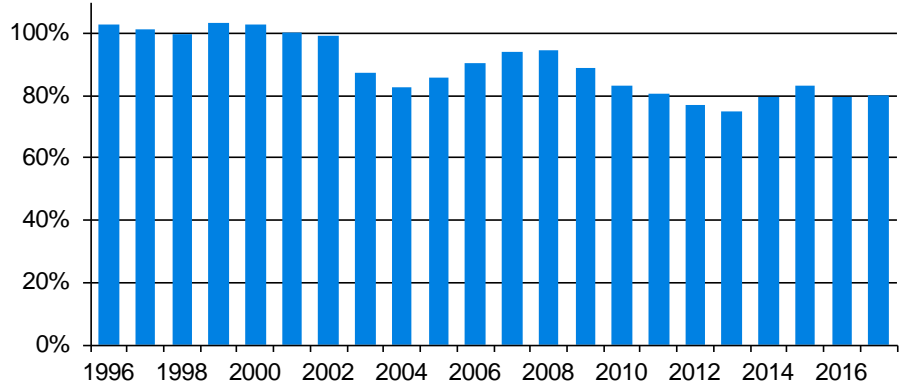
Funding Progress

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, 2017, the market value of the fund (including non-valuation reserves) was \$52.7 billion. The actuarial value of assets was also \$52.7 billion, split between \$0.5 billion of non-Valuation Assets and \$52.2 billion of Valuation Assets. The Valuation Assets are equal to 79.9% of the \$65.3 billion AAL. The actuarial value of assets is approximately 100% of the market value of assets. A historical perspective of the funded ratio is shown in the following chart.

Historical Funded Ratios



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 5.2% (net of investment expenses), as reported by LACERA. However, due to benefit payments being greater than contributions, the total annual increase in the market value has averaged less. This is typical of a mature retirement system. 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 assumption 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 8.2% 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 Losses

The smoothing method is currently deferring \$50 million in net asset gains. As the currently deferred gains and losses are recognized over upcoming valuations, it is expected 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, 2017 is fully recognized over the next four years.

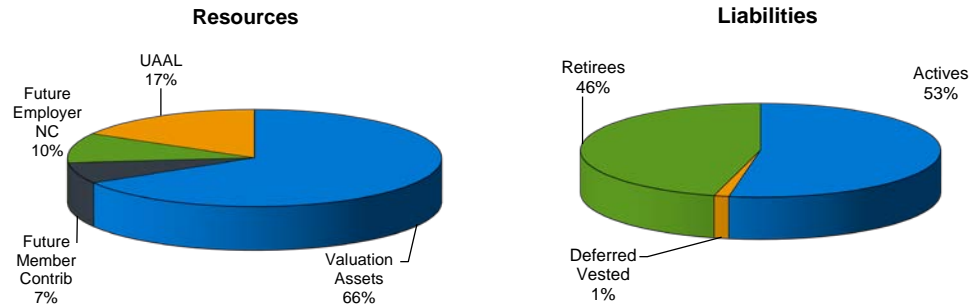
The potential future impact of the recognition of these deferred gains and losses and the phasing in of the new assumption costs on the projected employer contribution rate is illustrated in the chart on page 2.

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 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 following chart. The AAL is the total of these liabilities less expected future Normal Cost contributions.

Actuarial Balance Sheet (continued)

The 2017 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 2018.

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.

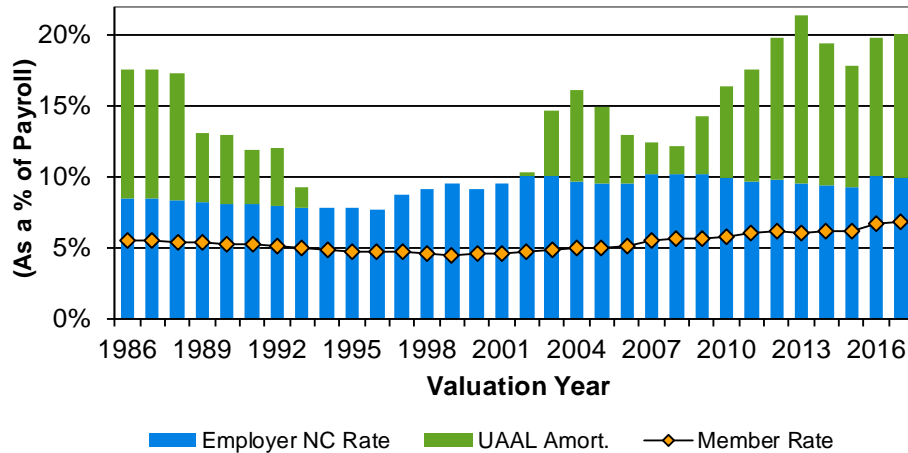
- **STAR Reserve:** The STAR reserve is included in the Valuation Assets. There is no corresponding liability for future STAR benefits included in the valuation. The inclusion of the STAR reserve in the Valuation Assets was formalized for the current and future actuarial valuations in the February 2013 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, 2018 would increase by 0.47% of payroll, and the Funded Ratio would decrease by 1.0% to 78.9%.

Employer Contribution Rates

Based on the results of the valuation, the calculated employer contribution rate will increase for the fiscal year beginning in 2018 to a rate of 20.04% of pay (21.00% without the phase-in). A historical perspective of the employer contribution rates is shown in the following chart.

Employer Contribution Rate



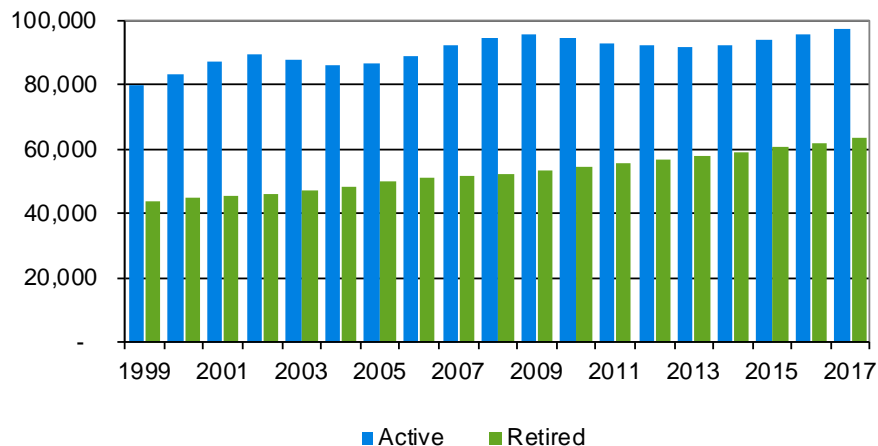
Member Rates

New member rates for members of General Plan G and Safety Plan C are being recommended that are equal to one-half of the Plan’s normal cost rate calculated as of the June 30, 2017 valuation. No changes in the members rates are recommended for the other plans. Member rates for all plans are discussed in Section 5 and are shown in detail in Appendix D.

Member Information

Payroll and active membership have each increased since 2016. As of June 30, 2017, the annualized payroll (for retirement benefits) is \$7.75 billion for 97,211 active members. This is a result of a 3.0% increase in average pay and a 1.9% increase in the number of active members.

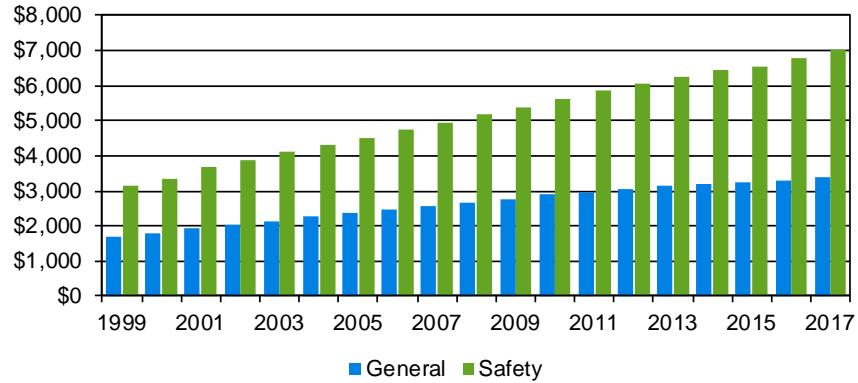
Membership Count



**Member Information
 (continued)**

Retired member counts and average retirement benefit amounts continue to increase steadily. For 2017, there were 63,324 retired members and beneficiaries with an average benefit of \$4,091 per month. This represents a 2.3% increase in count and a 2.9% 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. In addition to the movement shown below, 172 members transferred from Plan E to Plan D during the past year, and 34 members transferred from Plan D to Plan E.

	Active Contributing Members	Vested Former Members ⁽¹⁾	Retirees, Disabilities, & Beneficiaries
June 30, 2016 Valuation	95,444	13,527	61,914
Termination without Refund	(1,343)	1,343	-
Termination with Refund	(374)	(204)	-
Active/Former Death with Beneficiary	(168)	(3)	171
Service Retirement	(2,411)	(366)	2,777
Disability Retirement	(215)	(15)	230
Retiree Death without Beneficiary	-	-	(1,768)
New Entrants	6,147	92	-
Rehires	131	(131)	-
Total Change	1,767	716	1,410
June 30, 2017 Valuation	97,211	14,243	63,324

1. Includes 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 System 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	21.00%	16.54%	26.07%
Change		-4.46%	5.07%
Funded Ratio	79.9%	85.5%	74.3%
Change		5.6%	-5.6%

Note: Employer contribution rates shown do not reflect phase-in.

Summary Valuation Results

The following Exhibit 1 presents a summary of key data elements on June 30, 2017 and June 30, 2016, and how they changed 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, 2017	June 30, 2016	Percentage Change
I. Total Membership			
A. Active Members	97,211	95,444	1.9%
B. Retired Members & Beneficiaries	63,324	61,914	2.3%
C. Vested Former Members ⁽¹⁾	14,243	13,527	5.3%
D. Total	174,778	170,885	2.3%
II. Pay Rate as of June 30, 2017			
A. Annual Total (\$millions)	\$ 7,749	\$ 7,390	4.9%
B. Monthly Average per Active Member	\$ 6,643	\$ 6,452	3.0%
III. Average Monthly Benefit Paid to Current Retirees and Beneficiaries			
A. Service Retirement	\$ 4,078	\$ 3,975	2.6%
B. Disability Retirement	\$ 5,321	\$ 5,127	3.8%
C. Surviving Spouse and Dependents	\$ 2,832	\$ 2,733	3.6%
D. Total	\$ 4,091	\$ 3,974	2.9%
IV. Actuarial Accrued Liability (\$millions)			
A. Active Members	\$ 28,234	\$ 26,883	5.0%
B. Retired Members	\$ 36,032	\$ 34,323	5.0%
C. Vested Former Members	\$ 1,045	\$ 993	5.2%
D. Total	\$ 65,311	\$ 62,199	5.0%
V. Assets			
A. Market Value of Fund (\$millions)	\$ 52,744	\$ 47,847	10.2%
B. Actuarial Value (\$millions)			
1. Valuation Reserves	\$ 52,166	\$ 49,358	5.7%
2. Non-valuation Reserves	\$ 527	\$ 500	5.4%
C. Annual Investment Return			
1. Market Basis (Net Return)	12.7%	0.8%	n/a
2. Valuation (Actuarial) Basis	8.2%	6.5%	n/a
VI. Unfunded Actuarial Accrued Liability or (Surplus Funding) in \$millions	\$ 13,145	\$ 12,841	2.4%
VII. Employer contribution rate for all plans combined as a percent of total payroll			
A. Gross Normal Cost	16.70%	16.62%	0.5%
B. Member Contributions ⁽²⁾	(6.76)%	(6.65)%	1.7%
C. Employer Normal Cost	9.94%	9.97%	(0.3)%
D. UAAL Amortization	11.06%	11.24%	(1.6)%
E. Calculated Contribution Rate	21.00%	21.21%	(1.0)%
F. Deferred Recognition of new assumptions	(0.96)%	(1.51)%	(36.4)%
G. Employer Contribution Rate with phase-in	20.04%	19.70%	1.7%
VIII. Funded Ratio	79.9%	79.4%	0.6%
IX. Results Based on Market Value (Informational Purposes Only)			
Calculated Contribution Rate	20.96%	22.79%	(8.0)%
Funded Ratio (excluding non-valuation reserves)	80.0%	76.1%	5.1%

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

2. Includes non-contributory members. The average rate for contributory plans increased from 8.29 % to 8.31%.

Section 2 Scope of the Report



This report presents the actuarial valuation of the Los Angeles County Employees Retirement Association as of June 30, 2017. 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 2017 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 system. The assets and investment income are presented in Exhibits 2-4. Exhibit 5 develops the actuarial value of assets as of June 30, 2017. 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 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 system, 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, 2017.
- Appendix C Schedules of valuation data classified by various categories of plan members.
- Appendix D Member contribution rates by plan.
- Appendix E Historical information.
- Appendix F A glossary of actuarial terms used in this report.

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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, 2017. 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 system's assets is presented below:
(All dollar amounts in billions)

	Market Value of Total Assets	Actuarial Value		Total Fund Return (%) ⁽¹⁾
		Non- Valuation Reserves	Valuation Assets	
2008	\$ 38.7	\$ 0.9	\$ 39.7	-1.5
2009	30.5	0.8	39.5	-18.3
2010	33.4	0.8	38.8	11.8
2011	39.5	0.9	39.2	20.4
2012	38.3	0.9	39.0	0.3
2013	41.8	0.4	39.9	12.1
2014	47.7	0.5	43.7	16.8
2015	48.8	0.5	47.3	4.3
2016	47.8	0.5	49.4	1.1
2017	52.7	0.5	52.2	12.7

1. As reported in the Investment Section of the CAFR. Prior to 2017, returns are shown gross of investment expenses. Beginning in 2017, returns are shown net of investment expenses.

On June 30, 2017, the total market value of the fund, less current liabilities, was \$52.7 billion. The actuarial value of the fund was determined to be \$52.7 billion, including the non-valuation reserves. The average total fund return for the last 10 years is 5.2% gross 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.

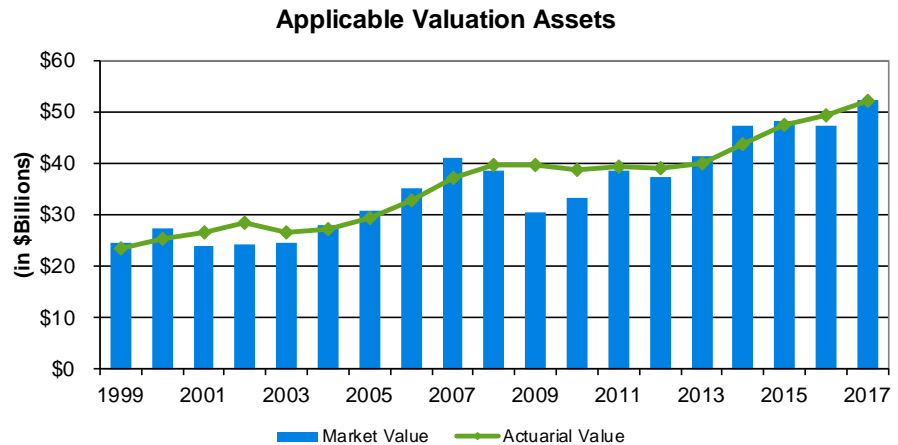
Exhibits 2-4 are taken directly from data furnished to us by LACERA in its annual financial report. We have accepted these tables for use in this report without audit, but we have reviewed them both for the prior year and the current year for reasonableness and consistency with previous reports.

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 computed expected market value is smoothed, or recognized, over a five-year period.

Actuarial Value of Assets

The development of the June 30, 2017 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, 2017 market value by \$50 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 reserves which have been set aside for current liabilities and special benefits that are to be funded outside of the actuarially determined contribution rates. In the calculation of the Valuation Assets, 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, 2017 STAR Reserve accounting value of \$614 million was included in Valuation Assets and used to determine the contribution rates for the fiscal year commencing July 1, 2018. Although the reserve value for STAR benefits is included in the 2017 Valuation Assets, there is no liability included in this valuation for STAR benefits that may be granted in the future.

The non-valuation reserve allocations for funding purposes shown in Exhibit 6 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, 2017 and June 30, 2016**

	2017	2016
Assets		
Cash and Short-Term Investments	\$ 1,523,990,094	\$ 846,783,214
Cash Collateral on Loaned Securities	922,583,739	872,138,652
Receivables		
Contributions Receivable	76,586,764	78,033,896
Accounts Receivable - Sale of Investments	931,019,669	1,035,639,923
Accrued Interest and Dividends	106,074,155	130,324,747
Accounts Receivable - Other	33,278,035	34,094,876
Total Receivables	<u>1,146,958,623</u>	<u>1,278,093,442</u>
Investments at Fair Value		
Equity	25,471,070,361	22,464,825,665
Fixed Income	14,126,188,089	13,685,275,872
Private Equity	5,050,441,901	4,410,209,484
Real Estate	6,139,831,656	6,062,780,002
Hedge Funds	1,437,924,968	1,275,576,023
Total Investments	<u>52,225,456,976</u>	<u>47,898,667,047</u>
Total assets	<u>55,818,989,432</u>	<u>50,895,682,355</u>
Liabilities		
Accounts Payable - Purchase of Investments	2,074,418,652	2,104,540,164
Retiree Payroll and Other Payables	1,148,844	847,454
Accrued Expenses	38,780,205	32,265,493
Tax Withholding Payable	34,913,612	32,748,492
Obligations under Securities Lending Program	922,583,739	872,138,652
Accounts Payable - Other	3,493,409	6,448,263
Total liabilities	<u>3,075,338,461</u>	<u>3,048,988,519</u>
Net position restricted for pension benefits	<u>\$ 52,743,650,971</u>	<u>\$ 47,846,693,836</u>

**Exhibit 3 Statement of Changes in Fiduciary Net Position
 For the Years Ended June 30, 2017 and 2016**

	2017	2016
Additions		
Contributions		
Employer	\$ 1,370,921,787	\$ 1,443,129,898
Member	487,016,114	458,665,176
Total Contributions	<u>1,857,937,901</u>	<u>1,901,795,074</u>
Investment Income		
From Investing Activities:		
Net Appreciation/(Depreciation) in Fair Value of Investments	3,600,947,713	(966,251,016)
Investment Income/(Loss)	2,672,282,072	1,147,977,519
Total Investing Activity Income	<u>6,273,229,785</u>	<u>181,726,504</u>
Less Expenses From Investing Activities	<u>(150,350,042)</u>	<u>(106,566,465)</u>
Net Investing Activity Income	6,122,879,743	75,160,039
From Securities Lending Activities:		
Securities Lending Income	11,596,901	6,409,361
Less Expenses From Securities Lending Activities:		
Borrower Rebates	(3,709,500)	245,597
Management Fees	(1,467,113)	(1,226,774)
Total Expenses from Securities Lending Activities	<u>(5,176,613)</u>	<u>(981,177)</u>
Net Securities Lending Income	6,420,288	5,428,184
Total Net Investment Income	<u>6,129,300,031</u>	<u>80,588,222</u>
Miscellaneous	6,370,288	2,780,878
Total Additions	<u>7,993,608,220</u>	<u>1,985,164,174</u>
Deductions		
Retiree Payroll	3,002,929,279	2,859,011,063
Administrative Expenses	66,830,476	67,644,631
Refunds	24,451,924	27,092,265
Lump Sum Death Benefits	2,251,344	3,082,933
Miscellaneous	188,062	(10,192)
Total Deductions	<u>3,096,651,085</u>	<u>2,956,820,701</u>
Net increase/(decrease)	4,896,957,136	(971,656,527)
Net position restricted for pension benefits		
Beginning of Year	47,846,693,836	48,818,350,362
End of Year	<u>\$ 52,743,650,971</u>	<u>\$ 47,846,693,836</u>

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

	June 30, 2017	June 30, 2016
1. Member Reserves		
a. Active Members	\$ 20,380,431	\$ 19,346,808
b. Unclaimed Deposits	-	-
c. Total Member Reserves	<u>\$ 20,380,431</u>	<u>\$ 19,346,808</u>
2. Employer Reserves		
a. Actual Employer Contributions	\$ 21,086,809	\$ 20,802,531
b. Advanced Employer Contributions	-	-
c. Total Employer Contributions	<u>\$ 21,086,809</u>	<u>\$ 20,802,531</u>
3. County Contribution Credit Reserve	\$ -	\$ 21,891
4. STAR Reserve	614,011	614,011
5. Contingency Reserve	-	-
6. Total Reserves at Book Value	<u>\$ 42,081,251</u>	<u>\$ 40,785,241</u>
7. Unrealized Investment Portfolio Appreciation	<u>10,662,400</u>	<u>7,061,453</u>
8. Total Reserves at Fair Value	<u>\$ 52,743,651</u>	<u>\$ 47,846,694</u>

Note: These amounts were determined by LACERA for accounting purposes and are reported in the June 30, 2017 CAFR.

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

June 30, 2017 Valuation						
Plan Year Ending	Contributions	Benefit Payments	Expected Market Value	Actual Market Value	Phase-Out of Gain / (Loss)	
06/30/2017	\$ 1,857,938	\$ 3,029,633	\$ 50,102,154	\$ 52,743,651	80.00% x \$	2,641,497 = \$ 2,113,198
06/30/2016	1,901,795	2,889,186	51,455,977	47,846,694	60.00% x	(3,609,283) = (2,165,570)
06/30/2015	1,936,233	2,768,410	50,438,628	48,818,350	40.00% x	(1,620,278) = (648,111)
06/30/2014	1,759,443	2,662,401	43,970,326	47,722,277	20.00% x	3,751,951 = 750,390
06/30/2013						= 0
					Total Phase-Out of Gain / (Loss) =	\$ 49,907
					Total Market Value of Assets =	52,743,651
					Total Actuarial Value of Assets =	\$ 52,693,744
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)**

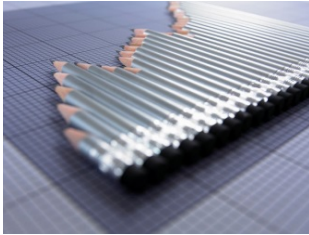
	June 30, 2017	June 30, 2016
1. Total Market Value of Assets	\$ 55,818,989	\$ 50,895,682
2. Current Liabilities	<u>3,075,338</u>	<u>3,048,988</u>
3. Net Assets Held in Trust for Pension Benefits	\$ 52,743,651	\$ 47,846,694
4. Market Stabilization Reserve ⁽¹⁾	<u>49,907</u>	<u>(2,011,511)</u>
5. Actuarial Value of Fund Assets	\$ 52,693,744	\$ 49,858,205
6. Non-Valuation Reserves ⁽²⁾		
a. Unclaimed Deposits	\$ -	\$ -
b. Contingency Reserve	527,437	478,467
c. Advanced Employer Contributions	-	-
d. County Contribution Credit Reserve	-	21,891
e. Reserve for STAR Program	-	-
f. Total	<u>\$ 527,437</u>	<u>\$ 500,358</u>
7. Valuation Assets ⁽²⁾		
a. Member Reserves	\$ 20,380,431	\$ 19,346,808
b. Employer Reserves for Funding Purposes	<u>\$ 31,785,876</u>	<u>\$ 30,011,039</u>
c. Total	<u>\$ 52,166,307</u>	<u>\$ 49,357,847</u>

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

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

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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, 2017. 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, 2017. 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, 2017
(Dollars in Millions)

	General						Safety			All Plans
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Plan A	Plan B	Plan C	
LIABILITIES										
Present Value of Benefits - Inactives										
- Retirees and Beneficiaries	\$ 12,049	\$ 443	\$ 244	\$ 6,294	\$ 3,274	\$ 3	\$ 7,426	\$ 6,293	\$ 6	\$ 36,032
- Vested Former	12	5	1	501	408	10	0	107	1	1,045
- Inactive Total	12,061	448	245	6,795	3,682	13	7,426	6,400	7	37,077
Present Value of Benefits - Actives										
- Service Retirement	\$ 165	\$ 62	\$ 62	\$ 18,160	\$ 6,030	\$ 2,583	\$ 12	\$ 7,253	\$ 436	\$ 34,763
- Transfer Service (prior LACERA plan)	0	0	0	218	436	1	1	9	0	665
- Disability Retirement	2	1	1	937	N/A	214	2	3,595	288	5,040
- Death	1	1	0	359	N/A	60	0	63	7	491
- Termination	0	0	0	219	89	169	0	42	21	540
- Active Total	168	64	63	19,893	6,555	3,027	15	10,962	752	41,499
Total Actuarial Liabilities	\$ 12,229	\$ 512	\$ 308	\$ 26,688	\$ 10,237	\$ 3,040	\$ 7,441	\$ 17,362	\$ 759	\$ 78,576
ASSETS										
Valuation Assets	\$ (265)	\$ 439	\$ 306	\$ 23,771	\$ 11,921	\$ 701	\$ (102)	\$ 15,284	\$ 111	\$ 52,166
PV Future Member Contributions	2	1	1	2,779	N/A	1,333	0	1,022	345	5,483
PV Future Employer Normal Cost Contribs.	5	1	1	3,155	1,184	1,333	0	1,759	344	7,782
UAAL or (Surplus Funding)	12,487	71	0	(3,017)	(2,868)	(327)	7,543	(703)	(41)	13,145
Total Current and Future Assets	\$ 12,229	\$ 512	\$ 308	\$ 26,688	\$ 10,237	\$ 3,040	\$ 7,441	\$ 17,362	\$ 759	\$ 78,576

Actuarial Balance Sheet – Liabilities (continued)

All liabilities reflect the benefits effective through June 30, 2017. This includes permanent STAR COLAs that have been adopted through the valuation date, but does not include the value of any future STAR benefits that may be granted in the future.

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
- Whatever amount is left over, which is used to amortize what is called the UAAL (Unfunded Actuarial Accrued Liability).

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)	<u>2017</u>	<u>2016</u>	<u>Percent Change</u>
A. Actuarial present value of all future benefits for contributing members, former contributing members, and their survivors	\$ 78,576	\$ 74,775	5.1%
B. Actuarial present value of total future normal costs for current members	\$ 13,265	\$ 12,576	5.5%
C. Actuarial accrued liability [A-B]	\$ 65,311	\$ 62,199	5.0%
D. Valuation Assets	\$ 52,166	\$ 49,358	5.7%
E. UAAL or (Surplus Funding) [C-D]	\$ 13,145	\$ 12,841	2.4%
F. Funded Ratio [D/C]	79.9%	79.4%	0.6%

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. If the UAAL amount is positive, that is, the AAL to be funded is greater than the Valuation Assets, then the UAAL is amortized. Under LACERA's Funding Policy, any positive amount must be amortized over layered 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 system, is affected by any actuarial gains (decreases in UAAL) or losses (increases in UAAL) arising when the actual experience of the system 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 2017 actuarial valuation reflects an actuarial experience gain of \$16 million for the fiscal year just ended. The effect of the gains and losses on the UAAL or Surplus Funding is shown in Exhibit 8a. A summary of these factors is:

- **Investment Returns:** Returns on market assets were 12.7% (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 asset gain of \$421 million.
- **Salary Increases:** Individual salaries for continuing active members increased at a rate greater than the valuation assumption. This resulted in a loss of \$277 million.
- **Actual CPI versus Assumption:** The actual CPI increase was less than assumed for members of Plan A, although some members had positive COLA banks to make up for this. The members who received COLA increases less than the assumption generated a gain of \$139 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 a small relative gain of \$51 million due to mortality, indicating retirees are currently living slightly shorter lives than assumed.
- **Other Experience:** Examples of this are gains and losses from termination, service retirement, disability retirement, death, service purchases, reciprocity, and transfers between plans.

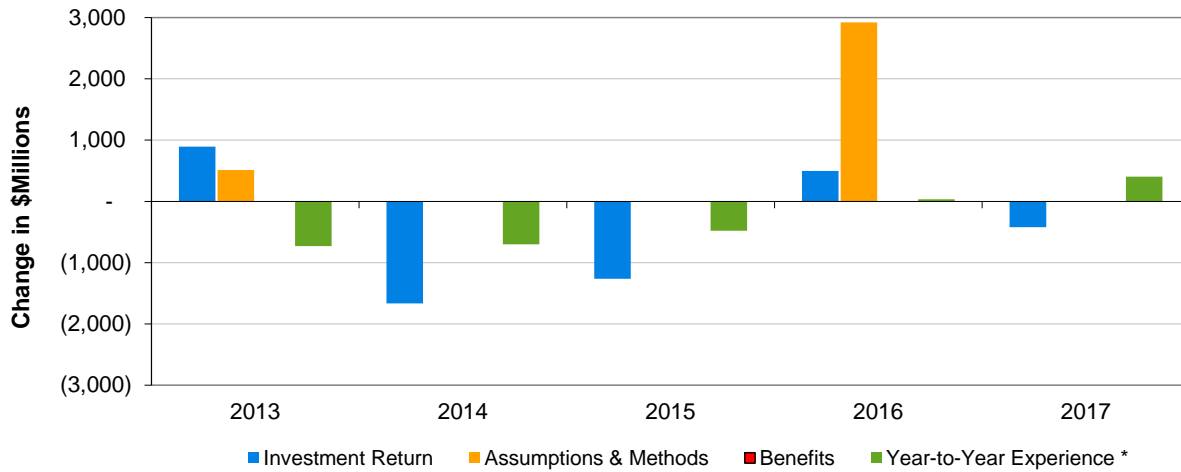
Change in Unfunded Actuarial Accrued Liability – History

Exhibit 8b shows the sources of change in the UAAL over the past five valuations. The biggest source of annual change in most years is the return on investments being either greater than or less than the assumption. For 2016, the assumption change had the largest impact.

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

	Amount	As a Percent of June 30, 2017 Actuarial Accrued Liability
Unfunded Actuarial Accrued Liability - June 30, 2016	\$ 12,841	19.7%
Increase in UAAL due to New Assumptions	-	0.0%
Interest Accrued	954	1.5%
Benefits Accrued (Normal Cost)	1,246	1.9%
<u>Contributions</u>		
Employer - Cash	\$ (1,371)	-2.1%
Employer - Contribution Credit	(22)	0.0%
Member	(487)	-0.7%
Total	<u>(1,880)</u>	-2.9%
Expected Unfunded Actuarial Accrued Liability - June 30, 2017	\$ 13,161	20.2%
<u>Source of Change</u>		
Asset (Gains) and Losses		
(Gain) / Loss due to Investment Income	(421)	-0.6%
<u>Actuarial (Gains) and Losses</u>		
Salary Increases Greater than Expected	\$ 277	0.4%
CPI Less than Expected	(139)	-0.2%
Mortality Experience	(51)	-0.1%
All Other Experience	318	0.5%
Total	<u>405</u>	0.6%
Total Changes	\$ (16)	0.0%
Unfunded Actuarial Accrued Liability - June 30, 2017	\$ 13,145	20.1%

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

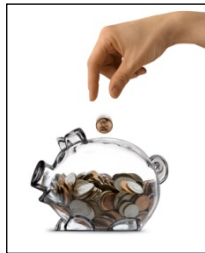


	2013	2014	2015	2016	2017	2013-17
Prior Valuation UAAL	\$ 11,770	\$ 13,315	\$ 11,288	\$ 9,491	\$ 12,841	\$ 11,770
Increase in UAAL due to:						
Expected Increase / (Decrease)	870	338	(54)	(102)	320	1,372
Asset (Gains) and Losses	893	(1,664)	(1,263)	496	(421)	(1,959)
Changes in Benefits	-	-	-	-	-	-
Changes in Assumptions	511	-	-	2,922	-	3,433
Changes in Methods	-	-	-	-	-	-
Salary Increases	(563)	(291)	79	162	277	(336)
CPI Less than Expected	(190)	(427)	(570)	(191)	(139)	(1,517)
Mortality Experience	(42)	(26)	(59)	(4)	(51)	(182)
All Other Experience	66	43	70	67	318	564
Total Increase / (Decrease)	1,545	(2,027)	(1,797)	3,350	304	1,375
Valuation UAAL	\$ 13,315	\$ 11,288	\$ 9,491	\$ 12,841	\$ 13,145	\$ 13,145
Funded Ratio	75.0%	79.5%	83.3%	79.4%	79.9%	79.9%

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

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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 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 2017 valuation.

	General Plan G	Safety Plan C
All Ages: Recommended	8.43%	13.87%
All Ages: Current	8.31%	14.00%
Ratio (Rec'd / Current)	101.4%	99.1%

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, 2017 is 8.31% of covered payroll. This number compares to 6.76% of covered payroll, which is the average member contribution rate among all members. The 6.76% offsets the gross normal cost to yield the employer normal cost rate. Note that covered payroll does not include pay for PEPRA plan members above the PEPRA compensation limit.

Exhibit 9 Sample Member Contribution Rates

Recommended Rates (Based on 2017 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	6.83%	1.60%	8.43%	8.31%	101.4%
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	10.80%	3.07%	13.87%	14.00%	99.1%

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 are prior to any surcharge payments.

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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. 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 11a. 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 21.21% for the fiscal year beginning in 2017 (prior to the phase-in recognition).

For the fiscal year beginning in 2018, the total calculated employer contribution rate without phase-in decreases to 21.00%. This is equal to the net aggregate calculated Normal Cost contribution rate of 9.94% based on the 2017 valuation, plus a 30-year layered amortization payment of the UAAL.

(All values as a % of Payroll)

Employer Normal Cost	9.94%
30-year Layered Amortization of UAAL	<u>11.06%</u>
Calculated Employer Contribution Rate	21.00%

The 0.21% 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 0.32% in the employer contribution rate. Other sources, including COLA increases smaller than assumed and salary increases greater than assumed, increased the UAAL rate by about 0.11%. The UAAL rate reflects a layered 30-year amortization from the valuation date with a July 1, 2018 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. The total employer contribution rate with phase-in for each plan can be found in Exhibit 11b. These results are expressed as a percentage of payroll and annual contribution dollars.

For the fiscal year beginning in 2018, the total employer contribution rate with phase-in is 20.04%. This is equal to the calculated employer contribution rate with an offset for deferred recognition of the new assumptions, as follows.

(All values as a % of payroll)

Calculated Employer Contribution Rate	21.00%
Deferred recognition of new assumptions	<u>(0.96)%</u>
Employer Contribution Rate with phase-in	20.04%

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 with phase-in of 20.04% is greater than the minimum contribution that would be required under Section II 1A(4) of the Funding Policy.

Hypothetical Population Used for Normal Cost Rate for New Plans

For plans that have been in existence for less than five years, the normal cost rate is calculated based on a hypothetical population which includes all current active members with less than five years of service, as if each of these members had entered the respective new plan (split by General and Safety).

The following table shows a comparison between what the normal cost rate would have been if it had been based on the current population only, and the normal cost rate based on the hypothetical smoothed population used in the valuation.

	Current Population	Smoothed Population
General Plan G		
Normal Cost Rate	16.80%	16.86%
Member Rate	8.40%	8.43%
Safety Plan C		
Normal Cost Rate	27.59%	27.74%
Member Rate	13.80%	13.87%

Exhibit 10 Calculated Normal Cost Contribution Rates – June 30, 2017

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%	14.46%	12.03%	13.38%	9.20%	14.31%	12.60%	15.51%	14.75%	15.48%	14.82%	13.02%
Disability Retirement	1.15%	0.77%	0.65%	1.17%	0.00%	1.29%	0.92%	9.83%	9.71%	11.23%	9.86%	2.61%
Death	0.28%	0.22%	0.19%	0.35%	0.00%	0.33%	0.27%	0.38%	0.30%	0.26%	0.30%	0.27%
Termination	0.36%	0.37%	0.33%	0.92%	0.54%	0.93%	0.83%	0.58%	0.70%	0.77%	0.71%	0.81%
Total	21.80%	15.82%	13.20%	15.82%	9.74%	16.86%	14.62%	26.30%	25.46%	27.74%	25.69%	16.70%
B. Member Contributions	(5.42)%	(7.88)%	(6.45)%	(7.41)%	0.00%	(8.43)%	(5.87)%	(2.29)%	(10.19)%	(13.87)%	(10.56)%	(6.76)%
C. Net Employer Normal Cost as of June 30, 2017 (A) - (B)	16.38%	7.94%	6.75%	8.41%	9.74%	8.43%	8.75%	24.01%	15.27%	13.87%	15.13%	9.94%
D. Net Employer Normal Cost as of June 30, 2016	15.87%	7.77%	7.07%	8.44%	9.84%	8.31%	8.79%	24.72%	15.03%	14.00%	14.97%	9.97%
E. Increase (Decrease) as a Percentage of Payroll (C) - (D)	0.51%	0.17%	(0.32)%	(0.03)%	(0.10)%	0.12%	(0.04)%	(0.71)%	0.24%	(0.13)%	0.16%	(0.03)%
F. Estimated Payroll for fiscal year beginning July 1, 2018*	\$ 18	\$ 6	\$ 6	\$ 3,869	\$ 1,492	\$ 1,103	\$ 6,494	\$ 1	\$ 1,354	\$ 153	\$ 1,508	\$ 8,001
G. Estimated Total Normal Cost Contribution in Dollars (A x F)**	\$ 4	\$ 1	\$ 1	\$ 612	\$ 145	\$ 186	\$ 949	\$ -	\$ 345	\$ 42	\$ 387	\$ 1,336

* Estimated Payroll based upon annualized salary rate as of June 30, 2017 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 11a Total Employer Contributions (without phase-in of new assumptions)

	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	13.03%	6.33%	5.43%	6.89%	8.08%	6.83%	7.16%	17.39%	12.14%	10.80%	12.00%	8.07%
2. Cost-of-Living Benefits	3.35%	1.61%	1.32%	1.52%	1.66%	1.60%	1.59%	6.62%	3.13%	3.07%	3.13%	1.87%
3. Total 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%
B. UAAL Contribution Rate	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%
C. Total June 30, 2017 Contribution Rate (A) + (B)	27.44%	19.00%	17.81%	19.47%	20.80%	19.49%	19.81%	35.07%	26.33%	24.93%	26.19%	21.00%
D. Total June 30, 2016 Contribution Rate	27.11%	19.01%	18.31%	19.68%	21.08%	19.55%	20.03%	35.96%	26.27%	25.24%	26.21%	21.21%
E. Estimated Payroll for fiscal year beginning July 1, 2018*	\$ 18	\$ 6	\$ 6	\$ 3,869	\$ 1,492	\$ 1,103	\$ 6,494	\$ 1	\$ 1,354	\$ 153	\$ 1,508	\$ 8,001
F. Estimated Annual Contribution (C x E)	\$ 5	\$ 1	\$ 1	\$ 753	\$ 310	\$ 215	\$ 1,286	\$ -	\$ 356	\$ 38	\$ 395	\$ 1,681
G. Last Year's Estimated Annual Contribution	\$ 6	\$ 2	\$ 1	\$ 754	\$ 319	\$ 155	\$ 1,237	\$ 1	\$ 358	\$ 23	\$ 382	\$ 1,619
H. Increase / (Decrease) in Annual Contribution	\$ (1)	\$ (1)	\$ -	\$ (1)	\$ (9)	\$ 60	\$ 49	\$ (1)	\$ (2)	\$ 15	\$ 13	\$ 62

* Estimated Payroll based upon annualized salary rate as of June 30, 2017 increased by 3.25% wage inflation. Dollar figures in millions.

Exhibit 11b Total Employer Contributions (with phase-in of new assumptions)

	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	13.03%	6.33%	5.43%	6.89%	8.08%	6.83%	7.18%	17.39%	12.14%	10.80%	12.31%	8.07%
2. Cost-of-Living Benefits	3.35%	1.61%	1.32%	1.52%	1.66%	1.60%	1.57%	6.62%	3.13%	3.07%	2.82%	1.87%
3. Total 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%
B. UAAL Contribution Rate	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%	11.06%
C. Calculated June 30, 2017 Contribution Rate (A) + (B)	27.44%	19.00%	17.81%	19.47%	20.80%	19.49%	19.81%	35.07%	26.33%	24.93%	26.19%	21.00%
D. Deferred Recognition of new assumptions	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%	(0.96)%
E. Total June 30, 2017 Contribution Rate with phase-in (C) + (D)	26.48%	18.04%	16.85%	18.51%	19.84%	18.53%	18.85%	34.11%	25.37%	23.97%	25.23%	20.04%
F. Total June 30, 2016 Contribution Rate with phase-in	25.60%	17.50%	16.80%	18.17%	19.57%	18.04%	18.52%	34.45%	24.76%	23.73%	24.70%	19.70%
G. Estimated Payroll for fiscal year beginning July 1, 2018*	\$ 18	\$ 6	\$ 6	\$ 3,869	\$ 1,492	\$ 1,103	\$ 6,494	\$ 1	\$ 1,354	\$ 153	\$ 1,508	\$ 8,001
H. Estimated Annual Contribution (E x G)	\$ 5	\$ 1	\$ 1	\$ 716	\$ 296	\$ 204	\$ 1,224	\$ -	\$ 343	\$ 37	\$ 380	\$ 1,604
I. Last Year's Estimated Annual Contribution	\$ 6	\$ 1	\$ 1	\$ 696	\$ 296	\$ 143	\$ 1,144	\$ 1	\$ 337	\$ 22	\$ 360	\$ 1,504
J. Increase / (Decrease) in Annual Contribution	\$ (1)	\$ -	\$ -	\$ 20	\$ -	\$ 61	\$ 80	\$ (1)	\$ 6	\$ 15	\$ 20	\$ 100

* Estimated Payroll based upon annualized salary rate as of June 30, 2017 increased by 3.25% wage inflation. Dollar figures in millions.

Exhibit 12 Unfunded Actuarial Accrued Liability Detail

Unfunded Actuarial Accrued Liability - 30 Year Layered Amortization Detail							
Date Established	Description	Balance as of June 30, 2017	Interest on Balance	Amort. Payment on June 30, 2018 ⁽¹⁾	Balance as of June 30, 2018 ⁽²⁾	Remaining Period as of June 30, 2018	July 1, 2018 Amortization Payment
June 30, 2009	Initial UAAL	\$ 5,621.1	\$ 407.5	\$ 396.8	\$ 5,631.8	21 Years	\$ 389.9
June 30, 2010	(Gain) / Loss ⁽³⁾	3,049.4	221.1	209.3	3,061.2	22 Years	205.7
June 30, 2011	(Gain) / Loss ⁽³⁾	1,503.0	109.0	100.5	1,511.5	23 Years	98.7
June 30, 2012	(Gain) / Loss ⁽³⁾	2,444.8	177.2	159.4	2,462.6	24 Years	156.7
June 30, 2013	(Gain) / Loss ⁽³⁾	1,375.5	99.7	87.6	1,387.6	25 Years	86.1
June 30, 2014	(Gain) / Loss	(2,535.7)	(183.8)	(158.1)	(2,561.4)	26 Years	(155.3)
June 30, 2015	(Gain) / Loss	(1,972.9)	(143.0)	(120.5)	(1,995.4)	27 Years	(118.4)
June 30, 2016	(Gain) / Loss ⁽³⁾	3,776.4	273.8	226.2	3,824.0	28 Years	222.3
June 30, 2017	(Gain) / Loss	(116.6)	(8.5)	(106.7) ⁽⁴⁾	(18.4)	29 Years	(1.1)
Total Amortization Payment July 1, 2018:							\$ 884.6
Projected Payroll July 1, 2018:							\$ 8,000.8
UAAL as of June 30, 2017:		\$ 13,145.0	UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2018:				11.06%

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, 2017; whereas, the contribution rates are not effective until July 1, 2018. Therefore, the UAAL is adjusted to June 30, 2018 based on the actual contribution rate for the period.
3. (Gain) / Loss layers include impact of assumption changes in these years.
4. The 30-year amortization of UAAL does not begin until July 1, 2018; however, the UAAL amount is adjusted based on the July 1, 2017 contribution rate.

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:

1. Schedule of Funding Progress
2. Schedule of Employer Contributions
3. Solvency Test
4. Actuarial Analysis of Financial Experience
5. Retirants and Beneficiaries added to and removed from Retiree Payroll

The Schedule of Funding Progress, Exhibit 13, compares actuarial assets and liabilities of the system, based on the actuarial funding method used. The required Schedule of Employer Contributions, Exhibit 14, 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
(All 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, 2008	39,662,361	41,975,631	2,313,270	94.5%	6,123,888	37.8%
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%

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
(All 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	
6/30/2008	\$ 827,911	\$ 788,029	\$ 40,601	\$ 828,630	100%
6/30/2009	847,172	831,672	15,500	847,172	100%
6/30/2010	843,704	843,703	0	843,703	100%
6/30/2011	944,174	944,174	0	944,174	100%
6/30/2012	1,078,929	1,078,929	0	1,078,929	100%
6/30/2013	1,172,014	723,195	448,819	1,172,014	100%
6/30/2014	1,320,442	1,320,442	0	1,320,442	100%
6/30/2015	1,494,975	1,494,975	0	1,494,975	100%
6/30/2016	1,443,130	1,443,130	0	1,443,130	100%
6/30/2017	1,370,922	1,370,922	0	1,370,922	100%

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, 2008	39,662	5,279	23,730	12,966	100%	100%	82%
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%

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

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, 2008	2,759	167,753 ⁽²⁾	(1,801)	(47,103)	52,350	1,978,875	6.49%	37.8
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

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 the CAFR.

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 flow has been fairly level 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 system where it is expected that contributions will be less than benefits and that the system 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 system. We are assuming no further transfers, only full cash contributions.

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 19.70% for the first year and 20.04% for the second year; total employer contributions for the remainder of the period reflect the expected recognition of asset losses currently being deferred. The aggregate member rate is assumed to stay at the calculated rate for June 30, 2017 of 6.76% of payroll. Expenses are based on the expenses for the year ended June 30, 2017, 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 2017 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

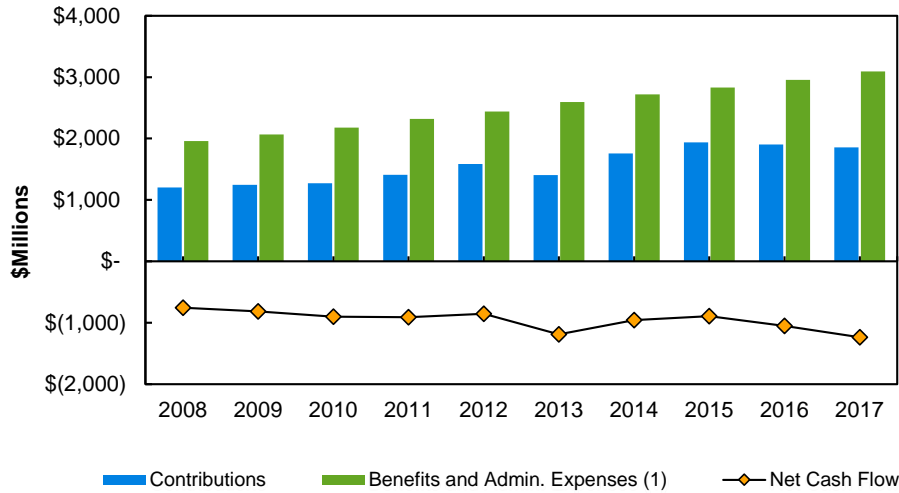
Plan Year Ending	Cash Flow History		
	Total	Benefits & Administrative	Net
	Contributions	Expenses ⁽¹⁾	Cash Flow
2008	\$ 1,203	\$ 1,960	\$ (757)
2009	1,247	2,065	(818)
2010	1,273	2,177	(904)
2011	1,408	2,318	(910)
2012	1,586	2,439	(853)
2013	1,403	2,593	(1,190)
2014	1,759	2,719	(960)
2015	1,936	2,829	(893)
2016	1,902	2,954	(1,052)
2017	1,858	3,094	(1,236)

Plan Year Ending	Cash Flow Projections ⁽²⁾		
	Total	Benefits & Administrative	Net
	Contributions	Expenses ⁽¹⁾	Cash Flow
2018	\$ 2,042	\$ 3,373	\$ (1,331)
2019	2,149	3,474	(1,325)
2020	2,294	3,648	(1,354)
2021	2,407	3,827	(1,419)
2022	2,502	4,015	(1,513)
2023	2,554	4,212	(1,658)
2024	2,643	4,420	(1,776)
2025	2,736	4,634	(1,898)
2026	2,832	4,852	(2,021)
2027	2,931	5,074	(2,143)

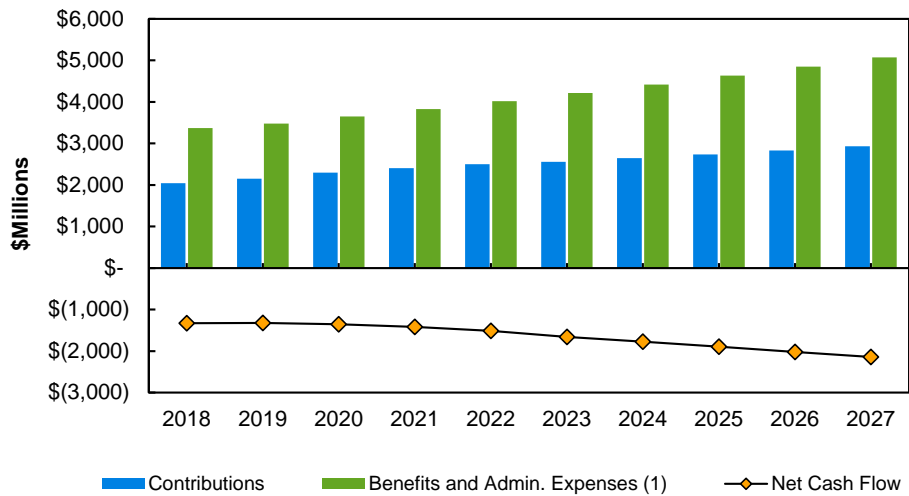
1. Investment expenses are assumed to be covered by investment return.
2. Future contributions reflect the expected impact of asset gains and losses currently being deferred.

Exhibit 18b Cash Flow History and Projections – Charts

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 system 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 system.

The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the Unfunded Actuarial Accrued Liability (UAAL). The original UAAL as of June 30, 2009 is amortized as a level percentage of the projected salaries of present and future members of LACERA over a closed 30-year period. 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 plans that have been in existence for less than five years, the normal cost rate is calculated based on a hypothetical population which includes all current active members with less than five years of service, as if each of these members had entered their respective new plan (split by General and Safety). This normal cost rate is then multiplied by the present value of future compensation of current active members in the respective plans to calculate the present value of future normal costs in aggregate. 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	<p>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.</p>
Postretirement Benefit Increases	<p>Postretirement increases are assumed for the valuation in accordance with the benefits provided as described in Appendix B. These adjustments are assumed payable each year in the future as they are less than the expected increase in the Consumer Price Index (CPI) of 2.75% per year. This CPI rate was adopted effective June 30, 2016.</p>
Interest on Member Contributions	<p>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.</p>
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 to approximately 120% of the Social Security Wage Base. The limit for 2017 is \$142,530 (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 system. 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, 2017

- 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 2017 is 7.143% calculated as follows:

$$\begin{aligned}
 \text{Age 85 rate in 2017} &= \text{Age 85 rate in 2014 with 3 years improvement} \\
 &= 7.362\% \times (100.0\% - 1.0\%) \times (100.0\% - 1.0\%) \times (100.0\% - 1.0\%) \\
 &= 7.143\%
 \end{aligned}$$

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 the year 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 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, 2017. 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 system 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 \$142,530 for 2017. 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-B and General Plans C-D:

Allowance may not exceed 100% of final compensation.

General Plans G and Safety Plan C:

Maximum allowance does not apply.

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 system 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		(31787)
Plans A-D, G:	Active members who die in service as a result of injury or disease arising out of and in the course of employment.	
Plan E:	Not available under Plan E.	(31487)

Monthly Allowance

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 (31765.1,

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. 31765.2)

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 retirement system, 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. Member contributions must be left on deposit. (31700)

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)
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RECIPROCITY

All Plans:	Reciprocal benefits are may be granted to members who are entitled to retirement benefits from two or more retirement systems established under the CERL or from a County retirement system 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 system, 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 system, 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, 2017 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 1.9% and the total salary increased by 4.9% since the last valuation. The total number of retired members and their beneficiaries increased by 2.3%, while the average retirement benefit amount increased by 2.9%.

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 (Plan E only), the monthly rate of pay at June 2017 is shown.

Additional statistical data on both active and retired members is shown in the following tables. Additional detailed summaries are supplied to the system 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, 2017 was supplied to us by the system 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, 2017

	Sex	Vested	NonVested	Total Number	Annual Salary	Average Age	Average Monthly Salary	Average Credited Service
General Members								
Plan A	M	60	-	60	\$ 7,148,376	70.6	\$ 9,928	37.0
	F	115	-	115	9,521,268	67.5	6,899	36.8
Plan B	M	14	-	14	1,430,244	66.1	8,513	35.7
	F	48	-	48	4,388,100	62.9	7,618	37.1
Plan C	M	17	-	17	1,392,168	64.1	6,824	38.1
	F	53	-	53	4,725,408	63.0	7,430	37.8
Plan D	M	14,398	410	14,808	1,296,255,240	49.4	7,295	16.7
	F	29,654	765	30,419	2,418,374,676	48.9	6,625	16.9
Plan E	M	5,384	950	6,334	527,612,676	53.7	6,942	20.5
	F	11,723	1,558	13,281	916,727,484	53.5	5,752	21.5
Plan G	M	43	6,421	6,464	390,567,012	37.1	5,035	2.0
	F	68	12,832	12,900	711,918,684	36.2	4,599	2.0
Total		61,577	22,936	84,513	\$ 6,290,061,336	47.3	\$ 6,202	14.5
Safety Members								
Plan A	M	7	-	7	\$ 938,040	62.4	\$ 11,167	37.2
	F	-	-	-	-	N/A	N/A	N/A
Plan B	M	8,938	302	9,240	1,070,185,392	45.0	9,652	18.4
	F	1,466	79	1,545	168,635,232	42.4	9,096	15.9
Plan C	M	20	1,625	1,645	127,015,140	30.3	6,434	1.7
	F	1	260	261	21,416,796	29.9	6,838	2.0
Total		10,432	2,266	12,698	\$ 1,388,190,600	42.5	\$ 9,110	15.6
Grand Total		72,009	25,202	97,211	\$ 7,678,251,936	46.7	\$ 6,582	14.6

Exhibit C-2 Retired LACERA Membership – Retired Members as of June 30, 2017

	Sex	Number	Annual Allowance	Average Age	Average Monthly Benefit
General Members					
Plan A	M	8,584	\$ 545,529,648	78.5	\$ 5,296
	F	14,514	649,063,992	78.6	3,727
Plan B	M	234	14,021,964	73.1	4,994
	F	519	24,411,588	73.0	3,920
Plan C	M	146	7,446,240	71.6	4,250
	F	336	13,142,172	73.3	3,259
Plan D	M	4,998	199,447,596	68.3	3,325
	F	9,084	306,859,404	68.0	2,815
Plan E	M	4,185	119,151,060	71.6	2,373
	F	8,475	199,321,872	71.2	1,960
Plan G	M	5	160,980	74.4	2,683
	F	3	51,480	64.7	1,430
Total		51,083	\$ 2,078,607,996	73.8	\$ 3,391
Safety Members					
Plan A	M	5,140	\$ 487,946,688	74.7	\$ 7,911
	F	2,057	132,420,444	76.8	5,365
Plan B	M	4,064	349,835,880	59.2	7,173
	F	978	59,367,960	55.2	5,059
Plan C	M	2	463,944	68.0	19,331
	F	-	-	N/A	N/A
Total		12,241	\$ 1,030,034,916	68.4	\$ 7,012
Grand Total		63,324	\$ 3,108,642,912	72.7	\$ 4,091

Exhibit C-2 Former LACERA Membership – Vested Former Members as of June 30, 2017⁽¹⁾
 Subtotaled by Plan and Retirement Type

	Sex	Number	Average Age
General Members			
Plan A	M	26	70.1
	F	61	71.4
Plan B	M	6	69.0
	F	14	65.7
Plan C	M	5	64.0
	F	15	62.6
Plan D	M	2,566	47.7
	F	5,332	46.6
Plan E	M	1,092	55.9
	F	2,499	55.7
Plan G	M	503	36.5
	F	1,187	36.1
Total		13,306	48.2
Safety Members			
Plan A	M	6	67.3
	F	-	-
Plan B	M	651	42.0
	F	190	42.0
Plan C	M	81	31.0
	F	9	34.0
Total		937	41.1
Grand Total		14,243	47.7

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

**Exhibit C-2a LACERA Membership – Retired Members as of June 30, 2017
 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	16,743	\$ 979,904	\$ 4,877
	Disabled	1,693	64,501	3,175
	Beneficiaries	<u>4,662</u>	<u>150,189</u>	<u>2,685</u>
	Total	23,098	\$ 1,194,594	\$ 4,310
Plan B				
	Healthy	631	\$ 34,625	\$ 4,573
	Disabled	57	1,797	2,627
	Beneficiaries	<u>65</u>	<u>2,011</u>	<u>2,578</u>
	Total	753	\$ 38,433	\$ 4,253
Plan C				
	Healthy	372	\$ 17,777	\$ 3,982
	Disabled	50	1,448	2,413
	Beneficiaries	<u>60</u>	<u>1,363</u>	<u>1,893</u>
	Total	482	\$ 20,588	\$ 3,560
Plan D				
	Healthy	11,014	\$ 422,958	\$ 3,200
	Disabled	1,855	59,385	2,668
	Beneficiaries	<u>1,213</u>	<u>23,963</u>	<u>1,646</u>
	Total	14,082	\$ 506,306	\$ 2,996
Plan E				
	Healthy	11,663	\$ 305,668	\$ 2,184
	Disabled	0	0	N/A
	Beneficiaries	<u>997</u>	<u>12,805</u>	<u>1,070</u>
	Total	12,660	\$ 318,473	\$ 2,096
Plan G				
	Healthy	7	\$ 166	\$ 1,976
	Disabled	1	47	3,917
	Beneficiaries	<u>0</u>	<u>0</u>	<u>N/A</u>
	Total	8	\$ 213	\$ 2,213
Safety Plans:				
Plan A				
	Healthy	2,406	\$ 238,277	\$ 8,253
	Disabled	3,215	285,529	7,401
	Beneficiaries	<u>1,576</u>	<u>96,562</u>	<u>5,106</u>
	Total	7,197	\$ 620,368	\$ 7,183
Plan B				
	Healthy	2,171	\$ 202,964	\$ 7,791
	Disabled	2,618	193,211	6,150
	Beneficiaries	<u>253</u>	<u>13,029</u>	<u>4,292</u>
	Total	5,042	\$ 409,204	\$ 6,763
Plan C				
	Healthy	2	\$ 464	\$ 19,331
	Disabled	0	0	N/A
	Beneficiaries	<u>0</u>	<u>0</u>	<u>N/A</u>
	Total	2	\$ 464	\$ 19,331
Grand Totals		63,324	3,108,643	4,091

**Exhibit C-2b LACERA Membership – Retired Members as of June 30, 2017
 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	16,743	\$ 979,904	\$ 4,877
	General B	631	34,625	4,573
	General C	372	17,777	3,982
	General D	11,014	422,958	3,200
	General E	11,663	305,668	2,184
	General G	7	166	1,976
	Safety A	2,406	238,277	8,253
	Safety B	2,171	202,964	7,791
	Safety C	2	464	19,333
	Total	45,009	\$ 2,202,803	\$ 4,078
Disabled Retirees				
	General A	1,693	\$ 64,501	\$ 3,175
	General B	57	1,797	2,627
	General C	50	1,448	2,413
	General D	1,855	59,385	2,668
	General G	1	47	3,917
	Safety A	3,215	285,529	7,401
	Safety B	2,618	193,211	6,150
	Total	9,489	\$ 605,918	\$ 5,321
Beneficiaries				
	General A	4,662	\$ 150,189	\$ 2,685
	General B	65	2,011	2,578
	General C	60	1,363	1,893
	General D	1,213	23,963	1,646
	General E	997	12,805	1,070
	Safety A	1,576	96,562	5,106
	Safety B	253	13,029	4,292
	Total	8,826	\$ 299,922	\$ 2,832
Grand Totals		63,324	\$ 3,108,643	\$ 4,091

Exhibit C-3 Age Distribution of Active Members as of June 30, 2017

	Age Groups						Total
	0-29	30-39	40-49	50-59	60-69	70+	
General Plans:							
Plan A							
Male	-	-	-	-	31	29	60
Female	-	-	-	-	81	34	115
Plan B							
Male	-	-	-	1	10	3	14
Female	-	-	-	7	37	4	48
Plan C							
Male	-	-	-	2	14	1	17
Female	-	-	-	16	31	6	53
Plan D							
Male	137	2,619	4,733	4,805	2,251	263	14,808
Female	204	5,789	9,908	9,738	4,373	407	30,419
Plan E							
Male	29	660	1,449	2,139	1,777	280	6,334
Female	44	1,211	3,021	5,091	3,525	389	13,281
Plan G							
Male	1,655	2,686	1,219	679	213	12	6,464
Female	3,600	5,497	2,310	1,174	306	13	12,900
Safety Plans:							
Plan A							
Male	-	-	-	-	7	-	7
Female	-	-	-	-	-	-	-
Plan B							
Male	206	2,359	3,595	2,914	161	5	9,240
Female	50	554	609	319	13	-	1,545
Plan C							
Male	879	648	84	32	2	-	1,645
Female	137	110	11	3	-	-	261
Grand Totals:	6,941	22,133	26,939	26,920	12,832	1,446	97,211

**Exhibit C-4 Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2017
 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	510	232	64	34	13	5	-	-	-	-	-	-	858
25-29	1,876	1,531	1,101	695	395	466	19	-	-	-	-	-	6,083
30-34	1,369	1,427	1,246	1,087	842	2,879	1,239	42	-	-	-	-	10,131
35-39	936	813	790	671	557	3,173	3,774	1,229	58	1	-	-	12,002
40-44	570	518	460	431	321	2,214	3,324	3,961	828	68	1	-	12,696
45-49	370	384	354	346	235	1,612	2,531	4,026	2,424	1,811	146	4	14,243
50-54	286	259	231	261	179	1,114	1,888	2,838	2,066	3,798	1,453	142	14,515
55-59	161	183	182	180	160	920	1,516	2,271	1,318	2,518	1,958	1,038	12,405
60-64	70	77	88	108	82	640	1,052	1,626	1,049	1,480	1,218	1,563	9,053
65 & Over	42	21	37	35	35	375	699	1,130	721	877	467	786	5,225
Total Count	6,190	5,445	4,553	3,848	2,819	13,398	16,042	17,123	8,464	10,553	5,243	3,533	97,211

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	47,546	51,088	50,528	52,632	66,594	58,577	-	-	-	-	-	-	49,281
25-29	50,595	51,858	55,606	59,035	65,339	65,348	50,537	-	-	-	-	-	54,871
30-34	55,496	56,505	60,082	62,975	69,085	74,432	73,770	88,185	-	-	-	-	65,886
35-39	57,139	61,192	66,024	69,483	75,368	79,372	78,631	80,835	84,988	150,336	-	-	74,739
40-44	57,240	63,824	62,515	67,091	73,429	80,716	80,604	84,749	96,332	99,086	126,828	-	80,016
45-49	60,934	60,771	63,157	62,530	76,460	78,390	80,309	86,030	97,851	98,719	105,500	126,723	85,355
50-54	57,540	61,303	60,490	65,139	74,816	73,521	74,728	80,961	93,761	100,584	102,318	107,196	87,432
55-59	53,610	59,772	62,089	62,235	75,806	74,347	71,631	76,118	90,863	95,193	105,814	92,897	86,023
60-64	70,457	72,299	66,988	63,410	75,446	73,939	72,417	75,751	83,619	88,226	98,904	87,844	83,084
65 & Over	107,525	109,223	90,262	53,675	87,495	75,929	73,466	72,164	79,154	80,694	94,163	88,374	79,950
Avg. Annual Compensation	54,657	57,429	60,861	63,768	72,058	76,731	77,142	81,320	92,171	95,587	102,197	90,268	78,985



**Exhibit C-4a Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2017
 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	-	-	-	-	-	-	1	2	9	3	4	34	53
65 & Over	-	-	-	-	-	1	5	9	12	12	3	80	122
Total Count	-	-	-	-	-	1	6	11	21	15	7	114	175

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	-	-	-	-	-	-	41,628	112,578	81,287	67,260	95,094	79,204	80,631
65 & Over	-	-	-	-	-	116,556	89,774	117,220	78,437	100,251	129,060	103,054	101,608
Avg. Annual Compensation	-	-	-	-	-	116,556	81,750	116,376	79,658	93,653	109,651	95,941	95,255



**Exhibit C-4b Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2017
 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	-	-	-	-	-	-	-	-	-	-	1	7	8
60-64	-	-	-	-	-	-	-	-	1	1	2	29	33
65 & Over	-	-	-	-	-	-	-	2	2	2	1	14	21
Total Count	-	-	-	-	-	-	-	2	3	3	4	50	62

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	-	-	-	-	-	-	-	-	-	-	71,124	88,589	86,406
60-64	-	-	-	-	-	-	-	-	54,372	120,144	97,890	90,516	90,766
65 & Over	-	-	-	-	-	-	-	125,526	97,188	111,078	136,740	94,821	101,515
Avg. Annual Compensation	-	-	-	-	-	-	-	125,526	82,916	114,100	100,911	91,452	93,844



**Exhibit C-4c Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2017
 General Plan C**

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	-	1	16	18
60-64	-	-	-	-	-	-	-	-	-	-	3	23	26
65 & Over	-	-	-	-	-	-	-	-	-	-	1	25	26
Total Count	-	-	-	-	-	-	-	-	1	-	5	64	70

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	-	-	-	-	-	-	-	-	59,628	-	175,068	75,026	79,729
60-64	-	-	-	-	-	-	-	-	-	-	76,332	90,391	88,769
65 & Over	-	-	-	-	-	-	-	-	-	-	188,832	87,426	91,326
Avg. Annual Compensation	-	-	-	-	-	-	-	-	59,628	-	118,579	85,391	87,394



**Exhibit C-4d Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2017
 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	-	-	-	-	1	3	-	-	-	-	-	-	4
25-29	2	2	2	4	77	241	9	-	-	-	-	-	337
30-34	7	10	20	20	239	1,777	652	32	-	-	-	-	2,757
35-39	6	15	20	20	195	2,187	2,469	695	44	-	-	-	5,651
40-44	5	13	12	26	116	1,561	2,247	2,400	489	45	1	-	6,915
45-49	8	13	12	13	99	1,138	1,754	2,473	1,301	810	102	3	7,726
50-54	5	7	9	11	61	838	1,328	1,832	1,233	1,661	654	105	7,744
55-59	2	4	4	13	48	647	1,053	1,487	861	1,300	881	499	6,799
60-64	2	2	5	5	28	432	742	1,007	666	787	546	489	4,711
65 & Over	-	3	1	1	7	239	457	686	430	450	171	138	2,583
Total Count	37	69	85	113	871	9,063	10,711	10,612	5,024	5,053	2,355	1,234	45,227

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	-	-	-	-	60,048	45,708	-	-	-	-	-	-	49,293
25-29	52,548	57,426	60,864	58,728	61,302	54,228	47,581	-	-	-	-	-	55,768
30-34	57,957	61,157	68,186	73,917	70,728	69,236	63,325	87,400	-	-	-	-	68,147
35-39	63,036	86,709	92,961	72,256	78,801	76,276	75,007	76,294	80,153	-	-	-	75,900
40-44	79,399	97,141	70,676	82,647	85,891	79,396	79,615	81,129	89,213	94,651	126,828	-	81,008
45-49	98,438	114,791	60,605	78,804	75,932	76,817	79,893	85,027	94,083	87,037	103,560	123,016	84,546
50-54	96,293	111,910	70,844	72,209	79,713	73,821	75,351	81,892	90,984	90,283	98,480	103,135	84,826
55-59	69,324	82,032	59,607	95,429	89,096	75,637	74,308	78,787	93,654	92,915	103,866	97,952	87,126
60-64	116,112	64,470	158,143	117,547	92,348	72,862	75,063	79,900	86,897	91,460	104,370	100,081	86,550
65 & Over	-	49,208	41,940	33,528	117,561	71,152	76,958	74,561	81,412	83,067	104,102	100,821	80,709
Avg. Annual Compensation	79,077	89,424	77,985	79,538	77,014	74,334	76,101	81,002	90,616	90,019	102,501	99,618	82,133



**Exhibit C-4e Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2017
 General Plan E**

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	-	-	-	-	8	56	9	-	-	-	-	-	73
30-34	-	-	-	-	30	390	189	2	-	-	-	-	611
35-39	-	-	-	-	30	431	569	225	5	-	-	-	1,260
40-44	-	-	-	-	27	358	623	741	77	6	-	-	1,832
45-49	-	-	-	1	15	316	508	887	484	410	17	-	2,638
50-54	-	-	-	-	22	231	435	743	504	998	440	15	3,388
55-59	-	-	-	-	19	246	434	702	372	887	761	421	3,842
60-64	-	-	-	1	3	189	296	599	346	653	633	958	3,678
65 & Over	-	-	-	-	5	130	236	428	273	406	290	525	2,293
Total Count	-	-	-	2	159	2,347	3,299	4,327	2,061	3,360	2,141	1,919	19,615

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	-	-	-	-	53,916	48,253	49,231	-	-	-	-	-	48,994
30-34	-	-	-	-	60,718	59,852	55,884	57,342	-	-	-	-	58,659
35-39	-	-	-	-	81,043	68,165	62,835	60,732	88,946	-	-	-	64,820
40-44	-	-	-	-	65,251	70,446	67,033	67,895	69,159	65,984	-	-	68,109
45-49	-	-	-	48,912	78,682	75,306	67,806	68,904	77,543	72,751	72,064	-	71,711
50-54	-	-	-	-	67,781	66,888	62,602	67,158	81,834	80,713	74,180	82,097	73,713
55-59	-	-	-	-	77,505	66,920	62,498	66,013	77,454	85,456	89,775	75,152	77,036
60-64	-	-	-	69,552	46,348	73,300	64,558	67,446	74,567	82,229	92,703	79,571	78,297
65 & Over	-	-	-	-	104,935	83,716	66,141	66,756	74,714	76,795	87,413	82,098	76,587
Avg. Annual Compensation	-	-	-	59,232	70,778	68,637	64,274	67,118	77,416	80,789	86,975	79,312	73,634



**Exhibit C-4f Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2017
 General Plan G**

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	370	168	45	24	5	-	-	-	-	-	-	-	612
25-29	1,570	1,330	973	560	201	9	-	-	-	-	-	-	4,643
30-34	1,206	1,279	1,108	938	412	23	2	-	-	-	-	-	4,968
35-39	849	755	722	621	258	9	1	-	-	-	-	-	3,215
40-44	544	486	439	389	153	10	4	1	-	-	-	-	2,026
45-49	354	365	334	325	110	14	1	-	-	-	-	-	1,503
50-54	277	250	216	246	90	8	3	-	-	-	-	-	1,090
55-59	158	175	174	159	87	8	1	1	-	-	-	-	763
60-64	68	75	83	101	48	9	4	-	-	-	-	-	388
65 & Over	42	18	36	34	23	3	-	-	-	-	-	-	156
Total Count	5,438	4,901	4,130	3,397	1,387	93	16	2	-	-	-	-	19,364

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	40,272	41,727	38,759	41,094	47,393	-	-	-	-	-	-	-	40,650
25-29	46,833	48,037	51,908	52,581	53,768	47,611	-	-	-	-	-	-	49,237
30-34	53,694	54,202	57,462	59,580	59,990	73,199	49,320	-	-	-	-	-	56,387
35-39	55,723	59,804	64,091	68,464	67,736	202,945	32,172	-	-	-	-	-	62,390
40-44	56,420	62,241	61,891	65,116	62,580	125,707	51,648	31,860	-	-	-	-	61,457
45-49	59,790	58,459	62,651	61,360	75,604	72,674	77,004	-	-	-	-	-	61,731
50-54	56,052	58,985	58,872	64,682	71,953	102,323	191,180	-	-	-	-	-	61,256
55-59	53,128	57,591	60,468	57,083	65,524	120,354	91,548	99,096	-	-	-	-	58,879
60-64	69,114	72,508	61,497	60,248	64,989	89,332	77,994	-	-	-	-	-	65,883
65 & Over	107,525	119,225	91,605	54,268	74,554	71,932	-	-	-	-	-	-	88,048
Avg. Annual Compensation	52,499	54,963	58,578	60,943	63,546	96,928	86,967	65,478	-	-	-	-	56,935



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, 2017
 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	-	-	-	4
65 & Over	-	-	-	-	-	-	-	-	-	-	-	2	2
Total Count	-	-	-	-	-	-	-	-	1	-	-	6	7

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	-	-	-	-	-	-	-	-	144,828	-	-	126,015	129,778
65 & Over	-	-	-	-	-	-	-	-	-	-	-	144,576	144,576
Avg. Annual Compensation	-	-	-	-	-	-	-	-	144,828	-	-	132,202	134,006



**Exhibit C-4h Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2017
 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	-	-	-	-	4	2	-	-	-	-	-	-	6
25-29	2	-	2	5	84	156	1	-	-	-	-	-	250
30-34	2	4	7	6	135	681	396	8	-	-	-	-	1,239
35-39	2	8	5	2	62	542	734	309	9	1	-	-	1,674
40-44	1	3	-	3	20	284	450	819	262	17	-	-	1,859
45-49	1	-	1	2	7	143	267	666	639	591	27	1	2,345
50-54	-	1	1	1	5	36	122	263	329	1,139	359	22	2,278
55-59	-	-	2	-	1	19	28	81	84	331	314	95	955
60-64	-	-	-	-	2	10	9	18	26	36	30	26	157
65 & Over	-	-	-	-	-	2	1	5	4	7	1	2	22
Total Count	8	16	18	19	320	1,875	2,008	2,169	1,353	2,122	731	146	10,785

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	-	-	-	-	84,414	77,880	-	-	-	-	-	-	82,236
25-29	72,228	-	84,204	87,384	92,277	89,205	88,896	-	-	-	-	-	90,024
30-34	68,904	80,916	85,987	89,850	92,341	96,164	99,629	99,035	-	-	-	-	96,692
35-39	68,904	79,929	94,418	102,168	91,171	98,618	103,111	105,688	106,425	150,336	-	-	101,557
40-44	95,316	82,720	-	89,796	92,444	99,296	104,588	110,668	117,604	122,511	-	-	108,262
45-49	95,412	-	89,400	95,052	90,447	98,198	106,796	112,563	120,904	132,746	133,882	137,844	118,548
50-54	-	258,660	84,204	2,856	93,869	102,501	108,324	113,469	122,437	133,018	143,796	143,690	129,120
55-59	-	-	169,962	-	125,736	107,218	111,786	114,424	122,019	130,230	150,040	148,313	135,560
60-64	-	-	-	-	115,194	118,675	113,683	115,971	119,704	127,175	133,106	162,700	130,202
65 & Over	-	-	-	-	-	126,234	124,896	103,716	132,603	112,104	110,052	200,580	123,741
Avg. Annual Compensation	76,350	91,870	97,552	86,458	92,235	97,290	103,734	111,006	120,622	132,263	145,627	150,823	114,865



**Exhibit C-4i Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2017
 Safety Plan C**

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	140	64	19	10	3	-	-	-	-	-	-	-	236
25-29	302	199	124	126	25	4	-	-	-	-	-	-	780
30-34	154	134	111	123	26	8	-	-	-	-	-	-	556
35-39	79	35	43	28	12	4	1	-	-	-	-	-	202
40-44	20	16	9	13	5	1	-	-	-	-	-	-	64
45-49	7	6	7	5	4	1	1	-	-	-	-	-	31
50-54	4	1	5	3	1	1	-	-	-	-	-	-	15
55-59	1	4	2	8	5	-	-	-	-	-	-	-	20
60-64	-	-	-	1	1	-	-	-	-	-	-	-	2
65 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	707	459	320	317	82	19	2	-	-	-	-	-	1,906

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	66,770	75,662	78,400	80,322	77,020	-	-	-	-	-	-	-	70,822
25-29	69,993	77,335	84,074	86,606	83,951	84,213	-	-	-	-	-	-	77,308
30-34	69,319	77,406	83,137	85,776	86,993	92,949	-	-	-	-	-	-	78,834
35-39	71,613	75,906	82,657	87,762	87,830	93,843	90,528	-	-	-	-	-	78,444
40-44	72,083	81,296	82,055	89,820	84,391	90,528	-	-	-	-	-	-	80,641
45-49	70,992	84,408	87,924	85,968	80,232	90,528	91,596	-	-	-	-	-	82,315
50-54	112,161	89,400	107,004	97,460	93,300	80,976	-	-	-	-	-	-	102,648
55-59	98,316	132,954	100,182	110,690	110,707	-	-	-	-	-	-	-	113,477
60-64	-	-	-	105,984	111,888	-	-	-	-	-	-	-	108,936
65 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
Avg. Annual Compensation	69,737	77,755	83,708	87,081	87,161	90,413	91,062	-	-	-	-	-	77,876



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, 2017
 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	8	19	29	69	126	\$ 1,682
35-39	-	-	-	-	-	-	1	12	38	31	82	2,418
40-44	-	-	-	-	-	2	13	40	75	62	192	2,906
45-49	-	-	-	1	5	30	92	90	146	91	455	3,215
50-54	-	-	-	1	51	115	156	148	328	429	1,228	3,075
55-59	-	-	4	30	102	157	174	257	1,167	1,486	3,377	4,892
60-64	-	6	37	68	108	164	296	1,113	2,901	1,922	6,615	4,441
65-69	5	53	115	124	171	339	1,243	3,104	4,340	2,691	12,185	4,315
70-74	14	138	233	205	422	1,368	3,211	3,330	3,239	1,043	13,203	4,404
75-79	52	144	187	336	1,121	2,061	2,519	1,903	1,190	474	9,987	4,127
80-84	92	141	287	768	1,629	1,520	1,184	738	599	331	7,289	3,697
85-89	90	199	613	827	1,185	671	424	367	417	221	5,014	3,432
90-94	86	288	502	535	385	200	158	192	214	112	2,672	3,144
95-99	60	176	170	97	65	51	48	45	52	22	786	2,747
100 & Over	21	27	29	8	9	2	7	6	4	-	113	2,573
Total Count	420	1,172	2,177	3,000	5,253	6,681	9,534	11,364	14,739	8,984	63,324	
Avg Monthly Benefit	\$ 2,156	\$ 2,845	\$ 2,894	\$ 3,337	\$ 4,114	\$ 3,997	\$ 4,621	\$ 4,061	\$ 4,183	\$ 4,267		\$ 4,091



**Exhibit C-5a Distribution of Retired Members by Age and Retirement Year as of June 30, 2017
 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	-	-	-	-	-	-	-	5	4	5	14	\$ 1,131
35-39	-	-	-	-	-	-	1	4	2	-	7	1,937
40-44	-	-	-	-	-	-	1	5	5	-	11	2,286
45-49	-	-	-	1	-	2	2	4	5	-	14	1,880
50-54	-	-	-	-	1	1	1	6	3	3	15	2,308
55-59	-	-	1	1	2	5	7	14	10	10	50	2,745
60-64	-	3	8	9	8	21	56	132	353	140	730	4,762
65-69	2	26	37	32	39	148	440	1,056	948	127	2,855	5,161
70-74	7	68	80	71	224	681	1,473	1,300	457	143	4,504	5,136
75-79	30	74	93	198	753	1,091	1,442	487	256	128	4,552	4,694
80-84	50	93	186	581	1,142	1,006	464	237	257	145	4,161	3,966
85-89	47	137	473	612	972	348	188	189	251	138	3,355	3,483
90-94	58	221	415	478	287	128	96	132	151	79	2,045	3,065
95-99	49	163	164	88	42	39	39	39	40	16	679	2,731
100 & Over	20	27	29	8	8	1	5	5	3	-	106	2,627
Total Count	263	812	1,486	2,079	3,478	3,471	4,215	3,615	2,745	934	23,098	
Avg Monthly Benefit	\$ 1,641	\$ 2,348	\$ 2,375	\$ 2,923	\$ 4,006	\$ 4,051	\$ 5,369	\$ 5,316	\$ 5,089	\$ 4,062		\$ 4,310



**Exhibit C-5b Distribution of Retired Members by Age and Retirement Year as of June 30, 2017
 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	-	-	-	-	-	-	-	-	-	-	1	1	2,580
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	1	-	-	3	1	4	9	2,894	
60-64	-	-	-	-	1	1	4	18	48	46	118	4,897	
65-69	-	-	1	4	4	4	14	51	95	25	198	5,502	
70-74	-	-	1	4	4	16	39	44	34	3	145	4,358	
75-79	-	-	1	2	4	14	42	23	13	3	102	3,885	
80-84	-	-	1	5	9	22	18	15	7	1	78	3,425	
85-89	-	-	3	5	18	24	6	4	2	4	66	2,080	
90-94	-	-	2	7	8	6	5	3	-	1	32	1,959	
95-99	-	-	-	1	2	-	-	-	1	-	4	2,921	
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	9	28	51	87	128	161	201	88	753		
Avg Monthly Benefit	\$ -	\$ -	\$ 1,381	\$ 1,263	\$ 1,870	\$ 2,412	\$ 3,372	\$ 4,348	\$ 5,901	\$ 6,046		\$ 4,253	



**Exhibit C-5c Distribution of Retired Members by Age and Retirement Year as of June 30, 2017
 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	\$ 4,714
35-39	-	-	-	-	-	-	-	-	-	1	-	1	1,529
40-44	-	-	-	-	-	-	-	-	-	1	-	1	1,250
45-49	-	-	-	-	-	-	-	-	-	1	-	1	1,529
50-54	-	-	-	-	-	-	-	-	-	-	1	1	1,210
55-59	-	-	-	-	-	-	1	1	3	4	9	9	3,232
60-64	-	1	1	4	-	3	3	7	24	24	67	67	4,642
65-69	-	-	3	2	2	2	17	21	53	21	121	121	4,850
70-74	-	-	2	2	6	9	10	31	28	6	94	94	3,850
75-79	-	-	-	7	8	9	20	15	8	1	68	68	2,487
80-84	-	-	-	4	8	11	20	8	5	-	56	56	2,422
85-89	-	-	2	2	11	12	3	4	1	1	36	36	1,873
90-94	-	-	-	4	7	-	2	2	2	1	18	18	1,806
95-99	-	-	1	1	3	-	-	1	-	1	7	7	1,025
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	1	9	26	45	46	76	90	127	62	482		
Avg Monthly Benefit	\$ -	\$ 1,738	\$ 1,281	\$ 908	\$ 1,327	\$ 1,933	\$ 2,672	\$ 3,168	\$ 5,427	\$ 5,689			\$ 3,560



**Exhibit C-5d Distribution of Retired Members by Age and Retirement Year as of June 30, 2017
 General Plan D**

Age	Retirement Year										Total Count	Average Monthly Benefit
	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	-	3	4	9	26	42	\$ 1,125
35-39	-	-	-	-	-	-	-	5	14	10	29	1,665
40-44	-	-	-	-	-	2	3	7	32	19	63	1,941
45-49	-	-	-	-	1	4	21	24	50	27	127	2,057
50-54	-	-	-	-	9	13	39	51	186	264	562	1,941
55-59	-	-	-	4	15	39	52	133	508	472	1,223	2,385
60-64	-	-	3	6	23	52	125	432	906	938	2,485	3,184
65-69	-	1	3	16	31	73	260	559	1,482	1,156	3,581	3,556
70-74	-	-	3	10	38	159	306	738	1,162	421	2,837	3,245
75-79	-	-	4	16	51	157	352	579	424	145	1,728	2,762
80-84	-	-	2	15	42	152	278	202	124	55	870	2,297
85-89	-	-	5	7	46	120	97	69	45	21	410	2,153
90-94	-	-	2	8	27	26	11	10	10	4	98	1,594
95-99	-	1	1	4	7	3	3	2	4	1	26	1,606
100 & Over	-	-	-	-	-	-	-	1	-	-	1	2,412
Total Count	-	2	23	86	290	800	1,550	2,816	4,956	3,559	14,082	
Avg Monthly Benefit	\$ -	\$ 5,458	\$ 1,469	\$ 1,498	\$ 1,623	\$ 1,880	\$ 2,221	\$ 2,627	\$ 3,314	\$ 3,591		\$ 2,996



**Exhibit C-5e Distribution of Retired Members by Age and Retirement Year as of June 30, 2017
 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	1	4	4	9	19	\$ 617
35-39	-	-	-	-	-	-	-	2	6	4	12	1,219
40-44	-	-	-	-	-	-	-	-	8	10	18	2,122
45-49	-	-	-	-	-	-	2	3	12	7	24	954
50-54	-	-	-	-	-	-	1	7	17	5	30	960
55-59	-	-	-	-	-	-	2	4	149	234	389	966
60-64	-	-	-	-	-	-	5	181	625	511	1,322	1,420
65-69	-	-	-	-	-	5	155	690	1,502	1,280	3,632	2,565
70-74	-	-	-	-	1	102	444	971	1,464	409	3,391	2,405
75-79	-	-	-	-	30	228	476	754	411	149	2,048	2,014
80-84	-	-	-	12	89	225	365	220	138	79	1,128	1,586
85-89	-	-	1	25	80	146	85	54	51	20	462	1,272
90-94	-	-	2	18	46	28	20	13	22	8	157	1,129
95-99	-	-	-	3	9	5	3	2	3	1	26	627
100 & Over	-	-	-	-	1	1	-	-	-	-	2	667
Total Count	-	-	3	58	256	741	1,559	2,905	4,412	2,726	12,660	
Avg Monthly Benefit	\$ -	\$ -	\$ 266	\$ 307	\$ 670	\$ 836	\$ 1,311	\$ 1,680	\$ 2,522	\$ 2,816		\$ 2,096

**Exhibit C-5f Distribution of Retired Members by Age and Retirement Year as of June 30, 2017
 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	-	-	-	-	-	-	-	-	-	2	2	1,591
65-69	-	-	-	-	-	-	-	-	-	2	2	2,503
70-74	-	-	-	-	-	-	-	-	-	1	1	924
75-79	-	-	-	-	-	-	-	-	-	3	3	2,864
80-84	-	-	-	-	-	-	-	-	-	-	-	-
85-89	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	-	-	-	-	-	-	-	8	8	
Avg Monthly Benefit	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,213		\$ 2,213



**Exhibit C-5g Distribution of Retired Members by Age and Retirement Year as of June 30, 2017
 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	-	-	-	-	-	-	-	-	-	4	5	9	\$ 2,813
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	1	-	-	1	4,317
45-49	-	-	-	-	1	-	2	-	1	-	-	4	5,569
50-54	-	-	-	-	-	1	1	-	2	1	1	5	4,655
55-59	-	-	-	-	3	1	4	-	18	5	5	31	7,034
60-64	-	2	11	16	8	19	18	101	153	17	17	345	9,026
65-69	3	26	65	50	64	83	298	505	99	51	51	1,244	8,203
70-74	7	70	142	114	139	379	891	194	72	51	51	2,059	7,669
75-79	22	70	89	112	272	559	179	42	74	42	42	1,461	7,035
80-84	42	48	98	151	336	102	39	56	67	51	51	990	6,300
85-89	43	62	128	175	56	21	44	46	66	37	37	678	5,666
90-94	28	67	81	20	10	12	24	32	29	19	19	322	5,291
95-99	11	12	4	-	2	4	3	1	4	3	3	44	5,168
100 & Over	1	-	-	-	-	-	2	-	1	-	-	4	2,129
Total Count	157	357	618	638	891	1,181	1,505	977	591	282	282	7,197	
Avg Monthly Benefit	\$ 3,020	\$ 3,963	\$ 4,281	\$ 5,517	\$ 6,829	\$ 7,571	\$ 8,843	\$ 9,073	\$ 7,747	\$ 6,612	\$ 6,612		\$ 7,183

**Exhibit C-5h Distribution of Retired Members by Age and Retirement Year as of June 30, 2017
 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	-	-	-	-	-	-	4	6	8	22	40	\$ 2,558
35-39	-	-	-	-	-	-	-	1	15	17	33	3,645
40-44	-	-	-	-	-	-	9	28	28	32	97	3,755
45-49	-	-	-	-	3	24	65	59	77	57	285	3,960
50-54	-	-	-	1	41	100	114	84	120	155	615	4,224
55-59	-	-	3	25	81	112	108	102	478	757	1,666	7,694
60-64	-	-	14	33	68	68	85	242	792	244	1,546	7,830
65-69	-	-	6	20	31	24	59	222	161	28	551	7,050
70-74	-	-	5	4	10	22	48	52	21	9	171	5,000
75-79	-	-	-	1	3	3	8	3	4	3	25	3,926
80-84	-	-	-	-	3	2	-	-	1	-	6	3,066
85-89	-	-	1	1	2	-	1	1	1	-	7	982
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	29	85	242	355	501	800	1,706	1,324	5,042	
Avg Monthly Benefit	\$ -	\$ -	\$ 2,281	\$ 2,464	\$ 3,286	\$ 3,611	\$ 3,989	\$ 6,002	\$ 8,004	\$ 8,530		\$ 6,763



**Exhibit C-5i Distribution of Retired Members and Beneficiaries by Age and Retirement Year as of June 30, 2017
 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	-	-	-	-	-	-	-	-	-	-	-	\$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-	-	1	1	21,834
70-74	-	-	-	-	-	-	-	-	1	-	1	16,829
75-79	-	-	-	-	-	-	-	-	-	-	-	-
80-84	-	-	-	-	-	-	-	-	-	-	-	-
85-89	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	-	-	-	-	-	-	1	1	2	
Avg Monthly Benefit	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16,829	\$ 21,834		\$ 19,331



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%	6.83%	3.63%	7.26%	10.80%
17	2.48%	4.97%	4.21%	4.21%	6.83%	3.63%	7.26%	10.80%
18	2.54%	5.08%	4.31%	4.31%	6.83%	3.63%	7.26%	10.80%
19	2.60%	5.19%	4.41%	4.41%	6.83%	3.70%	7.41%	10.80%
20	2.66%	5.31%	4.51%	4.51%	6.83%	3.78%	7.56%	10.80%
21	2.71%	5.43%	4.61%	4.61%	6.83%	3.86%	7.71%	10.80%
22	2.78%	5.55%	4.71%	4.71%	6.83%	3.94%	7.87%	10.80%
23	2.84%	5.68%	4.82%	4.82%	6.83%	4.02%	8.03%	10.80%
24	2.90%	5.80%	4.93%	4.93%	6.83%	4.10%	8.20%	10.80%
25	2.97%	5.93%	5.04%	5.04%	6.83%	4.18%	8.36%	10.80%
26	3.03%	6.06%	5.15%	5.15%	6.83%	4.27%	8.54%	10.80%
27	3.10%	6.20%	5.27%	5.27%	6.83%	4.36%	8.71%	10.80%
28	3.17%	6.34%	5.38%	5.38%	6.83%	4.45%	8.89%	10.80%
29	3.24%	6.48%	5.51%	5.51%	6.83%	4.54%	9.08%	10.80%
30	3.31%	6.63%	5.63%	5.63%	6.83%	4.63%	9.27%	10.80%
31	3.39%	6.78%	5.75%	5.75%	6.83%	4.73%	9.46%	10.80%
32	3.46%	6.93%	5.88%	5.88%	6.83%	4.83%	9.66%	10.80%
33	3.54%	7.09%	6.01%	6.01%	6.83%	4.94%	9.87%	10.80%
34	3.62%	7.25%	6.15%	6.15%	6.83%	5.04%	10.09%	10.80%
35	3.71%	7.41%	6.29%	6.29%	6.83%	5.15%	10.31%	10.80%
36	3.79%	7.59%	6.43%	6.43%	6.83%	5.27%	10.53%	10.80%
37	3.88%	7.76%	6.57%	6.57%	6.83%	5.37%	10.75%	10.80%
38	3.97%	7.93%	6.72%	6.72%	6.83%	5.48%	10.96%	10.80%
39	4.05%	8.11%	6.88%	6.88%	6.83%	5.59%	11.18%	10.80%
40	4.14%	8.28%	7.04%	7.04%	6.83%	5.69%	11.38%	10.80%
41	4.23%	8.46%	7.20%	7.20%	6.83%	5.79%	11.59%	10.80%
42	4.32%	8.63%	7.36%	7.36%	6.83%	5.89%	11.79%	10.80%
43	4.40%	8.80%	7.53%	7.53%	6.83%	5.99%	11.98%	10.80%
44	4.48%	8.97%	7.69%	7.69%	6.83%	6.08%	12.16%	10.80%
45	4.56%	9.13%	7.86%	7.86%	6.83%	6.15%	12.31%	10.80%
46	4.64%	9.28%	8.03%	8.03%	6.83%	6.21%	12.42%	10.80%
47	4.72%	9.43%	8.19%	8.19%	6.83%	6.21%	12.42%	10.80%
48	4.79%	9.57%	8.35%	8.35%	6.83%	6.21%	12.42%	10.80%
49	4.85%	9.70%	8.51%	8.51%	6.83%	6.21%	12.42%	10.80%
50	4.90%	9.79%	8.66%	8.66%	6.83%	6.21%	12.42%	10.80%
51	4.93%	9.85%	8.81%	8.81%	6.83%	6.21%	12.42%	10.80%
52	4.93%	9.87%	8.95%	8.95%	6.83%	6.21%	12.42%	10.80%
53	4.93%	9.87%	9.08%	9.08%	6.83%	6.21%	12.42%	10.80%
54	4.93%	9.87%	9.20%	9.20%	6.83%	6.21%	12.42%	10.80%
55	4.93%	9.87%	9.29%	9.29%	6.83%	6.21%	12.42%	10.80%
56	4.93%	9.87%	9.35%	9.35%	6.83%	6.21%	12.42%	10.80%
57	4.93%	9.87%	9.36%	9.36%	6.83%	6.21%	12.42%	10.80%
58	4.93%	9.87%	9.36%	9.36%	6.83%	6.21%	12.42%	10.80%
59	4.93%	9.87%	9.36%	9.36%	6.83%	6.21%	12.42%	10.80%
60	4.93%	9.87%	9.36%	9.36%	6.83%	6.21%	12.42%	10.80%

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%	13.87%
17	4.45%	6.16%	5.28%	5.24%	8.43%	6.79%	9.56%	13.87%
18	4.56%	6.30%	5.41%	5.37%	8.43%	6.79%	9.56%	13.87%
19	4.66%	6.43%	5.53%	5.49%	8.43%	6.92%	9.75%	13.87%
20	4.77%	6.58%	5.66%	5.61%	8.43%	7.07%	9.95%	13.87%
21	4.86%	6.73%	5.78%	5.74%	8.43%	7.22%	10.15%	13.87%
22	4.99%	6.88%	5.91%	5.86%	8.43%	7.37%	10.36%	13.87%
23	5.09%	7.04%	6.05%	6.00%	8.43%	7.52%	10.57%	13.87%
24	5.20%	7.19%	6.19%	6.14%	8.43%	7.67%	10.79%	13.87%
25	5.33%	7.35%	6.32%	6.27%	8.43%	7.82%	11.00%	13.87%
26	5.43%	7.51%	6.46%	6.41%	8.43%	7.98%	11.24%	13.87%
27	5.56%	7.69%	6.61%	6.56%	8.43%	8.15%	11.46%	13.87%
28	5.69%	7.86%	6.75%	6.70%	8.43%	8.32%	11.70%	13.87%
29	5.81%	8.03%	6.91%	6.86%	8.43%	8.49%	11.95%	13.87%
30	5.94%	8.22%	7.06%	7.01%	8.43%	8.66%	12.20%	13.87%
31	6.08%	8.41%	7.21%	7.16%	8.43%	8.84%	12.45%	13.87%
32	6.21%	8.59%	7.38%	7.32%	8.43%	9.03%	12.72%	13.87%
33	6.35%	8.79%	7.54%	7.48%	8.43%	9.24%	12.99%	13.87%
34	6.49%	8.99%	7.72%	7.66%	8.43%	9.42%	13.28%	13.87%
35	6.65%	9.19%	7.89%	7.83%	8.43%	9.63%	13.57%	13.87%
36	6.80%	9.41%	8.07%	8.00%	8.43%	9.85%	13.86%	13.87%
37	6.96%	9.62%	8.24%	8.18%	8.43%	10.04%	14.15%	13.87%
38	7.12%	9.83%	8.43%	8.37%	8.43%	10.25%	14.43%	13.87%
39	7.26%	10.05%	8.63%	8.56%	8.43%	10.45%	14.72%	13.87%
40	7.43%	10.26%	8.83%	8.76%	8.43%	10.64%	14.98%	13.87%
41	7.59%	10.49%	9.03%	8.96%	8.43%	10.83%	15.26%	13.87%
42	7.75%	10.70%	9.23%	9.16%	8.43%	11.01%	15.52%	13.87%
43	7.89%	10.91%	9.45%	9.37%	8.43%	11.20%	15.77%	13.87%
44	8.04%	11.12%	9.65%	9.57%	8.43%	11.37%	16.01%	13.87%
45	8.18%	11.32%	9.86%	9.78%	8.43%	11.50%	16.20%	13.87%
46	8.32%	11.50%	10.07%	10.00%	8.43%	11.61%	16.35%	13.87%
47	8.47%	11.69%	10.28%	10.20%	8.43%	11.61%	16.35%	13.87%
48	8.59%	11.86%	10.48%	10.39%	8.43%	11.61%	16.35%	13.87%
49	8.70%	12.03%	10.68%	10.59%	8.43%	11.61%	16.35%	13.87%
50	8.79%	12.14%	10.86%	10.78%	8.43%	11.61%	16.35%	13.87%
51	8.84%	12.21%	11.05%	10.97%	8.43%	11.61%	16.35%	13.87%
52	8.84%	12.24%	11.23%	11.14%	8.43%	11.61%	16.35%	13.87%
53	8.84%	12.24%	11.39%	11.30%	8.43%	11.61%	16.35%	13.87%
54	8.84%	12.24%	11.54%	11.45%	8.43%	11.61%	16.35%	13.87%
55	8.84%	12.24%	11.66%	11.57%	8.43%	11.61%	16.35%	13.87%
56	8.84%	12.24%	11.73%	11.64%	8.43%	11.61%	16.35%	13.87%
57	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.87%
58	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.87%
59	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.87%
60	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.87%

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



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



Exhibit E-3 Contribution Rates

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



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

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	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Prior Year UAAL	3,439	2,461	2,313	4,927	7,807	9,405	11,770	13,315	11,288	9,491	12,841
Normal Cost	882	990	1,053	1,219	1,200	1,237	1,430	1,163	1,068	1,118	1,246
Contributions	(1,258)	(1,249)	(1,310)	(1,322)	(1,461)	(1,646)	(1,455)	(1,824)	(1,936)	(1,902)	(1,880)
Interest	267	191	179	382	605	724	895	999	814	682	954
Changes in Assumptions/Methodology	515	-	-	54	221	457	511	-	-	2,922	-
Changes in Benefit Provisions	-	-	-	-	-	-	-	-	-	-	-
Expected Current Year UAAL	3,845	2,393	2,235	5,260	8,372	10,177	13,151	13,653	11,234	12,311	13,161
Actual Current Year UAAL	2,461	2,313	4,927	7,807	9,405	11,770	13,315	11,288	9,491	12,841	13,145
Total (Gain)/Loss on UAAL	(1,384)	(80)	2,692	2,547	1,033	1,593	164	(2,365)	(1,743)	530	(16)
Asset (Gains)/Losses	(2,187)	(429)	2,465	2,879	1,761	2,337	893	(1,664)	(1,263)	496	(421)
Ventura Settlement/Court Cases	-	15	-	-	-	-	-	-	-	-	-
Salary Increases	673	298	380	(353)	(579)	(629)	(563)	(291)	79	162	277
All Other Actuarial (Gains)/Losses	130	36	(153)	21	(149)	(115)	(166)	(410)	(559)	(128)	128

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%

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

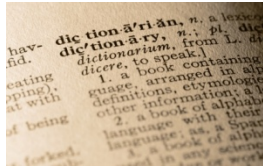
(Years with no changes excluded)

	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 earning during the fiscal years ending 1994 through 1998 and related earnings. Deductions include payments, as the County authorizes, for future employer contributions due LACERA and for funding a portion of the Retiree Healthcare Program under the provisions of Internal Revenue Code 401(h).
Employer Reserve	The accumulation of employer contributions for future retirement benefit payments. Additions include contributions from employers and related earnings. Deductions include annuity payments to retired members and survivors, lump sum death benefit payments to member survivors, and supplemental disability payments.
Entry Age Actuarial Cost Method	A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.
Funded Ratio	A measurement of the funded status of the system. 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.