



# Los Angeles County Employees Retirement Association

Actuarial Valuation of Retirement Benefits

June 30, 2023

Prepared by:

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November 21, 2023

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

**Re: Los Angeles County Employees Retirement Association as of June 30, 2023**

Dear Trustees of the Board:

As part of our engagement with the Los Angeles County Employees Retirement Association (LACERA), we have performed an actuarial valuation of LACERA retirement benefits as of June 30, 2023. This report reflects the benefit provisions and contribution rates in effect as of June 30, 2023, and LACERA's Retirement Benefit Funding Policy (Funding Policy) that was adopted in December of 2009 and amended as of February 2013, and reflects changes adopted at the Board of Investments December 2022 meeting.

The main purposes of this report are:

- to provide the actuarially determined employer and member contribution rates for the fiscal year beginning July 1, 2024;
- to assess the funded position of the Plan as of June 30, 2023; and
- to review the experience under the Plan for the valuation year ending June 30, 2023.

The calculations in this report have been made on a basis consistent with our understanding of LACERA's funding requirements as stated under their Funding Policy. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. Milliman will provide LACERA financial reporting results relevant to GASB Statements No. 67 and 68 in separate reports.

### **Actuarial assumptions**

Actuarial assumptions, including discount rates, mortality tables, and others identified in this report, and actuarial cost methods were adopted by the LACERA Board of Investments (BOI) at its December 2022 meeting. The BOI is responsible for selecting LACERA's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods, and assumptions used in this valuation are those that have been so adopted and are described in this report. LACERA is solely responsible for communicating to Milliman any changes required thereto. All costs, liabilities, rates of interest, and other factors for LACERA have been determined on the basis of actuarial assumptions and methods which, in our professional opinion, 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 and are expected to have no significant bias.

### **Variability of results**

This valuation report is only an estimate of LACERA's financial condition as of a single date. It can neither predict LACERA's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of benefits, only the timing of contributions. While the valuation is based on an array of individually

reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement, although for informational purposes we have shown valuation results at +/- 0.5% on the investment return assumption at the end of the Executive Summary.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected 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.

### **Reliance**

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.

### **No legal duty to third-party recipients**

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.

### **Models**

The valuation results were developed using models employing standard actuarial techniques. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice. Reliance on other experts is reflected in Milliman's capital market assumptions, and in Milliman's expected return model maintained by Milliman investment consultants.

**Qualifications and Certification**

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal, investment, 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 which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States*, published by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

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

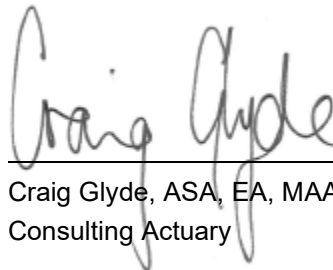
We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,

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".

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Craig Glyde, ASA, EA, MAAA  
Consulting Actuary

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## 1. Summary of Findings

### 2023 Valuation Results

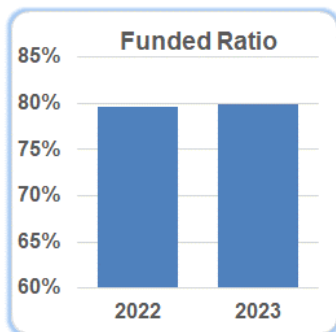
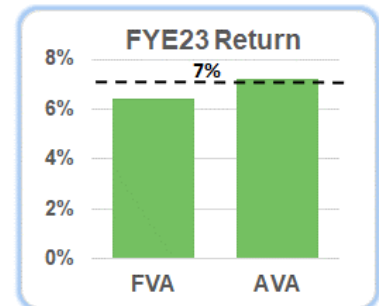
	Valuation Date	
	June 30, 2023	June 30, 2022
Employer Contribution Rate	25.88% <sup>(1)</sup>	25.84% <sup>(2)</sup>
Funded Ratio	79.9%	79.6%

1. The June 30, 2023 valuation calculates the employer contribution rate effective July 1, 2024.
2. The June 30, 2022 valuation calculates the employer contribution rate effective July 1, 2023.

This report presents the results of the June 30, 2023 actuarial valuation. This valuation determines the member and employer contribution rates payable starting July 1, 2024. Several key points are summarized below:

### Investment Returns

For the fiscal year ending in 2023, the fund returned 6.4% on a fair-value (FVA) basis (net of investment expenses). In total, there was a small loss on the fair-value of assets basis relative to the assumed rate of return of 7.0%. The return on the actuarial value of assets (AVA) was 7.2% (equivalent to a gain of \$0.1 billion relative to the assumed rate) as a result of recognizing deferred investment gains from prior years. Effective June 30, 2023 there are deferred investment gains of \$0.1 billion to be recognized evenly over the next two fiscal years.



### Funded Ratio

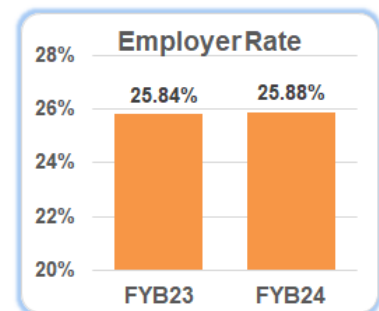
The Funded Ratio increased from 79.6% to 79.9% on an actuarial value of assets basis. Contributions to amortize the Unfunded Actuarial Accrued Liability (UAAL) increased the Funded Ratio, and greater than assumed salary increases partially offset the positive factors. On a fair-value basis, the Funded Ratio increased from 79.9% to 80.0%.

The [Analysis of Change – Funded Ratio](#) section that follows later in Section 1 provides an analysis of the sources of change in the Funded Ratio since last year.

### Employer Contribution Rate

The total calculated employer contribution rate increased from the prior valuation by 0.04% of payroll, from 25.84% to 25.88%. The most significant factor causing this increase was the greater than expected salary increases, however this was mostly offset by the rate-reducing impact of higher payroll growth than expected, which caused a reduction in the percentage of payroll needed to amortize the unfunded liability.

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

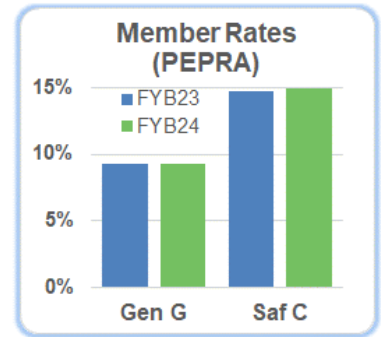


### Member Contribution Rates

New member contribution rates are recommended for General Plan G and Safety Plan C effective July 1, 2024. General Plan G and Safety Plan C member rates are required to be equal to 50% of the Gross Normal Cost rate of the respective plan. The recommended member contribution rates are higher for General Plan G (9.24% increased to 9.28%) and Safety Plan C (14.76% increased to 14.97%) relative to the fiscal year beginning July 1, 2023. The high level of inflation resulted in the PEPRA compensation limit increasing more than expected which caused an increase in the projected level of benefits to be paid and the corresponding Normal Cost rate. As the contribution rate for PEPRA members is based on the Normal Cost rate, this caused member contribution rates for the two PEPRA plans to increase more than expected.

Member contribution rates for the contributory legacy plans (General Plans A to D and Safety Plans A and B) vary based on a member’s entry age to LACERA and the underlying actuarial assumptions. Since no new assumptions were adopted effective with this valuation, there are no recommended changes to member contribution rates for the legacy plans.

Member contribution rates are discussed in Section 5 of this report.



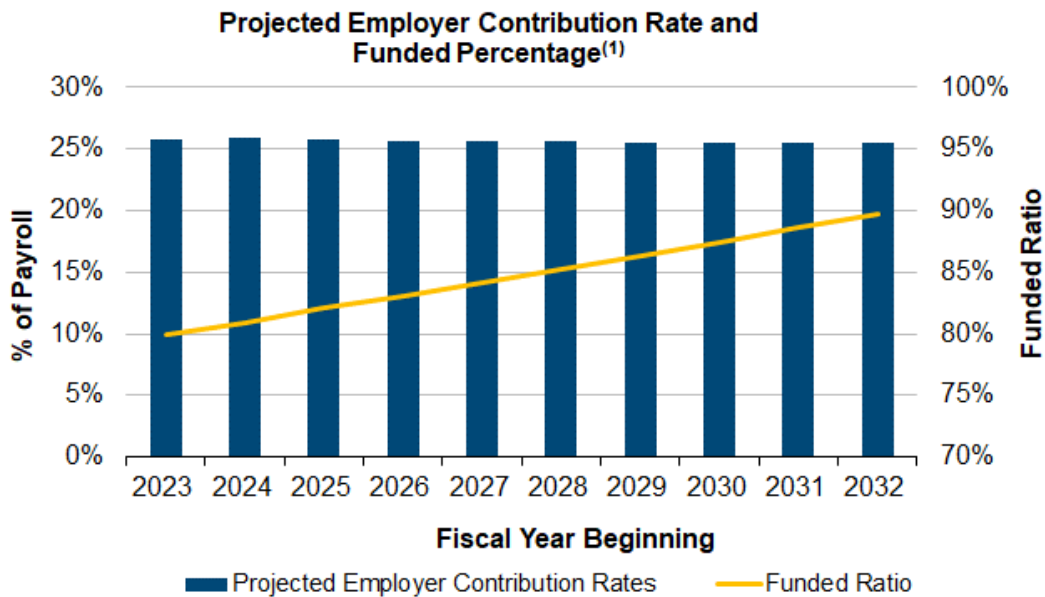


**Projected Future Employer Contribution Rates**

The employer contribution rate beginning July 1, 2024 is 25.88% of payroll, which is a weighted average for all LACERA plans. The actual percent of payroll to be contributed by the employers varies by plan as shown in Exhibit 11.

The calculated employer contribution rate is effective for the fiscal year beginning July 1, 2024. Employer contribution rates in future years will be largely dependent on actual experience relative to that projected by the actuarial assumptions, particularly the investment return assumption. Additionally, if the assumptions change, this could also have a material impact on future results. Even if all actuarial assumptions are met over the next few years and there are no changes in the underlying assumptions, we project changes in future employer contribution rates as deferred investment gains and losses are recognized and member demographics change as a higher percentage of active members participate in the PEPRA plans.

We have performed a 10-year projection of the employer contribution rate and Funded Ratio assuming that all actuarial assumptions are met (including 10 years of investment returns based on fair value of 7.0% per year). This projection is shown in the chart below. It should be noted that actual experience will not exactly match the actuarial assumptions over the period, and a different pattern of future employer contribution rates will likely emerge.

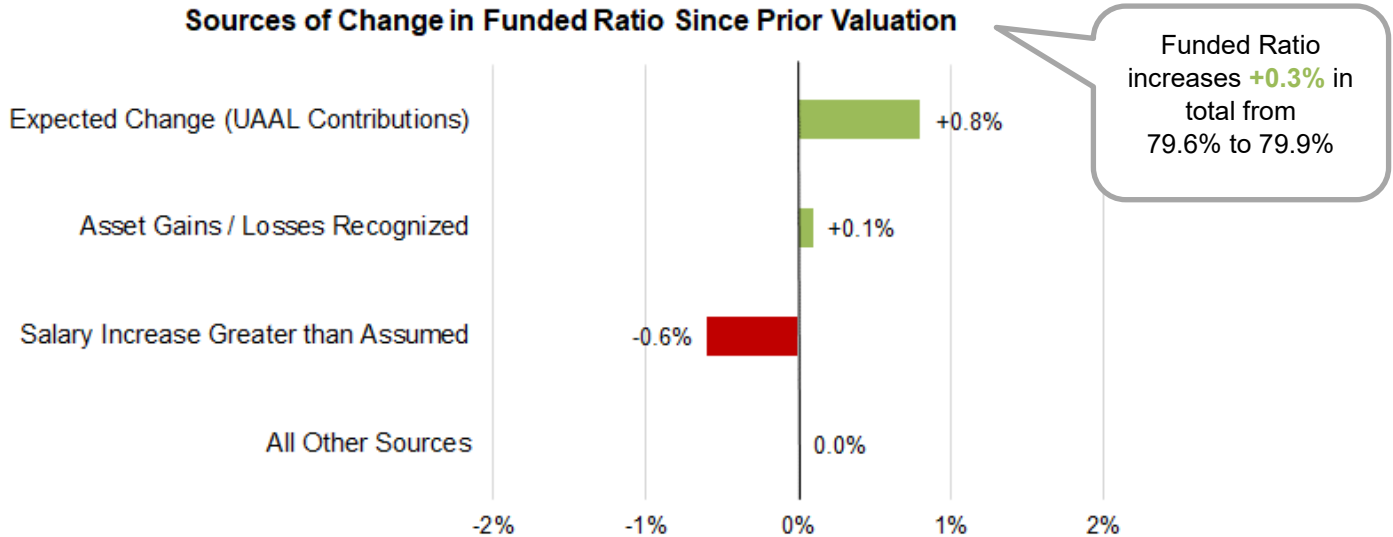


1. Projections assume that actuarial assumptions are met after June 30, 2023, and reflect the scheduled recognition of asset gains and losses currently being deferred.

As shown in the chart above, if all assumptions are met in future years, the employer contribution rate will decrease slightly from the 25.88% rate calculated in this valuation over the next few years. Under this projection scenario, and assuming future experience is exactly as assumed, the Funded Ratio is projected to be approximately 90% as of June 30, 2032 and approximately 100% as of June 30, 2040. However, future results will vary as actual experience will not exactly meet the assumptions.

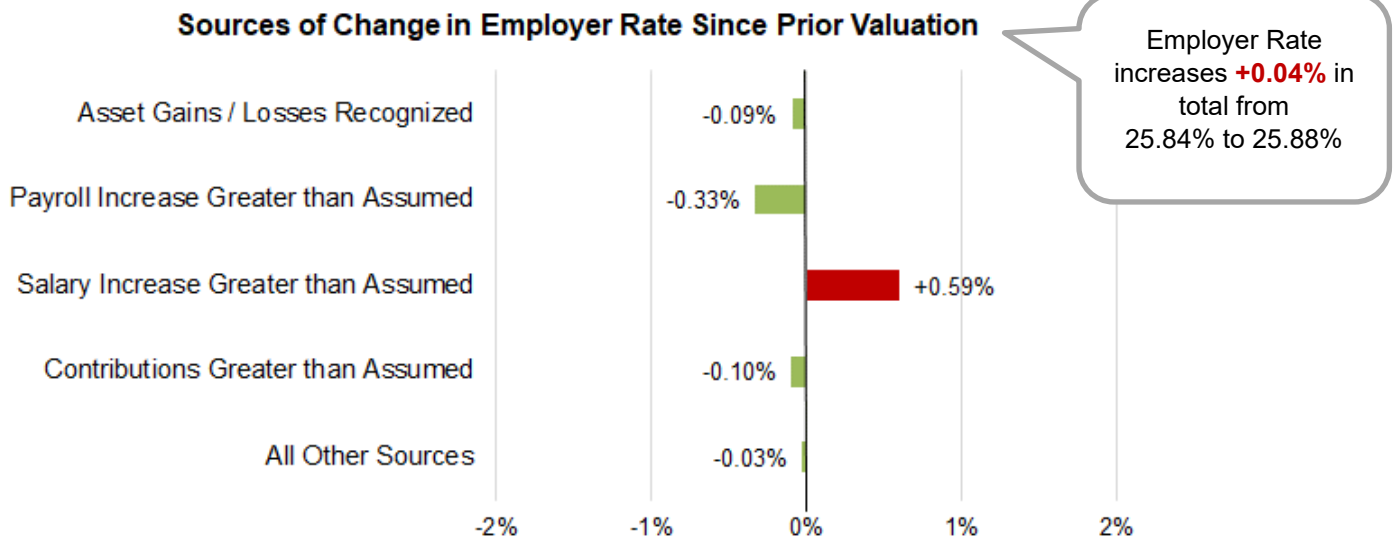
**Analysis of Change – Funded Ratio**

The following table shows an analysis of the primary causes of the change in the Funded Ratio since the last valuation. Employer contributions to amortize the unfunded liability and salary increases greater than assumed were the most significant factor impacting the Funded Ratio, although these were largely offsetting factors.



**Analysis of Change – Employer Contribution Rate**

The following table shows an analysis of the primary causes of the change in the employer contribution rate since the last valuation. Salary and payroll increases greater than assumed were the most significant factors causing the change in the employer contribution rate, although their impacts were mostly offsetting.

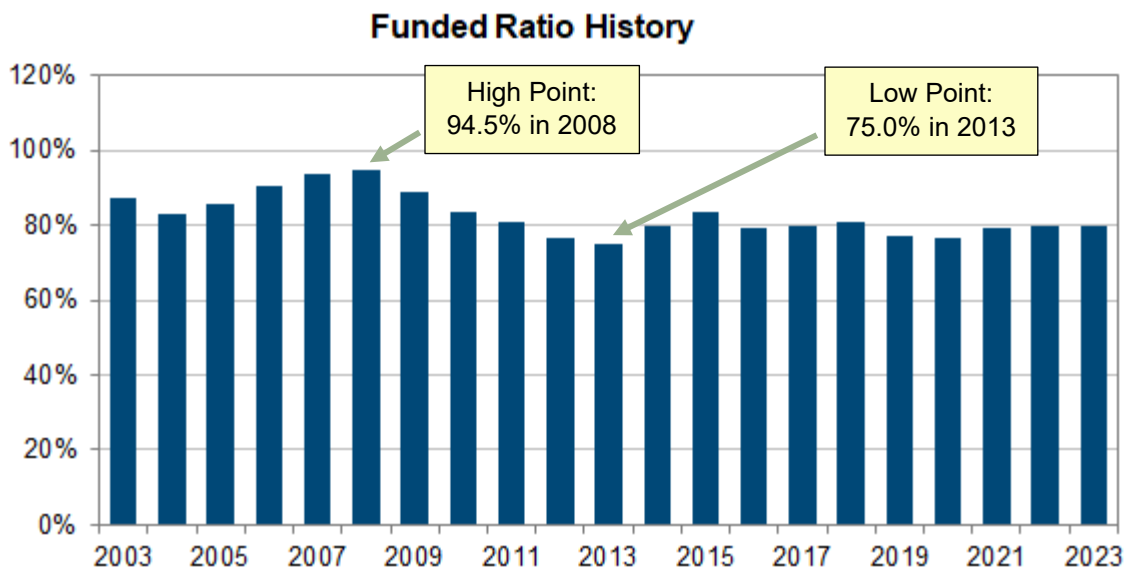


**Funding Progress**

One measure of the funding adequacy of the system is the Funded Ratio, which compares the Valuation Assets (the actuarial value of assets net of certain non-valuation reserves) to the Actuarial Accrued Liability (AAL). The Funded Ratio shown in this valuation is appropriate for assessing the future contributions needed. Other calculations may be necessary for other purposes, such as assessing the sufficiency of current system assets to satisfy the estimated cost of settling the system’s accrued benefit obligations.

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

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



**Assets**

On June 30, 2023, the fair value of the fund (including non-valuation reserves) was \$73.9 billion. The actuarial value of assets was \$73.8 billion, split between \$1.4 billion of Non-Valuation Assets and \$72.4 billion of Valuation Assets. The actuarial value of assets is approximately 100% of the fair value of assets.

On a fair-value basis, for the fiscal year ended June 30, 2023, LACERA earned 6.4% net of investment expenses, as reported by LACERA in the June 30, 2023 Annual Comprehensive Financial Report (ACFR). The fair value of assets is used in calculating the actuarial value of assets. Under the actuarial asset method, investment gains and losses are generally recognized (or smoothed in) over a five-year period. Due to the recognition of current and deferred asset gains and losses (in total a net asset gain), the return on the actuarial valuation of assets for the most recent fiscal year is 7.2% net of investment and administrative expenses, which is higher than the assumed return for the prior year of 7.0%.

Valuation Assets are used in the calculation of the UAAL contribution rate and Funded Ratio. Valuation Assets are equal to the actuarial value of assets less certain non-valuation reserves. The Valuation Assets of \$72.4 billion are equal to 79.9% of the \$90.7 billion AAL.

The non-valuation reserves are set aside for obligations or contingencies and are excluded from the assets used in the funding valuation. They are not used to fund the retirement benefits unless explicitly stated. As of June 30, 2023, the non-valuation reserves include:

- the Contingency Reserve, which is equal to 1% of the fair value of assets, or \$739 million, and
- the STAR Reserve of \$611.5 million.

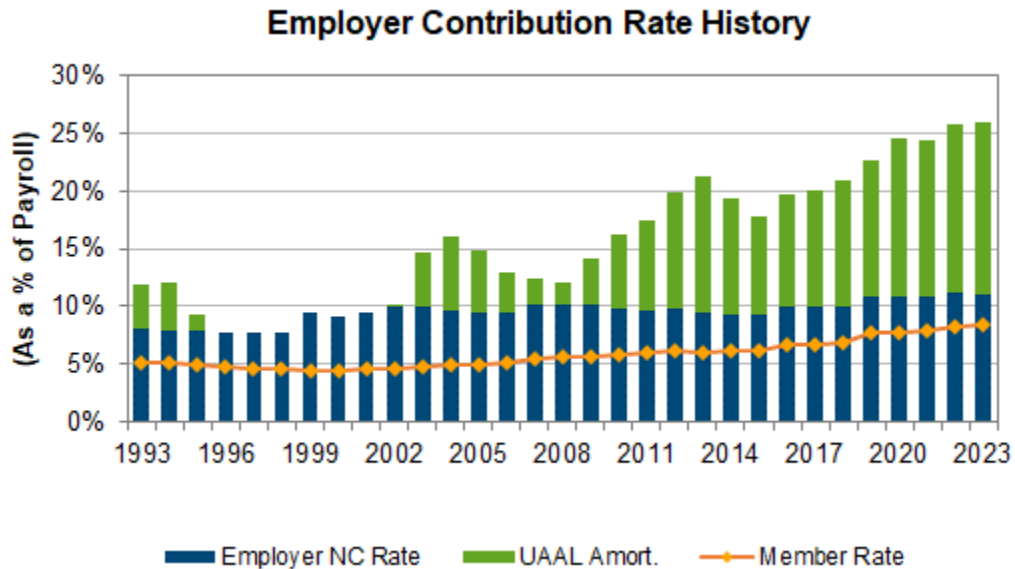
Note that this Contingency Reserve is different than the Contingency Reserve amount determined by LACERA for accounting purposes and included in the ACFR.

**Future Impact of Recognition of Deferred Gains/Losses**

The smoothing method is currently deferring \$87 million in investment gains. As the currently deferred gains are recognized over upcoming valuations, it is projected there will be small decreases in the calculated employer contribution rate. The potential future impact of the recognition of these deferred gains on the projected employer contribution rate is included in the graph on page 3.

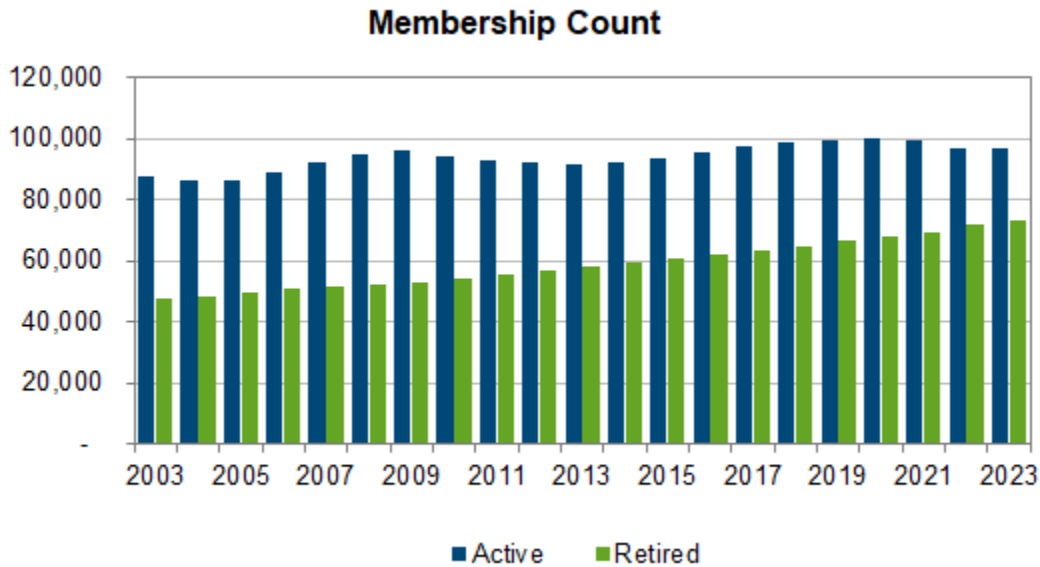
**Employer Contribution Rate History**

Based on the results of the valuation, the calculated employer contribution rate will increase for the fiscal year beginning in 2024 to a rate of 25.88% of pay, compared to 25.84% for the fiscal year beginning in 2023. A historical perspective of the employer contribution rates is shown in the following chart.

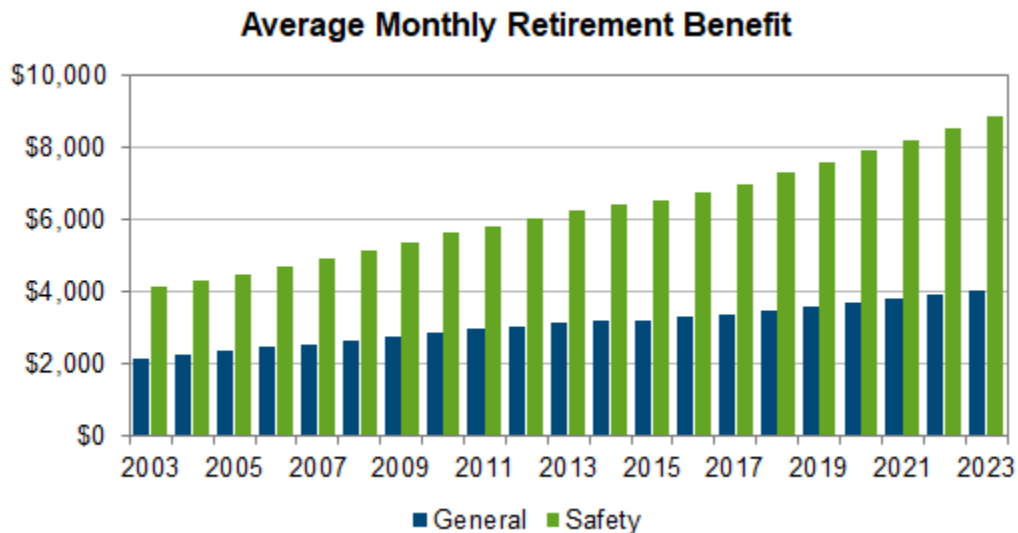


**Member Information**

Active payroll and active membership have both increased since 2023. As of June 30, 2023, the annualized payroll is \$9.5 billion for 96,905 active members. This reflects a 5.5% increase in total payroll and a 0.4% increase in the number of active members. Average member pay increased by 5.1% over the period.



Retired member counts and average retirement benefit amounts continue to increase steadily. For 2023, there were 73,008 retired members and beneficiaries with an average benefit of \$4,986 per month. This represents a 2.0% increase in count and a 3.2% increase in the average monthly benefit.



The charts show that over the last 20 years the number of retired members has grown faster than the number of active members, and the average monthly benefit of retired members and beneficiaries has roughly doubled. This is typical of a maturing retirement system. The increasing number of retirees and average monthly benefit is a key driver of the negative cashflows (contributions paid in less than benefits paid out) experienced over the last

several years, and that are projected to continue growing. Cashflow history and projections are shown and described in more detail in Section 8.

**Analysis of Change in Member Population**

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

	Active Members	Inactive Members	Service Retired Members	Disabled Retired Members	Beneficiaries in Pay	Total
<b>As of June 30, 2022</b>	<b>96,539</b>	<b>19,047</b>	<b>51,471</b>	<b>10,449</b>	<b>9,651</b>	<b>187,157</b>
New Members	5,799	325	6		767	6,897
Status Change:						
to Active	253	(252)	(1)			-
to Inactive	(2,258)	2,258				-
to Service Retirement	(2,577)	(420)	2,997			-
to Disabled Retirement	(287)	(14)	(298)	599		-
Refunds	(364)	(482)				(846)
Terminated non-vested	(7)					(7)
Benefits Expired			(17)		(12)	(29)
Deaths	(193)	(48)	(1,749)	(311)	(544)	(2,845)
<b>As of June 30, 2023</b>	<b>96,905</b>	<b>20,414</b>	<b>52,409</b>	<b>10,737</b>	<b>9,862</b>	<b>190,327</b>

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

**Sensitivity to Investment Return Assumption**

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

	Investment Return Assumption		
	Current 7.00%	+0.5% 7.50%	-0.5% 6.50%
<b>Employer Contribution Rate</b>	25.88%	20.96%	31.03%
Change		-4.92%	5.15%
<b>Funded Ratio</b>	79.9%	84.8%	75.1%
Change		4.9%	-4.8%

## Risk Discussion

Additional risks to the Plan are described in more detail in Section 9: Risk Disclosure. Some key points that can be seen in this report are:

- **Maturity:** As previously discussed, LACERA continues to mature as a system. One example of the impact of this maturity is that the employer contribution rate is becoming more sensitive to investment gains or losses and other experience. This sensitivity is measured by the asset and liability volatility ratios discussed in Section 9.
- **Risk Factors:** We believe investment returns are the greatest potential risk to future valuation results of LACERA. One way to measure the potential impact is using the Asset Volatility Ratio (AVR), which is a measure of the level of assets to payroll. LACERA's AVR of 7.6 implies that a 10% investment gain or loss relative to the assumed 7% investment return (that is, an investment return of -3% or +17%) will result in a 5.4% of pay increase (or decrease) in the employer contribution rate (after investment gains or losses are smoothed in).

Payroll growth lower than assumed by the assumptions is another potential risk as it will result in increases in the employer contribution rate. Although the employer contribution rate may increase, total employer contributions may not be as significantly impacted as the higher rates would be applied to a smaller payroll base.

- **Variation:** Although we believe the actuarial assumptions provide a reasonable estimate of future experience, it is almost certain that future results will vary from those projected by the actuarial assumptions, either better or worse. One way to assess the potential future variation is to look at the past. The Funding Progress and Employer Contribution Rate History subsections above provide a historical perspective of LACERA's Funded Ratios and the employer contribution rate. These both show noticeable year-to-year variation, both up and down, over the last 20 years.

## Summary Valuation Results

Exhibit 1 on the following page presents a summary of key valuation elements as of June 30, 2023 and June 30, 2022 and shows the relative change over the past year. More detail on each of these elements can be found in the following sections and exhibits of this report.

**Exhibit 1**  
**Summary of Significant Valuation Results**

	June 30, 2023	June 30, 2022	Percentage Change
<b>Total Membership</b>			
A. Active Members	96,905	96,539	0.4%
B. Retired Members & Beneficiaries	73,008	71,571	2.0%
C. Vested Former Members <sup>(1)</sup>	20,414	19,047	7.2%
D. Total	<u>190,327</u>	<u>187,157</u>	1.7%
<b>Pay Rate as of valuation date</b>			
A. Annual Total (\$millions)	\$ 9,548	\$ 9,048	5.5%
B. Monthly Average per Active Member	8,211	7,811	5.1%
<b>Average Monthly Benefit Paid to Current Retirees and Beneficiaries</b>			
A. Service Retirement	4,824	4,707	2.5%
B. Disability Retirement	7,094	6,744	5.2%
C. Surviving Spouse and Dependents	3,554	3,429	3.6%
D. Total	4,986	4,832	3.2%
<b>Actuarial Accrued Liability (\$millions)</b>			
A. Active Members	38,535	36,683	5.0%
B. Retired Members	50,528	48,161	4.9%
C. Vested Former Members	1,588	1,476	7.6%
D. Total	<u>90,651</u>	<u>86,320</u>	5.0%
<b>Assets</b>			
A. Fair Value of Fund (\$millions)	73,852	70,290	5.1%
B. Actuarial Value (\$millions)			
1. Valuation Reserves	72,415	68,712	5.4%
2. Non-valuation Reserves	1,350	1,317	2.5%
C. Annual Investment Return			
1. Fair Value Basis (Net Return)	6.4%	0.1%	n/a
2. Valuation (Actuarial) Basis	7.2%	8.5%	n/a
Unfunded Actuarial Accrued Liability (\$ millions)	\$ 18,236	\$ 17,608	3.6%
<b>Employer contribution rate for all plans combined as a percent of total payroll</b>			
A. Gross Normal Cost	19.38%	19.33%	0.3%
B. Member Contributions <sup>(2)</sup>	<u>(8.37)%</u>	<u>(8.21)%</u>	1.9%
C. Employer Normal Cost	11.01%	11.12%	(1.0)%
D. UAAL Amortization	<u>14.87%</u>	<u>14.72%</u>	1.0%
E. Employer Contribution Rate	25.88%	25.84%	0.2%
Funded Ratio	79.9%	79.6%	0.4%
<b>Results Based on Fair Value (Informational Purposes Only)</b>			
Calculated Contribution Rate	25.82%	25.63%	0.7%
Funded Ratio (excluding non-valuation reserves)	80.0%	79.9%	0.1%

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

2. Includes non-contributory members. The average rate for contributory plans increased from 9.45% to 9.54%.



## 2. Scope of the Report

This report presents the actuarial valuation of the Los Angeles County Employees Retirement Association as of June 30, 2023. This valuation was requested by the Board of Investments. Section 31453 of the County Employees Retirement Law of 1937 (the CERL) requires an actuarial valuation to be performed at least every three years for the purpose of setting contribution rates. The 2023 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. For members of General Plan G and Safety Plan C, member contribution rates are recalculated each year, based on one-half of the Plan's normal cost rate.

A summary of the findings resulting from this valuation is presented in the previous section.

Section 3 describes the assets and investment experience of the Plan.

- The assets and investment income are presented in Exhibits 2-4.
- Exhibit 5 develops the actuarial value of assets as of June 30, 2023.
- 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.
- Exhibit 8a analyzes the change in UAAL, and Exhibit 8b shows a history of these changes.

Section 5 discusses the member contribution rates.

Section 6 discusses the employer contributions rates.

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

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

Section 9 provides a discussion of the risks to the Plan. A more comprehensive analysis of risks was provided as part of Milliman's Risk Assessment based on the June 30, 2022 actuarial valuation.

This report includes several appendices:

Appendix A Summary of the actuarial procedures and assumptions used to estimate liabilities and contributions.

Appendix B Summary of the current benefit structure, as determined by the provisions of governing law, on June 30, 2023.

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.

### 3. Assets

This section of the report focuses on the assets accumulated to pay retirement benefits when due to all current members of LACERA as of the valuation date. These assets are also used to determine the amount of contributions required for funding purposes. A historical summary of the Plan's assets is presented below (dollar amounts in billions).

	Fair Value of Total Assets	Actuarial Value		Total Fund Return (%) <sup>(1)</sup>
		Non-Valuation Reserves	Valuation Assets	
2014	\$ 47.7	0.5	43.7	16.5
2015	48.8	0.5	47.3	4.1
2016	47.8	0.5	49.4	0.8
2017	52.7	0.5	52.2	12.7
2018	56.3	0.6	55.2	9.0
2019	58.3	0.6	57.6	6.4
2020	58.5	0.6	59.8	1.8
2021	73.0	0.7	64.9	25.2
2022	70.3	1.3	68.7	0.1
2023	73.9	1.4	72.4	6.4

1. As reported in the Investment Section of LACERA's ACFR for the fiscal year ended June 30, 2023. All returns are shown net of investment expenses and calculated on a time-weighted basis.

On June 30, 2023, the total fair value of assets restricted for pension benefits was \$73.9 billion. The actuarial value of assets was determined to be \$73.8 billion, including the non-valuation reserves. The average total investment return for the last 10 years is 8.1% net of fees, as reported by LACERA.

#### Financial Exhibits

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

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

#### Actuarial Asset Method

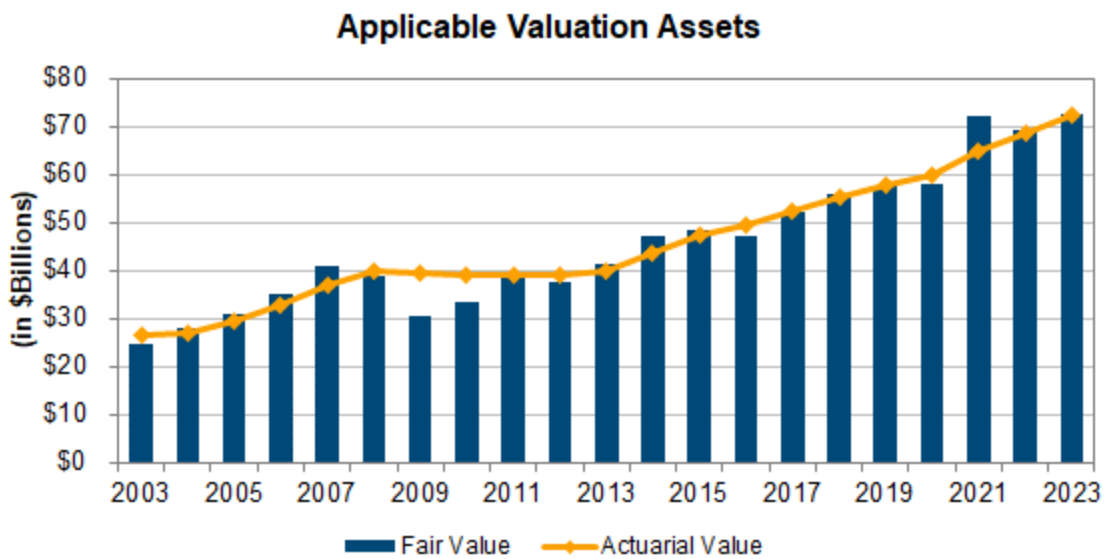
The actuarial asset method projects the expected fair value of assets based on the prior year's fair value of assets, the actual cash flow of contributions and benefit payments, and the assumed investment rate of return. For the previous year, the assumed rate of return was 7.0%, net of all expenses. The difference between the actual fair value and the expected fair value is recognized (or "smoothed") over a five-year period.

Effective with the June 30, 2022 valuation all deferred investment gains and losses were combined into one single amount such that the actuarial asset value was unchanged from the prior method. Beginning with the period immediately following the June 30, 2022 valuation, offsetting of current period gains or losses against prior period gains or losses occur, as follows: to the extent there is an investment loss for the year and there are unrecognized

investment gains from previous years, or to the extent that there is an investment gain for the year and there are unrecognized investment losses from previous years, the gain or loss for the year shall be used to offset unrecognized gains or losses from previous years in the order of oldest to most recent. Any remaining gain or loss for the year is recognized over a five-year period. With this modification to the actuarial asset method, in any given valuation only investment gains or losses will be present, which is expected to result in a less volatile actuarial value of assets.

**Actuarial Value of Assets**

The development of the actuarial value of assets is shown in Exhibit 5. As of June 30, 2023 there are \$0.1 billion of unrecognized investment gains, which means that the actuarial value of assets is \$0.1 billion less than the fair value of assets. These unrecognized investment gains will be recognized in the actuarial value of assets in the coming years. The following graph shows a historical comparison of the actuarial and fair value of assets used for valuation purposes.



**Funding Policy**

Under LACERA’s Retirement Benefit Funding Policy a Funded Ratio equal to 100% is the Funding Goal. Note that although the allocation of assets used in the actuarial valuation is similar to the process LACERA uses for accounting purposes, there are some differences, including the earnings considered for interest crediting purposes.

For funding purposes and for setting employer 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 Fair Value of Assets as of the valuation date to the extent there are positive recognized earnings to allocate.
- Priority 7: Allocate to the Employer Reserve an amount, if necessary, when combined with other Valuation Reserves, to provide 100% funding of the AAL as of the valuation date to reach the Funding Goal. In the event there are negative recognized earnings, allocate the entire amount.
- Priority 8: The Board may consider additional actions as permitted under the County Employee Retirement Law (CERL) using funds in excess of the amount needed to meet the Funding Goal for funding discretionary benefits. "Excess Earnings" as defined in the County Employees Retirement Law (CERL) may be appropriated upon reaching the Funding Goal; however, the Board may consider adjustment to the employer's contributions only upon satisfying California Government Code Section 7522.52(b).

### Valuation Assets

Valuation Assets are the actuarial value of the fund less the value of any Non-Valuation Reserves. Non-Valuation Reserves include Contingency Reserves (minimum of 1% of the Fiduciary Net Position for Pension Benefits) and other reserves that have been set aside for current liabilities and special benefits to be funded outside of the actuarially determined contribution rates. Only Valuation Assets are used to determine employer contribution rates.

Effective June 30, 2022 the STAR Reserve is considered a Non-Valuation Reserve. Consistent with the exclusion of the STAR Reserve from Valuation Assets, the liability for any STAR benefits that may be granted in the future is not included in the liability portion of valuation. The June 30, 2023 STAR Reserve accounting value is \$611.5 million.

The Non-Valuation Reserves shown in Exhibit 6 for funding purposes are different from those shown in the audited financial statements and in Exhibit 4.

**Exhibit 2**  
**Statement of Fiduciary Net Position**  
**As of June 30, 2023 and June 30, 2022**

	2023	2022
<b>Assets</b>		
Cash and Short-Term Investments	\$ 2,222,256,792	\$ 3,058,494,546
Cash Collateral on Loaned Securities	1,869,432,645	1,401,076,878
Receivables		
Contributions Receivable	127,192,052	119,635,183
Accounts Receivable - Sale of Investments	233,150,293	355,515,478
Accrued Interest and Dividends	220,243,947	226,860,897
Accounts Receivable - Other	5,940,399	10,226,949
Total Receivables	<u>586,526,691</u>	<u>712,238,507</u>
Investments at Fair Value		
Equity	27,130,122,428	24,464,719,621
Fixed Income	17,921,556,526	18,641,786,544
Private Equity	13,894,495,311	12,753,842,152
Real Estate	5,109,454,330	5,802,979,342
Hedge Funds	4,890,856,047	4,440,433,903
Real Assets	2,514,132,334	1,363,251,696
Total Investments	<u>71,460,616,976</u>	<u>67,467,013,256</u>
<b>Total Assets</b>	<b><u>76,138,833,103</u></b>	<b><u>72,638,823,188</u></b>
<b>Liabilities</b>		
Accounts Payable - Purchase of Investments	332,063,234	835,073,030
Retiree Payroll and Other Payables	2,259,401	1,779,455
Accrued Expenses	29,343,832	63,266,240
Tax Withholding Payable	43,525,048	42,715,354
Obligations under Securities Lending Program	1,869,432,645	1,401,076,878
Accounts Payable - Other	10,322,874	5,299,875
Total Liabilities	<u>2,286,947,034</u>	<u>2,349,210,833</u>
<b>Fiduciary Net Position Restricted For Pension Benefits</b>	<b><u>\$ 73,851,886,070</u></b>	<b><u>\$ 70,289,612,355</u></b>

**Exhibit 3**  
**Statement of Changes in Fiduciary Net Position**  
**For the Fiscal Years Ended June 30, 2023 and 2022**

	2023	2022
<b>Additions</b>		
Contributions		
Employer	\$ 2,301,705,589	\$ 2,199,888,716
Member <sup>(1)</sup>	793,244,127	758,632,238
Total Contributions	<u>3,094,949,716</u>	<u>2,958,520,953</u>
Investment Income		
From Investing Activities:		
Net Appreciation/(Depreciation) in Fair Value of Investments	1,943,782,733	(6,717,556,042)
Investment Income/(Loss)	3,087,891,275	5,476,668,193
Total Investing Activity Income	<u>5,031,674,008</u>	<u>(1,240,887,848)</u>
Less Expenses From Investing Activities	<u>(189,483,833)</u>	<u>(310,360,199)</u>
Net Investing Activity Income	4,842,190,175	(1,551,248,047)
From Securities Lending Activities:		
Securities Lending Income	63,652,080	12,294,541
Less Expenses From Securities Lending Activities:		
Borrower Rebates	(47,869,289)	125,823
Management Fees	(1,687,343)	(1,317,057)
Total Expenses from Securities Lending Activities	<u>(49,556,631)</u>	<u>(1,191,234)</u>
Net Securities Lending Income	14,095,448	11,103,307
Total Net Investment Income	<u>4,856,285,624</u>	<u>(1,540,144,740)</u>
Miscellaneous	5,009,033	4,117,638
Total Additions	<u>7,956,244,372</u>	<u>1,422,493,851</u>
<b>Deductions</b>		
Retiree Payroll	4,234,600,092	4,002,272,810
Administrative Expenses	97,014,656	86,110,835
Investment Expenses	15,135,017	14,010,176
Refunds	43,412,068	38,088,986
Lump Sum Death Benefits	3,351,047	4,205,274
Miscellaneous	457,778	219,132
Total Deductions	<u>4,393,970,658</u>	<u>4,144,907,213</u>
Net Increase/(Decrease)	3,562,273,714	(2,722,413,362)
<b>Fiduciary Net Position Restricted For Pension Benefits</b>		
Beginning of Year	70,289,612,355	73,012,025,718
End of Year	<u>\$ 73,851,886,070</u>	<u>\$ 70,289,612,355</u>

1. Member contributions include employer pick-up contributions.

**Exhibit 4**  
**Allocation of Assets by Accounting Reserve Amounts**

(Dollars in Thousands)

	June 30, 2023	June 30, 2022
1. Member Reserves		
a. Active Members	\$ 26,932,000	\$ 25,804,263
b. Unclaimed Deposits	-	-
c. Total Member Reserves	<u>26,932,000</u>	<u>25,804,263</u>
2. Employer Reserves		
a. Actual Employer Contributions	32,504,476	32,011,255
b. Advanced Employer Contributions	-	-
c. Total Employer Contributions	<u>32,504,476</u>	<u>32,011,255</u>
3. County Contribution Credit Reserve	-	-
4. STAR Reserve	611,544	614,011
5. Contingency Reserve	-	-
6. Total Reserves at Book Value	<u>60,048,020</u>	<u>58,429,529</u>
7. Unrealized Investment Portfolio Appreciation	13,803,866	11,860,083
8. <b>Total Reserves at Fair Value</b>	<u><b>\$ 73,851,886</b></u>	<u><b>\$ 70,289,612</b></u>

Note: These amounts were determined by LACERA for accounting purposes and are reported in the ACFR for the fiscal year ended June 30, 2023.

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

(Dollars in Thousands)

June 30, 2023 Valuation									
Plan Year Ending	Contributions	Benefit Payments	Expected Fair Value	Actual Fair Value	Investment Gain / (Loss)	(a) Investment Gain / (Loss) Excluded in Prior Year	(b) Prior Year Investment Gain / (Loss) Offset in Current Year	(c) Investment Gain / (Loss) Recognized in Current Year	(d) Investment Gain / (Loss) Excluded in Current Year (a) - (b) - (c)
06/30/2023	\$ 3,094,950	\$ 4,281,363	\$ 73,982,650	\$ 73,851,886	\$ (130,764)	\$ 0	\$ 0	\$ 0	\$ 0
06/30/2022	2,958,521	4,044,567	76,999,453	70,289,612	(6,709,841)	0	0	0	0
06/30/2021	2,773,871	3,814,262	61,529,948	73,012,026	11,482,078	261,095	130,764	43,444	86,887
06/30/2020	2,459,433	3,606,340	61,189,106	58,510,408	(2,678,698)	0	0	0	0
06/30/2019	2,303,566	3,407,155	59,238,837	58,294,837	(944,000)	0	0	0	0
						(A) Total Excluded Gain / (Loss) = \$ 86,887			
						(B) Total Fair Value of Assets = \$ 73,851,886			
						(C) Total Actuarial Value of Assets [ (B) - (A) ] = \$ 73,764,999			

Column (c) Investment Gain / (Loss) Recognized in Current Year = { 20% x [ (a) - (b) ] } / { 100% - 20% x [ Valuation Year - Plan Year Ending ] }

Total Actuarial Value of Assets = Total Fair Value of Assets less the Total Excluded Gain / (Loss) amount. Excluded amounts will be recognized in future years.

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

	2024 Val	2025 Val	2026 Val	2027 Val	Total
Amount to be Recognized	\$ 43,444	\$ 43,443	\$ -	\$ -	\$ 86,887



**Exhibit 6**  
**Allocation of Valuation and Non-Valuation Assets**

(Dollars in Thousands)

	June 30, 2023	June 30, 2022
1. Total Fair Value of Assets	\$ 76,138,833	\$ 72,638,823
2. Current Liabilities	<u>2,286,947</u>	<u>2,349,211</u>
3. Net Assets Held in Trust for Pension Benefits	73,851,886	70,289,612
4. Market Stabilization Reserve <sup>(1)</sup>	<u>86,887</u>	<u>261,095</u>
5. Actuarial Value of Assets	73,764,999	70,028,517
6. Non-Valuation Reserves <sup>(2)</sup>		
a. Contingency Reserve	738,519	702,896
b. Advanced Employer Contributions	-	-
c. County Contribution Credit Reserve	-	-
d. Reserve for STAR Program	<u>611,544</u>	<u>614,011</u>
e. Total Non-Valuation Reserves	1,350,063	1,316,907
7. Actuarial Value of Assets <i>minus</i> Non-Valuation Reserves	<u>\$ 72,414,936</u>	<u>\$ 68,711,610</u>
8. Valuation Assets <sup>(2)</sup>		
a. Member Reserves	26,932,000	25,804,263
b. Employer Reserves for Funding Purposes	<u>45,482,936</u>	<u>42,907,347</u>
c. Total Valuation Assets	<u>\$ 72,414,936</u>	<u>\$ 68,711,610</u>

1. The Market Stabilization Reserve represents the difference between the Fair 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 and reflect the change in the treatment of the STAR Reserve adopted by the Board of Investments at the December 2022 meeting. Amounts used for funding purposes may differ from those reported in the audited financial statements as shown in Exhibit 4.

#### 4. Actuarial Liabilities

This section of the report focuses on the commitments of LACERA for retirement benefits, which are referred to as its actuarial liabilities.

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

All liabilities reflect the benefits effective through June 30, 2023. This includes permanent STAR benefits that have been adopted and are in effect as of the valuation date, but does not include any STAR benefits that have been adopted but are not effective until after the valuation date nor any STAR benefits that may be granted in the future.

The actuarial assumptions used to determine the liabilities are based on the results of the 2022 Investigation of Experience study for the period ended June 30, 2022 which were adopted by the Board of Investments at its January 2023 meeting, as recommended by Milliman. These assumptions are shown in Appendix A and will next be reviewed in detail as part of the 2025 Investigation of Experience study.

##### Actuarial Balance Sheet

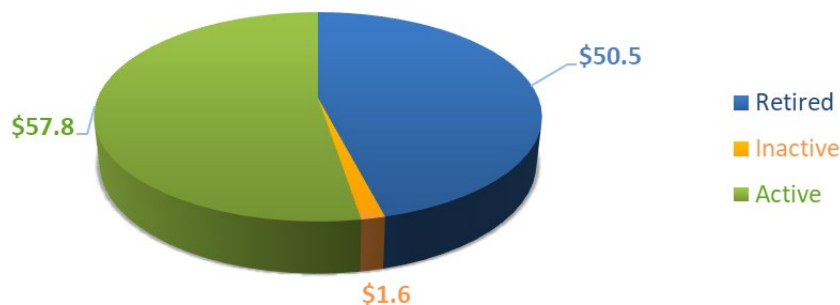
The Actuarial Balance Sheet compares the Present Value of Future Benefits (PVFB) for retired, inactive and active members to the resources available to meet them. For the purpose of the Actuarial Balance Sheet, LACERA's resources are equal to the sum of:

- (a) Assets currently available to pay benefits and considered for funding purposes (Valuation Assets),
- (b) The present value of future contributions expected to be made by current active members, and
- (c) The present value of future Normal Cost contributions expected to be made by the employer.

The amount of any difference is called the Unfunded Actuarial Accrued Liability (UAAL).

Exhibit 7 contains an analysis of the PVFB for inactive members (both retired and vested former members) and active members, and is shown by class of membership, by plan and by type of benefit. The Actuarial Balance Sheet for each plan, as well as its UAAL, is based on an estimated allocation of total LACERA Valuation Assets. The allocation is based on the relative value of each plan's employer and member reserves as reported to us by LACERA. These allocations are shown for illustrative purposes only, as the UAAL contribution rates are paid by the employer based on the valuation results in aggregate.

June 30, 2023 Present Value of Benefits (in \$Billions)



**Exhibit 7**  
**Actuarial Balance Sheet – June 30, 2023**

(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	
<b>LIABILITIES</b>										
Present Value of Benefits - Inactives										
- Retirees and Beneficiaries	\$ 9,900	\$ 456	\$ 286	\$ 13,899	\$ 5,703	\$ 63	\$ 6,530	\$ 13,667	\$ 24	\$ 50,528
- Vested Former	3	1	1	792	453	155	0	165	18	1,588
- Inactive Total	9,903	457	287	14,691	6,156	218	6,530	13,832	42	52,116
Present Value of Benefits - Actives										
- Service Retirement	61	15	18	23,650	6,164	9,173	0	9,119	2,216	50,416
- Transfer Service (prior LACERA plan)	0	0	0	256	393	17	0	15	0	681
- Disability Retirement	0	0	0	794	N/A	601	0	2,893	1,132	5,420
- Death	0	0	0	285	N/A	165	0	62	33	545
- Termination	0	0	0	127	62	470	0	30	98	787
- Active Total	61	15	18	25,112	6,619	10,426	0	12,119	3,479	57,849
<b>Total Actuarial Liabilities</b>	<b>\$ 9,964</b>	<b>\$ 472</b>	<b>\$ 305</b>	<b>\$ 39,803</b>	<b>\$ 12,775</b>	<b>\$ 10,644</b>	<b>\$ 6,530</b>	<b>\$ 25,951</b>	<b>\$ 3,521</b>	<b>\$ 109,965</b>
<b>ASSETS</b>										
Valuation Assets	(6,592)	284	251	37,323	16,411	5,819	(3,878)	21,459	1,338	72,415
PV Future Member Contributions	0	0	0	2,543	N/A	3,885	0	987	1,384	8,799
PV Future Employer Normal Cost Contributions	1	1	0	2,947	946	3,585	0	1,727	1,308	10,515
UAAL or (Surplus Funding)	16,555	187	54	(3,010)	(4,582)	(2,645)	10,408	1,778	(509)	18,236
<b>Total Current and Future Assets</b>	<b>\$ 9,964</b>	<b>\$ 472</b>	<b>\$ 305</b>	<b>\$ 39,803</b>	<b>\$ 12,775</b>	<b>\$ 10,644</b>	<b>\$ 6,530</b>	<b>\$ 25,951</b>	<b>\$ 3,521</b>	<b>\$ 109,965</b>

**Actuarial Accrued Liability**

As noted above, the PVFB is the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this includes benefits already earned and future benefits to be earned. For active members, future benefits are expected to be funded by employee contributions and employer Normal Cost contributions (collectively, Normal Cost contributions).

The Actuarial Accrued Liability (AAL) is the PVFB less the present value of expected future Normal Cost contributions. That is, it is the liability for all benefits earned as of the valuation date, as allocated by the actuarial cost method. The difference between the AAL and Valuation Assets is referred to as the Unfunded Actuarial Accrued Liability (UAAL). A summary of the results for all LACERA plans in aggregate is shown below:

(Dollars in millions)	2023	2022	Percent Change
A. Actuarial present value of all future benefits for contributing members, former contributing members, and their survivors	\$ 109,965	\$ 104,543	5.2%
B. Actuarial present value of total future normal costs for current members	19,314	18,223	6.0%
C. Actuarial accrued liability [A-B]	90,651	86,320	5.0%
D. Valuation Assets	72,415	68,712	5.4%
E. UAAL or (Surplus Funding) [C-D]	18,236	17,608	3.6%
F. Funded Ratio [D/C]	79.9%	79.6%	0.4%

**Unfunded Actuarial Accrued Liability**

The difference between the AAL and the Valuation Assets is the UAAL. If a UAAL exists, it usually resulted 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 8a provides an analysis of the change in the UAAL since the prior valuation date.

The 2023 actuarial valuation reflects an increase in the UAAL of approximately \$0.6 billion since the prior year. A summary of these factors is:

- Investment Returns: Returns on actuarial value of assets were 7.2% compared to the assumed return of 7.0%. This resulted in an actuarial asset gain of \$118 million.
- Active Member Experience (non-salary): This includes gains and losses from termination, service retirement, disability retirement, and death different than assumed. This resulted in an actuarial gain of \$1 million.
- Salary Increases: Individual salaries for continuing active members increased at a higher rate than the valuation assumption. This resulted in an actuarial loss of \$771 million.
- PEPRA Compensation Limit Increases: The PEPRA compensation limit increased by 8.2% from 2022 to 2023 compared to the assumed increase of 2.75%. This resulted in an actuarial loss of \$32 million.

- Retiree COLA Increases: The actual COLA increases were the same as expected by the assumptions which generated no actuarial gain or loss.
- Mortality Experience: An actuarial loss due to mortality generally indicates that retired members are living longer than the current assumption predicts. Similarly, an actuarial gain on mortality indicates that retired members are not living as long as predicted. This year, there was an actuarial gain of \$13 million due to mortality experience for retirees and beneficiaries.
- Other Experience: Examples of this are gains and losses from retirement and mortality experience of inactive members, reciprocity, unexpected benefit amount changes, and transfers between plans. These factors combined resulted in an actuarial loss of \$65 million.

### **Change in Unfunded Actuarial Accrued Liability – History**

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

### **Funding Adequacy**

A key consideration in determining the adequacy of the funding of LACERA is how the UAAL is being funded. Under LACERA's Funding Policy, a new UAAL "layer" is established each year when the Funded Ratio is less than 100%. All new UAAL layers are amortized over 20-year periods.

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

**Exhibit 8a**  
**Analysis of Change in Unfunded Actuarial Accrued Liability**

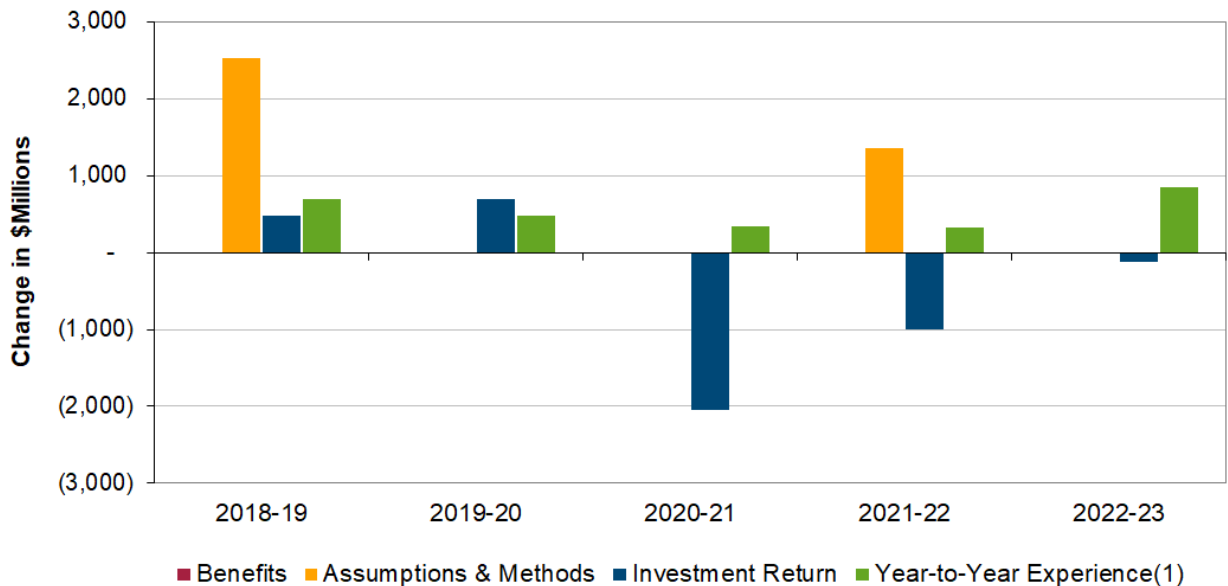
(Dollars in Millions)

	Amount	As a Percent of June 30, 2023 Actuarial Accrued Liability
<b>Unfunded Actuarial Accrued Liability - June 30, 2022</b>	<b>\$ 17,608</b>	<b>19.42%</b>
Interest Accrued	1,244	1.37%
Benefits Accrued (Normal Cost)	1,743	1.92%
<u>Contributions</u>		
Employer - Cash	\$ (2,302)	-2.54%
Employer - Contribution Credit	-	0.00%
Member	(793)	-0.87%
Total	<u>(3,095)</u>	-3.41%
<b>Expected Unfunded Actuarial Accrued Liability - June 30, 2023</b>	<b>\$ 17,500</b>	<b>19.30%</b>
<b>Sources of Change:</b>		
<u>Asset (Gains) and Losses</u>		
(Gain) / Loss due to Investment Income	(118)	-0.13%
<u>Liability (Gains) and Losses</u>		
Active Member Experience (non salary)	\$ (1)	0.00%
Salary Increases Greater than Expected	771	0.85%
PEPRA Limit Increases Greater than Expected	32	0.04%
Retiree COLAs Greater than Expected	-	0.00%
Mortality Experience	(13)	-0.01%
All Other Experience	65	0.07%
Total	<u>854</u>	0.94%
<b>Total Changes</b>	<b>\$ 736</b>	<b>0.81%</b>
<b>Unfunded Actuarial Accrued Liability - June 30, 2023</b>	<b>\$ 18,236</b>	<b>20.12%</b>

**Exhibit 8b**  
**History of Changes in Unfunded Actuarial Accrued Liability**

(Dollars in Millions)

	2018-19	2019-20	2020-21	2021-22	2022-23	2018-23
<b>Prior Valuation UAAL</b>	<b>\$ 13,294</b>	<b>\$ 17,018</b>	<b>\$ 18,512</b>	<b>\$ 16,989</b>	<b>\$ 17,608</b>	<b>\$ 13,294</b>
Increase in UAAL due to:						
Expected Increase / (Decrease)	25	306	171	(76)	(108)	318
■ Asset (Gains) and Losses	477	701	(2,039)	(996)	(118)	(1,975)
■ Changes in Benefits	-	-	-	-	-	-
■ Changes in Assumptions	2,528	-	-	750	-	3,278
■ Changes in Methods	-	-	-	614	-	614
■ Salary Increases	486	388	484	(21)	771	2,108
■ Retiree COLA Increases	44	43	(73)	355	-	369
■ Mortality Experience	(6)	1	(96)	(36)	(13)	(150)
■ All Other Experience	170	55	30	29	96	380
<b>Total Increase / (Decrease)</b>	<b>3,724</b>	<b>1,494</b>	<b>(1,523)</b>	<b>619</b>	<b>628</b>	<b>4,942</b>
<b>Valuation UAAL</b>	<b>\$ 17,018</b>	<b>\$ 18,512</b>	<b>\$ 16,989</b>	<b>\$ 17,608</b>	<b>\$ 18,236</b>	<b>\$ 18,236</b>
<b>Funded Ratio</b>	<b>77.2%</b>	<b>76.3%</b>	<b>79.3%</b>	<b>79.6%</b>	<b>79.9%</b>	<b>79.9%</b>



1. Year-to-Year Experience includes changes due to Salary, Retiree COLA, Mortality and Other Experience.

## 5. Member Contributions

### Normal Contributions for Legacy Plans

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

Normal contributions for each of the legacy plans (all plans except General Plan G and Safety Plan C) are defined in the following sections of the CERL:

Plan	CERL	
	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.

We are not recommending changes to the member contribution rates for legacy plans for the fiscal year beginning July 1, 2024 because new assumptions were not adopted for the 2023 valuation. A sample of the member contribution rates is shown in Exhibit 9. All member contribution rates are shown in Appendix D.

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

### Cost-of-Living Contributions for Legacy Plans

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



We are not recommending changes in the member cost-of-living contribution rates for the fiscal year beginning July 1, 2024 because new assumptions were not adopted for the 2023 valuation. The recommended cost-of-living contribution rates, expressed as a percentage of the normal member contribution rates, are as follows:

Plan	COLA %
General A	82.08%
General B	26.10%
General C	26.19%
General D	26.59%
General E	0.00%
Safety A	87.15%
Safety B	33.43%

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

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

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

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

Members of the two plans developed in compliance with the California Public Employees’ Pension Reform Act of 2013 (PEPRA) contribute a flat rate (i.e., does not vary by entry age) based on whether they are in the General or Safety plan. This rate is set equal to one-half of the total Normal Cost rate for the respective plan. 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 2023 valuation.

	General Plan G	Safety Plan C
<b>All Ages: Recommended</b>	<b>9.28%</b>	<b>14.97%</b>
All Ages: Current	9.24%	14.76%
Ratio (Recommended / Current)	100.4%	101.4%

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 on the following page, represents one-half of the cost of the COLA for these plans.

**Average Member Rates**

The average member contribution rate for only those active members in contributory plans at June 30, 2023 is 9.54% of covered payroll, compared to 8.37% of covered payroll for all active members including non-contributory members. The 8.37% offsets the gross normal cost to yield the employer normal cost rate. Note that covered payroll does not include pay for PEPRA plan members that is above the PEPRA compensation limit.

**Exhibit 9**  
**Sample Member Contribution Rates**

<b>Recommended Rates (Based on 2023 Valuation)</b>						
	<b>Entry Age</b>	<b>Normal</b>	<b>Cost of Living</b>	<b>Total as a % of Pay</b>	<b>Current Rate (Total)</b>	<b>Ratio (New / Current)</b>
<b>General Members</b>						
<b>Plan A</b>	25	3.33%	2.73%	6.06%	6.06%	100.0%
	35	4.06%	3.33%	7.39%	7.39%	100.0%
	45	4.86%	3.99%	8.85%	8.85%	100.0%
	55	5.16%	4.24%	9.40%	9.40%	100.0%
<b>Plan B</b>	25	6.65%	1.74%	8.39%	8.39%	100.0%
	35	8.12%	2.12%	10.24%	10.24%	100.0%
	45	9.73%	2.54%	12.27%	12.27%	100.0%
	55	10.32%	2.69%	13.01%	13.01%	100.0%
<b>Plan C</b>	25	5.70%	1.49%	7.19%	7.19%	100.0%
	35	6.96%	1.82%	8.78%	8.78%	100.0%
	45	8.44%	2.21%	10.65%	10.65%	100.0%
	55	9.74%	2.55%	12.29%	12.29%	100.0%
<b>Plan D</b>	25	5.70%	1.52%	7.22%	7.22%	100.0%
	35	6.96%	1.85%	8.81%	8.81%	100.0%
	45	8.44%	2.24%	10.68%	10.68%	100.0%
	55	9.74%	2.59%	12.33%	12.33%	100.0%
<b>Plan G</b>	All Ages	7.51%	1.77%	9.28%	9.24%	100.4%
<b>Safety Members</b>						
<b>Plan A</b>	25	4.89%	4.26%	9.15%	9.15%	100.0%
	35	5.69%	4.96%	10.65%	10.65%	100.0%
	45	6.70%	5.84%	12.54%	12.54%	100.0%
	55	6.70%	5.84%	12.54%	12.54%	100.0%
<b>Plan B</b>	25	9.77%	3.27%	13.04%	13.04%	100.0%
	35	11.37%	3.80%	15.17%	15.17%	100.0%
	45	13.40%	4.48%	17.88%	17.88%	100.0%
	55	13.41%	4.48%	17.89%	17.89%	100.0%
<b>Plan C</b>	All Ages	11.66%	3.31%	14.97%	14.76%	101.4%

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

## 6. Employer Contributions

### Calculated Employer Contribution Rate

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

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

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

For the fiscal year beginning in 2024, the total calculated employer contribution rate increases to 25.88% from the current fiscal year rate of 25.84%. This is equal to the aggregate employer Normal Cost contribution rate of 11.01% based on the 2023 valuation, plus the layered amortization payment of the UAAL, shown in Exhibit 12.

(All values as a % of Payroll)

Employer Normal Cost Contribution Rate	11.01%
Layered Amortization of UAAL	<u>14.87%</u>
Calculated Employer Contribution Rate	25.88%

**Exhibit 10**  
**Calculated Normal Cost Contribution Rates – June 30, 2023**

	General							Safety				Grand Total
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A <sup>(1)</sup>	Plan B	Plan C	Total	
<b>A. Normal Cost Contribution Rate</b>												
Service Retirement	20.83%	19.39%	13.69%	15.04%	10.38%	15.91%	14.68%	19.74%	19.74%	18.11%	19.23%	15.51%
Disability Retirement	1.03%	1.15%	0.70%	1.07%	0.00%	1.25%	0.98%	9.31%	9.31%	10.54%	9.70%	2.60%
Death	0.28%	0.29%	0.23%	0.32%	0.00%	0.30%	0.26%	0.33%	0.33%	0.29%	0.32%	0.27%
Termination	0.46%	0.41%	0.40%	1.10%	0.64%	1.10%	1.03%	0.84%	0.84%	1.00%	0.89%	1.00%
<b>Total</b>	<b>22.60%</b>	<b>21.24%</b>	<b>15.02%</b>	<b>17.53%</b>	<b>11.02%</b>	<b>18.56%</b>	<b>16.95%</b>	<b>30.22%</b>	<b>30.22%</b>	<b>29.94%</b>	<b>30.14%</b>	<b>19.38%</b>
B. Member Contributions	(5.90)%	(9.99)%	(7.28)%	(8.17)%	0.00%	(9.28)%	(7.37)%	(11.86)%	(11.86)%	(14.97)%	(12.84)%	(8.37)%
C. Net Employer Normal Cost as of June 30, 2023 (A) - (B)	16.70%	11.25%	7.74%	9.36%	11.02%	9.28%	9.58%	18.36%	18.36%	14.97%	17.30%	11.01%
D. Net Employer Normal Cost as of June 30, 2022	16.26%	11.07%	7.73%	9.44%	11.02%	9.24%	9.62%	27.46%	18.60%	14.76%	17.52%	11.12%
E. Increase (Decrease) as a Percentage of Payroll (C) - (D)	0.44%	0.18%	0.01%	(0.08)%	0.00%	0.04%	(0.04)%	(9.10)%	(0.24)%	0.21%	(0.22)%	(0.11)%
F. Estimated Payroll for fiscal year beginning July 1, 2024 <sup>(2)</sup>	\$ 7	\$ 2	\$ 2	\$ 3,806	\$ 1,221	\$ 2,987	\$ 8,024	\$ -	\$ 1,258	\$ 576	\$ 1,834	\$ 9,858
G. Estimated Total Normal Cost Contribution in Dollars (A x F) <sup>(3)</sup>	\$ 2	\$ -	\$ -	\$ 667	\$ 135	\$ 554	\$ 1,360	\$ -	\$ 380	\$ 173	\$ 553	\$ 1,913

- As of the valuation date there are no active members in Safety Plan A. Normal Cost rates are set equal to Safety Plan B rates.
- Estimated Payroll based upon annualized salary rate as of June 30, 2023 increased by 3.25% wage inflation. Dollar figures in millions.
- The timing of the Normal Cost shown in this exhibit is spread over the entire year and corresponds to payroll timing.

**Exhibit 11**  
**Total Employer Contributions**

	General							Safety				All Plans
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A <sup>(1)</sup>	Plan B	Plan C	Total	
A. Net Employer Normal Cost												
1. Basic Benefits	13.41%	9.15%	6.23%	7.70%	9.12%	7.51%	7.84%	14.66%	14.66%	11.66%	13.72%	8.92%
2. Cost-of-Living Benefits	3.29%	2.10%	1.51%	1.66%	1.90%	1.77%	1.74%	3.70%	3.70%	3.31%	3.58%	2.09%
3. Total June 30, 2023	16.70%	11.25%	7.74%	9.36%	11.02%	9.28%	9.58%	18.36%	18.36%	14.97%	17.30%	11.01%
B. UAAL Contribution Rate	14.87%	14.87%	14.87%	14.87%	14.87%	14.87%	14.87%	14.87%	14.87%	14.87%	14.87%	14.87%
<b>C. Total June 30, 2023 Contribution Rate (A) + (B)</b>	<b>31.57%</b>	<b>26.12%</b>	<b>22.61%</b>	<b>24.23%</b>	<b>25.89%</b>	<b>24.15%</b>	<b>24.45%</b>	<b>33.23%</b>	<b>33.23%</b>	<b>29.84%</b>	<b>32.17%</b>	<b>25.88%</b>
D. Total June 30, 2022 Contribution Rate	30.98%	25.79%	22.45%	24.16%	25.74%	23.96%	24.34%	42.18%	33.32%	29.48%	32.24%	25.84%
E. Estimated Payroll for fiscal year beginning July 1, 2024 <sup>(2)</sup>	\$ 7	\$ 2	\$ 2	\$ 3,806	\$ 1,221	\$ 2,987	\$ 8,024	\$ -	\$ 1,258	\$ 576	\$ 1,834	\$ 9,858
F. Est. Employer NC Contribution	\$ 1	\$ -	\$ -	\$ 356	\$ 135	\$ 277	\$ 768	\$ -	\$ 231	\$ 86	\$ 317	\$ 1,085
G. Est. UAAL Contribution	\$ 1	\$ -	\$ -	\$ 566	\$ 181	\$ 444	\$ 1,194	\$ -	\$ 187	\$ 86	\$ 273	\$ 1,467
<b>H. Estimated Annual Contribution (C x E)</b>	<b>\$ 2</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 922</b>	<b>\$ 316</b>	<b>\$ 721</b>	<b>\$ 1,962</b>	<b>\$ -</b>	<b>\$ 418</b>	<b>\$ 172</b>	<b>\$ 590</b>	<b>\$ 2,552</b>
I. Last Year's Estimated Annual Contribution	\$ 2	\$ 1	\$ -	\$ 920	\$ 320	\$ 600	\$ 1,842	\$ -	\$ 424	\$ 148	\$ 572	\$ 2,414
J. Increase / (Decrease) in Annual Contribution	\$ -	\$ (1)	\$ -	\$ 2	\$ (4)	\$ 121	\$ 120	\$ -	\$ (6)	\$ 24	\$ 18	\$ 138

1. As of the valuation date there are no active members in Safety Plan A. Normal Cost rates are set equal to Safety Plan B rates.  
2. Estimated Payroll based upon annualized salary rate as of June 30, 2023 increased by 3.25% wage inflation. Dollar figures in millions.

**Exhibit 12**  
**Unfunded Actuarial Accrued Liability Detail**

(Dollars in Millions)

<b>Unfunded Actuarial Accrued Liability - Amortization Detail</b>								
<b>Date Established</b>	<b>Description</b>	<b>Balance as of June 30, 2023</b>	<b>Interest on Balance</b>	<b>Amort. Payment on June 30, 2024 <sup>(1)</sup></b>	<b>Balance as of June 30, 2024 <sup>(2)</sup></b>	<b>Remaining Period as of June 30, 2024 <sup>(5)</sup></b>	<b>July 1, 2024 Amortization Payment</b>	
June 30, 2009	Initial UAAL	\$ 5,447.3	\$ 381.3	\$ 469.7	\$ 5,359.0	15 Years	\$ 462.1	
June 30, 2010	(Gain) / Loss <sup>(3)</sup>	3,001.4	210.1	247.5	2,963.9	16 Years	243.5	
June 30, 2011	(Gain) / Loss <sup>(3)</sup>	1,500.1	105.0	118.7	1,486.4	17 Years	116.8	
June 30, 2012	(Gain) / Loss <sup>(3)</sup>	2,471.0	173.0	188.2	2,455.8	18 Years	185.2	
June 30, 2013	(Gain) / Loss <sup>(3)</sup>	1,397.0	97.8	106.4	1,388.4	18 Years	104.7	
June 30, 2014	(Gain) / Loss	(2,587.0)	(181.1)	(197.1)	(2,571.0)	18 Years	(193.9)	
June 30, 2015	(Gain) / Loss	(2,021.1)	(141.5)	(154.0)	(2,008.6)	18 Years	(151.5)	
June 30, 2016	(Gain) / Loss <sup>(3)</sup>	3,883.3	271.8	295.8	3,859.3	18 Years	291.0	
June 30, 2017	(Gain) / Loss	(21.0)	(1.5)	(1.6)	(20.9)	18 Years	(1.6)	
June 30, 2018	(Gain) / Loss	60.8	4.3	4.6	60.4	18 Years	4.6	
June 30, 2019	(Gain) / Loss <sup>(3)</sup>	3,875.7	271.3	319.6	3,827.4	16 Years	314.4	
June 30, 2020	(Gain) / Loss	1,447.6	101.3	114.6	1,434.4	17 Years	112.7	
June 30, 2021	(Gain) / Loss	(1,743.7)	(122.1)	(132.8)	(1,733.0)	18 Years	(130.7)	
June 30, 2022	(Gain) / Loss <sup>(3)</sup>	862.3	60.4	63.4	859.3	19 Years	62.4	
June 30, 2023	(Gain) / Loss	662.2	46.4	43.0 <sup>(4)</sup>	665.6	20 Years	46.6	
Total Amortization Payment July 1, 2024:							\$ 1,466.3	
Projected Payroll July 1, 2024:							\$ 9,858.2	
<b>UAAL as of June 30, 2023:</b>		<b>\$ 18,236.0</b>	<b>UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2024:</b>				<b>14.87%</b>	

Explanatory Notes:

- Amortization Payments are based on a fixed schedule that increases by the payroll assumption each year.
- The assets and liabilities used in the calculation of the UAAL are as of June 30, 2023, whereas the contribution rates are not effective until July 1, 2024. Therefore, the UAAL is projected to June 30, 2024 based on the actual contribution rate for the period, with the projected UAAL as of June 30, 2024 equaling \$18,026 million.
- (Gain) / Loss layers include the impact of assumption and method changes in these years.
- The amortization of UAAL does not begin until July 1, 2024; therefore, the UAAL amount is adjusted by one year to reflect the actual July 1, 2023 contribution rate.
- Effective with the June 30, 2019 valuation, all new UAAL layers are amortized over a 20-year period, beginning with the date the contribution is first expected to be made.

## 7. Supplemental Information

Governmental Accounting Standards Board (GASB) Statement 67 sets out requirements for defined benefit pension plan reporting and disclosures. GASB Statement 68 sets out requirements for accounting by state and local government employers.

Milliman provides LACERA with results relevant to Statements 67 and 68 in separate stand-alone financial reporting valuation reports.

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

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

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

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

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

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

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

**Exhibit 13**  
**Schedule of Funding Progress**

(Dollars in Thousands)

Actuarial Valuation Date	(a) Actuarial Value of Valuation Assets	(b) Actuarial Accrued Liabilities	(b-a) Unfunded Actuarial Accrued Liabilities (UAAL)	(a/b) Funded Ratio	(c) Covered Payroll <sup>(1)</sup>	[(b-a)/c] UAAL as a Percentage of Covered Payroll
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 <sup>(2)</sup>	49,357,847	62,199,214	12,841,367	79.4%	7,279,777	176.4%
June 30, 2017	52,166,307	65,310,803	13,144,496	79.9%	7,637,032	172.1%
June 30, 2018	55,233,108	68,527,354	13,294,246	80.6%	7,957,981	167.1%
June 30, 2019 <sup>(2)</sup>	57,617,288	74,635,840	17,018,552	77.2%	8,370,050	203.3%
June 30, 2020	59,762,991	78,275,175	18,512,184	76.3%	8,724,151	212.2%
June 30, 2021	64,909,377	81,898,044	16,988,667	79.3%	9,062,051	187.5%
June 30, 2022 <sup>(2)</sup>	68,711,610	86,320,151	17,608,541	79.6%	9,100,791	193.5%
June 30, 2023	72,414,936	90,651,092	18,236,156	79.9%	9,425,690	193.5%

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 and method changes.



**Exhibit 14**  
**Schedule of Contributions from the Employer**

(Dollars in Thousands)

Fiscal Year Ending	Actuarially Determined Employer Contribution	Actual Employer Contributions			Percentage of Actuarially Determined Contribution Contributed
		Cash Payment	Transfer from Reserve Accounts	Total	
June 30, 2014	\$ 1,320,442	\$ 1,320,442	\$ -	\$ 1,320,442	100%
June 30, 2015	1,494,975	1,494,975	-	1,494,975	100%
June 30, 2016	1,443,130	1,443,130	-	1,443,130	100%
June 30, 2017 <sup>(1)</sup>	1,392,813	1,370,922	21,891	1,392,813	100%
June 30, 2018	1,564,284	1,564,284	-	1,564,284	100%
June 30, 2019	1,708,122	1,708,122	-	1,708,122	100%
June 30, 2020	1,800,137	1,800,137	-	1,800,137	100%
June 30, 2021	2,012,877	2,012,877	-	2,012,877	100%
June 30, 2022	2,199,889	2,199,889	-	2,199,889	100%
June 30, 2023	2,301,706	2,301,706	-	2,301,706	100%

1. The County Contribution Reserve was used to offset the contribution required from the Courts in the fiscal year ended June 30, 2017.

**Exhibit 15**  
**Funding Liabilities by Type**

(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 <sup>(1)</sup> (B)	Active Members (Employer Financed Portion) (C)	(A)	(B)	(C)
June 30, 2014	\$ 43,654	\$ 8,354	\$ 31,882	\$ 14,706	100%	100%	23%
June 30, 2015	47,328	8,805	32,734	15,280	100%	100%	38%
June 30, 2016	49,358	8,767	35,316	18,116	100%	100%	29%
June 30, 2017	52,166	9,482	37,077	18,752	100%	100%	30%
June 30, 2018	55,233	9,882	39,192	19,453	100%	100%	32%
June 30, 2019	57,617	10,210	42,235	22,190	100%	100%	23%
June 30, 2020	59,763	10,650	44,500	23,125	100%	100%	20%
June 30, 2021	64,909	11,115	46,774	24,009	100%	100%	29%
June 30, 2022	68,712	11,029	49,637	25,654	100%	100%	31%
June 30, 2023	72,415	11,930	52,116	26,605	100%	100%	31%

1. Includes vested and non-vested former members.

Notes:

For the purpose of this exhibit, Valuation Assets are allocated, in order, to active member contribution accounts (A), the Actuarial Accrued Liability for retirees and beneficiaries (B) and the employer financed portion of active member liabilities (C). Active member contributions are always assumed to be 100% funded. Assets are then allocated to the Actuarial Accrued Liability for retirees and beneficiaries until that category is 100% funded, and then any remaining Valuation Assets are allocated to the employer financed portion of active member liabilities. The employer's UAAL contributions are based on a percentage of active member salaries and those contributions are projected to eliminate any unfunded liability in that category over the scheduled amortization period.

**Exhibit 16**  
**Actuarial Analysis of Financial Experience**

(Dollars in Millions)

	Valuation as of June 30						
	2017	2018	2019	2020	2021	2022	2023
Unfunded Actuarial Accrued Liability	\$12,841	\$13,145	\$13,294	\$17,018	\$18,512	\$16,989	\$17,608
Expected Increase/(Decrease) from Prior Valuation	320	146	25	306	171	(76)	(108)
Salary Increases Greater/(Less) than Expected	277	223	486	388	484	(21)	771
Retiree COLA Greater/(Less) than Expected	(139)	45	44	43	(73)	355	-
Change in Assumptions / Methods	-	-	2,528	-	-	1,364	-
Asset Return Less/(Greater) than Expected	(421)	(411)	477	701	(2,039)	(996)	(118)
All Other Experience	267	146	164	56	(66)	(7)	83
<b>Ending Unfunded Actuarial Accrued Liability</b>	<b>\$13,145</b>	<b>\$13,294</b>	<b>\$17,018</b>	<b>\$18,512</b>	<b>\$16,989</b>	<b>\$17,608</b>	<b>\$18,236</b>

**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 <sup>(1)(2)</sup>	Member Count	Annual Allowance <sup>(1)</sup>	Member Count <sup>(3)</sup>	Annual Allowance <sup>(1)</sup>		
June 30, 2014	3,128	\$ 172,743	(1,985)	\$ (71,730)	59,229	\$ 2,712,080	3.87%	\$ 45.8
June 30, 2015	3,501	180,549	(2,124)	(80,028)	60,606	2,812,601	3.71%	46.4
June 30, 2016	3,479	220,632	(2,171)	(80,881)	61,914	2,952,352	4.97%	47.7
June 30, 2017	3,721	245,915	(2,311)	(89,624)	63,324	3,108,643	5.29%	49.1
June 30, 2018	3,826	276,118	(2,270)	(89,033)	64,880	3,295,728	6.02%	50.8
June 30, 2019	3,978	302,022	(2,351)	(97,840)	66,507	3,499,910	6.20%	52.6
June 30, 2020	3,930	311,206	(2,425)	(104,914)	68,012	3,706,202	5.89%	54.5
June 30, 2021	4,350	327,745	(2,865)	(132,185)	69,497	3,901,762	5.28%	56.1
June 30, 2022	4,796	378,343	(2,722)	(130,089)	71,571	4,150,016	6.36%	58.0
June 30, 2023	4,071	347,718	(2,634)	(129,276)	73,008	4,368,458	5.26%	59.8

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

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

3. For the actuarial valuation year, Member Count includes retirees who due to timing at year end, are not yet included in the total Retired Members count disclosed in Note A - Plan Description of LACERA's ACFR for the fiscal year ended June 30, 2023.

## 8. Cash Flow History and Projections

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

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

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

The projected cash flows include contributions, statutory benefits, and administrative expenses only. They are based on the actuarial assumptions as stated in Appendix A of this valuation report. The total employer contribution rate is assumed to be 25.84% for the first year and 25.88% for the second year; total employer contributions for the remainder of the period reflect the expected recognition of asset gains and losses currently being deferred. The aggregate member rate is assumed to stay at the calculated rate for June 30, 2023 of 8.37% of payroll. Expenses are based on the expenses for the year ended June 30, 2023, 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 and STAR benefits that have been adopted but are not effective until after the valuation date.
- Projected benefits payable under certain insurance contracts for a group of retired members. These payments are netted against the total expected retiree benefits.

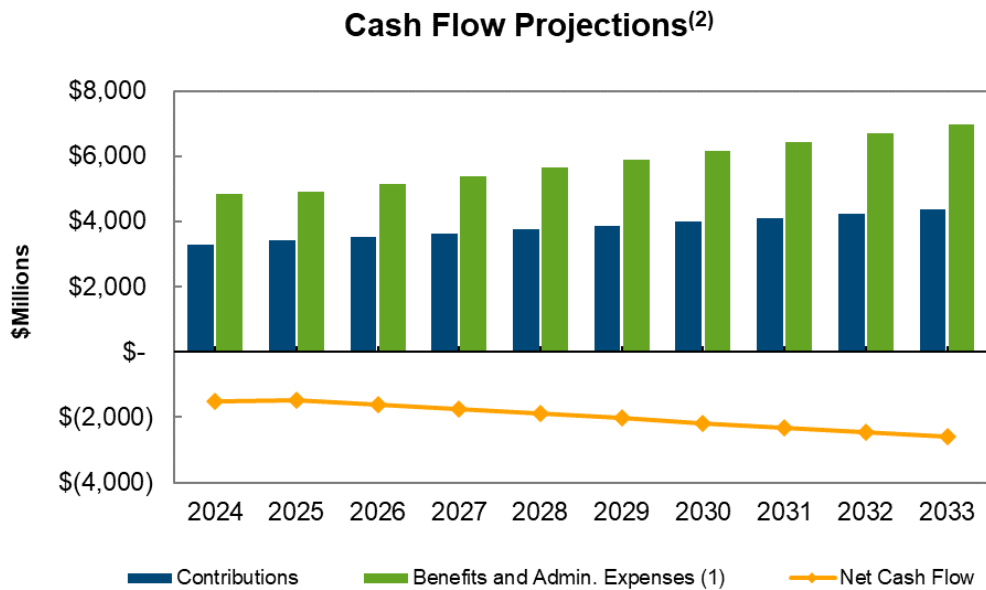
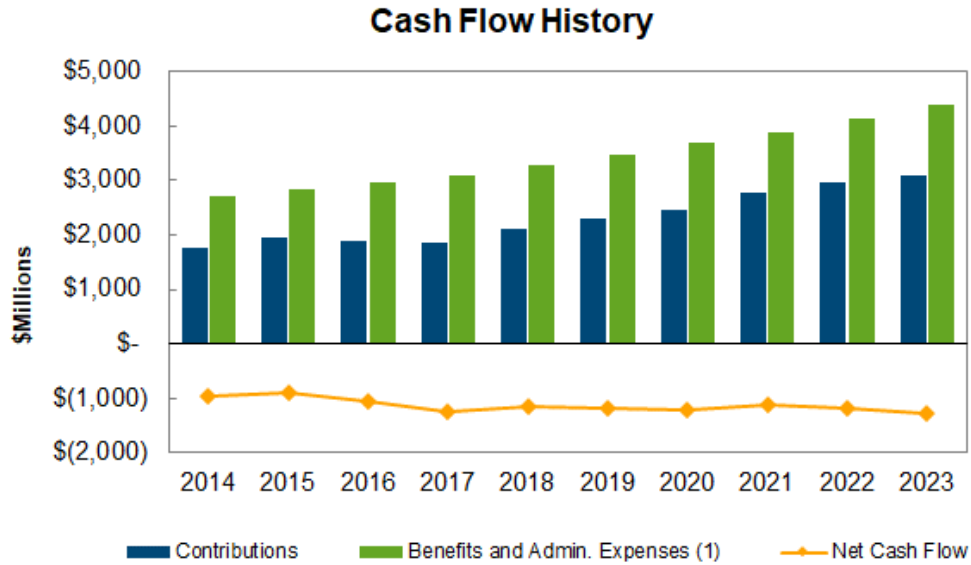
**Exhibit 18a**  
**Cash Flow History and Projections – Dollars**

<b>Cash Flow History</b>				
Plan Year Ending	Total Contributions	Benefits & Administrative Expenses <sup>(1)</sup>	Net Cash Flow	Net Cash Flow as a Percent of Fair Value of Assets
2014	\$ 1,759	\$ 2,719	\$ (960)	-2.3%
2015	1,936	2,829	(893)	-1.9%
2016	1,902	2,954	(1,052)	-2.2%
2017	1,858	3,094	(1,236)	-2.6%
2018	2,116	3,268	(1,152)	-2.2%
2019	2,304	3,475	(1,171)	-2.1%
2020	2,459	3,676	(1,217)	-2.1%
2021	2,774	3,886	(1,112)	-1.9%
2022	2,959	4,126	(1,167)	-1.6%
2023	3,095	4,375	(1,280)	-1.8%

<b>Cash Flow Projections<sup>(2)</sup></b>				
Plan Year Ending	Total Contributions	Benefits & Administrative Expenses <sup>(1)</sup>	Net Cash Flow	Net Cash Flow as a Percent of Fair Value of Assets
2024	\$ 3,303	\$ 4,830	\$ (1,527)	-2.1%
2025	3,431	4,908	(1,477)	-1.9%
2026	3,529	5,149	(1,620)	-2.0%
2027	3,636	5,395	(1,759)	-2.1%
2028	3,750	5,645	(1,895)	-2.1%
2029	3,867	5,900	(2,033)	-2.2%
2030	3,988	6,163	(2,175)	-2.2%
2031	4,112	6,430	(2,318)	-2.2%
2032	4,242	6,701	(2,459)	-2.3%
2033	4,374	6,975	(2,601)	-2.3%

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

**Exhibit 18b**  
**Cash Flow History and Projections – Graphs**



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.

## 9. Risk Discussion

Please refer to the Risk Assessment report dated May 25, 2023 (which is based on the June 30, 2022 valuation) for a detailed analysis of the main risks applicable to LACERA. That report includes detailed identification and assessment of risks.

### Overview

The results of any actuarial valuation are based on one set of reasonable assumptions. Although we believe the current assumptions provide a reasonable estimate of future expectations, it is almost certain that future experience will differ from the assumptions to some extent. It is therefore important to consider the potential impacts of these likely differences when making decisions that may affect the future financial health of the Plan, or of the Plan's members.

Actuarial Standard of Practice 51 (ASOP 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions) addresses these issues by providing actuaries with guidance for assessing and disclosing the risk associated with measuring pension liabilities and the determination of pension plan contributions. Specifically, it directs the actuary to:

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

ASOP 51 states that if in the actuary's professional judgment, a more detailed assessment would be significantly beneficial in helping the individuals responsible for the Plan to understand the risks identified by the actuary, then the actuary should recommend that such an assessment be performed.

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

Disclosure Element	Description	Value
Gross Normal Cost \$ <sup>1</sup>	Normal Cost allocated to valuation year, paid at mid-year.	\$ 1,880.2
Statutory Contribution \$ <sup>1</sup>	Expected Employer Contribution paid at mid-year.	\$ 2,506.9
Asset Smoothing Ratio	Actuarial Value of Assets divided by Fair Value of Assets	99.9%
Asset Volatility Ratio	Fair Value of Assets divided by Payroll	7.6
Liability Volatility Ratio	Actuarial Accrued Liability divided by Payroll	9.5

1. Amounts shown in millions of dollars.

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



## Factors Affecting Future Results

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

- Investment returns  
To the extent that actual investment returns differ from the assumed investment return, the Plan's future assets, ECR, and funded status may differ significantly from those presented in this valuation. Additional discussion of the impact of variance of investment returns is included below.
- Compensation increases  
Individual member retirement benefits are linked to that member's compensation. As such, assumptions need to be made as to a member's future compensation increases. Higher future compensation increases will generally result in larger retirement benefits, liabilities, ECRs, and a lower funded status. Conversely, lower compensation increases than assumed will generally result in smaller retirement benefits, liabilities, ECRs, and a higher funded status.
- Payroll variation  
In the valuation, an assumption is made for the overall rate of payroll growth of LACERA from year-to-year. To the extent that the overall rate of payroll growth is greater than assumed, the ECR may decrease since the UAAL will be amortized over a larger payroll base. If the overall rate of payroll growth is less than assumed, the ECR is expected to increase since the UAAL will be amortized over a smaller payroll base.  
  
This effect often will offset somewhat with individual compensation increases, discussed above.
- Longevity and other demographic risks  
The liabilities reported in this valuation have been calculated by assuming that members will follow specific patterns of demographic experience (e.g., mortality, retirement, termination, disability) as described in Appendix A. To the extent that actual demographic experience is different than is assumed to occur, future liabilities, ECRs, and funded status may differ from that presented in this valuation.

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

## Discussion of Investment Return Risk

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

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

**Low-Default-Risk Obligation Measure (LDRM)**

Effective for measurement dates February 15, 2023 or later, Actuarial Standard of Practice 4 (ASOP 4) states that when performing a funding valuation, the actuary should calculate and disclose a low-default-risk obligation measure (LDRM) of the benefits earned or accrued under the actuarial cost method used as of the measurement date. The actuary should select a discount rate derived from low-default-risk fixed income securities. We have used the Bond Buyer General Obligation 20-Bond Municipal Bond Index. The index is a 20-year high quality AA municipal bond rate and, based on Section 3.11.c. of ASOP 4, we believe this index meets the requirements for a discount rate for the LDRM. The index was 3.65% as of June 30, 2023.

This required disclosure shows significantly higher plan liabilities and a lower funded ratio than under the funding valuation assumption, as shown in the following chart. It provides the Plan Sponsors and other interested parties with additional funding metrics of the Plan for informational purposes, but does not impact the funding of the Plan which is based on the valuation assumptions.

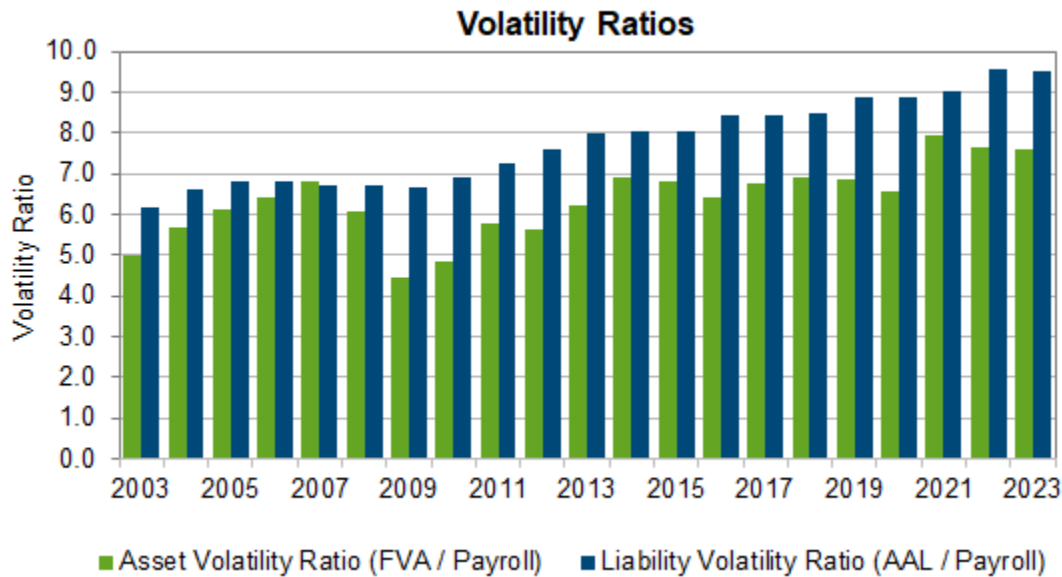
	Bond Buyer Index	Valuation Assumption
Discount Rate	3.65%	7.00%
Actuarial Accrued Liability as of June 30, 2023 <sup>1,2</sup>	\$143.3	\$90.7
Funding Ratio - Valuation Assets	50.6%	79.9%
Funding Ratio - Fair Value of Assets	50.6%	80.0%

1. Calculated using the same actuarial assumptions and methods as used for this valuation, except for the discount rate.
2. Amounts in billions of dollars.

LACERA’s investment policy and strategy is complex, and its target asset allocation reflects a balance of risk and return. The expected return based on LACERA’s target allocation, and consequently the investment return assumption, is significantly higher than the discount rate based on the Bond Buyer Index. Investing in asset classes with a low default risk would be expected to reduce future investment returns and therefore increase future contributions needed and lower the current Funded Ratio. However, the lower investment risk levels would be expected to result in lower year-to-year volatility in the ECR, and a portfolio with a lower default risk might provide more benefit security for members if the associated liabilities are adequately funded. Conversely, investing in asset classes with higher expected returns and volatility would be expected to decrease future contributions and increase the current Funded Ratio, but it would increase the year-to-year volatility of the ECR and could provide less benefit security for members. A change away from the current return-seeking-with-reasonable-risk investment strategy is not being considered by LACERA.

### Asset and Liability Volatility Ratios

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



As shown above, in the current valuation LACERA has an Asset Volatility Ratio of 7.6 and a Liability Volatility Ratio of 9.5. These ratios have increased over time as LACERA has matured.

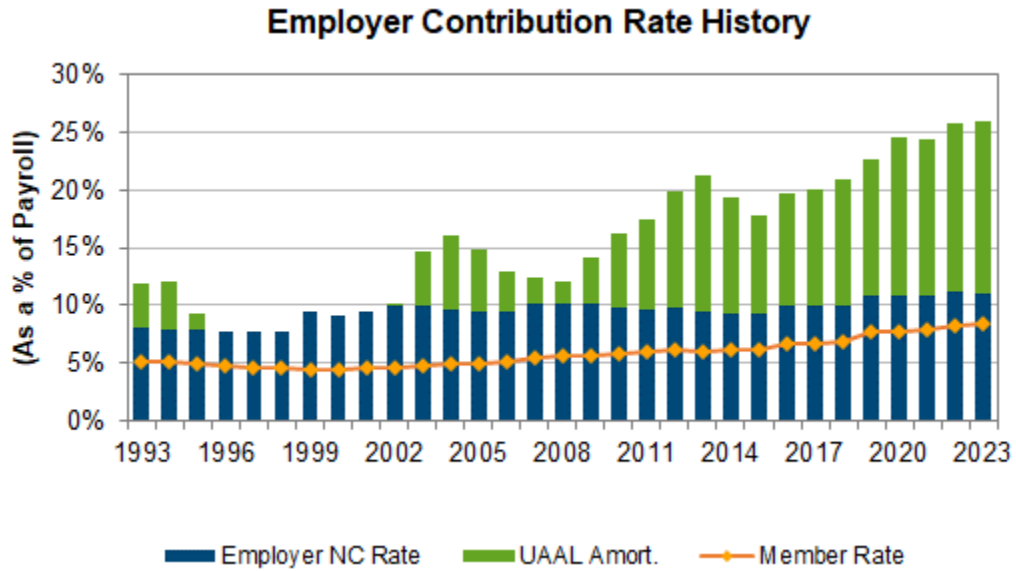
LACERA has accumulated a significant amount of assets relative to its payroll and by several measures is considered a mature plan. Accumulating assets to pay for future benefit obligations is responsible funding, but it does mean changes in the investment markets can have a significant impact on the ECR.

For LACERA, 7.6 Asset Volatility Ratio means that a 10% investment gain or loss relative to the assumed 7.0% investment return assumption (that is, an investment return of -3.0% or of 17.0%) translates to a 5.4% of pay increase (or decrease) in the ECR, all other things being equal. Since LACERA uses actuarial smoothing, the increase would not be immediate, but would occur gradually over five years and could potentially be offset, or further increased, by future investment gains or losses or other factors.

The Liability Volatility Ratio measures the sensitivity of the ECR to changes in the level of liabilities, all else being equal. With a liability volatility ratio of 9.5 an increase (or decrease) in the investment return assumption of 0.5% translates to a decrease (or increase) in the ECR of approximately 5.2% of pay for LACERA.

### Historical Variation in Employer Contribution Rate

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



## Appendix A Actuarial Procedures and Assumptions

The actuarial procedures and assumptions used in this valuation are described in this section. The assumptions were reviewed and changed for the June 30, 2022 actuarial valuation as a result of the 2022 triennial Investigation of Experience Study.

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

Table A-1 summarizes the assumptions.

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 presents the probabilities that a member will leave the System for various reasons.

### Actuarial Cost Method

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

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).

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

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

### Amortization Method

The original UAAL as of June 30, 2009 is amortized as a level percentage of the projected salaries of present and future members of LACERA over a closed 30-year period. As of the June 30, 2019 valuation, all amortization layers with periods greater than 22 years as of July 1, 2020 were amortized over a 22-year period. Future changes in the UAAL due to actuarial gains and losses and assumption changes are amortized over new closed 20-year periods, beginning with the date the contribution is first expected to be made. This is referred to as "layered" amortization. For increases in the UAAL due to changes in benefit provisions, the increase is amortized over a 10-year period.

### Records and Data

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

### **Replacement of Former Members**

The ages and relative salaries at entry of future members are assumed to follow a new entrant distribution based on the pattern of current members. The normal cost rates for active members within an individual plan 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.

### **Growth in Membership**

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

### **Payroll Growth**

Total payroll is expected to grow at 3.25% per year.

### **Internal Revenue Code Section 415 Limit**

The Internal Revenue Code (IRC) Section 415 maximum benefit limitation is not explicitly reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit calculation at retirement.

### **Internal Revenue Code Section 401(a)(17)**

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

### **Government Code Section 7522.10**

The maximum compensation limit under Government Code Section 7522.10 is reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.

### **Employer Contributions**

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

### **Member Contributions**

The member contribution rates of contributory legacy plans (all plans except General Plans E and G and Safety Plan C) 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.

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

### **Valuation of Assets**

The assets are valued using a five-year smoothed method based on the difference between the expected fair value and the actual fair value of the assets as of the valuation date. The expected fair value is the prior year's fair 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. To the extent that there is a loss for the year and there are unrecognized gains from previous years, or to the extent that there is a gain for the year and there are unrecognized losses from previous years, the gain or loss for the year shall be used to offset unrecognized gains or losses from previous years in the order of oldest to most recent. Any remaining gain or loss for the year is

recognized over a five-year period. Valuation Assets exclude the statutory Contingency Reserve and the STAR Reserve. The five-year smoothing valuation basis for all assets was adopted effective June 30, 2009, and the offsetting methodology and STAR Reserve treatment were adopted effective June 30, 2022.

### **Price Inflation (Local and National)**

The price inflation assumption is used in the determination of assumptions for individual salary increases, overall wage growth, postretirement benefit increases, and PEPRA compensation limit increases. Both the local and national price inflation assumptions are 2.75% per year.

### **Investment Earnings and Expenses**

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

### **Postretirement Benefit Increases**

Postretirement increases are assumed for the valuation in accordance with the benefits provided as described in Appendix B. These adjustments vary by plan and are assumed payable each year in the future but are limited to not exceed the expected local inflation of 2.75% per year, with the exception that any COLA accumulation banks for Plan A members are reflected in the valuation. The local inflation rate used for the postretirement benefit assumptions was adopted June 30, 2016.

### **Interest on Member Contributions**

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

### **Future Salaries**

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table A-5. In addition to increases in salary due to promotions and longevity, this scale includes an assumed 3.25% per annum rate of increase in the general wage level of the membership. These rates were adopted June 30, 2022.

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

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

### **Social Security Wage Base**

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

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

General Plan G and Safety Plan C members have their compensation limited to approximately 120% of the Social Security Wage Base. The limit for 2023 is \$175,250 (after applying the 120% factor) and is projected to increase at the assumed national CPI rate of 2.75%. This rate of future increase was adopted effective June 30, 2016.

**Retirement**

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

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

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

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

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

The retirement probabilities were adopted June 30, 2022.

**Disability**

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



**Postretirement Mortality – Other Than Disabled Members**

The same postretirement mortality probabilities are used in the valuation for members retired for service and beneficiaries. These probabilities are illustrated in Table A-2. Current beneficiary mortality is assumed to be the same as for healthy members of the same sex. Future beneficiaries are assumed to be of the opposite sex and have the same mortality as General members. The amount-weighted Pub-2010 mortality tables are used. These probabilities were adopted June 30, 2019.

Note that these assumptions include a projection for expected future mortality improvement. The new projection scale was adopted June 30, 2022.

**Males:** General members: PubG-2010 Healthy Retiree Mortality Table for Males, with MP-2021 Ultimate Projection Scale.

Safety members: PubS-2010 Healthy Retiree Mortality Table for Males multiplied by 85%, with MP-2021 Ultimate Projection Scale.

**Females:** General members: PubG-2010 Healthy Retiree Mortality Table for Females multiplied by 110%, with MP-2021 Ultimate Projection Scale.

Safety members: PubS-2010 Healthy Retiree Mortality Table for Females, with MP-2021 Ultimate Projection Scale.

**Postretirement Mortality – Disabled Members**

For members retired for disability, the mortality probabilities used in the valuation are illustrated in Table A-3. The amount-weighted Pub-2010 mortality tables are used. These probabilities were adopted June 30, 2019.

Note that these assumptions include a projection for expected future mortality improvement. The new projection scale was adopted June 30, 2022.

**Males:** General members: Average of PubG-2010 Healthy Retiree Mortality Table for Males and PubG-2010 Disabled Retiree Mortality Table for Males, both projected with MP-2021 Ultimate Projection Scale.

Safety members: PubS-2010 Healthy Retiree Mortality Table for Males, with MP-2021 Ultimate Projection Scale.

**Females:** General members: Average of PubG-2010 Healthy Retiree Mortality Table for Females and PubG-2010 Disabled Retiree Mortality Table for Females, both projected with MP-2021 Ultimate Projection Scale.

Safety members: PubS-2010 Healthy Retiree Mortality Table for Females, with MP-2021 Ultimate Projection Scale.

**Mortality while in Active Status**

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

Class	Gender	Proposed Table
General	Male	PubG-2010 (120%) Employee Male <sup>(1)</sup>
General	Female	PubG-2010 (130%) Employee Female <sup>(1)</sup>
Safety	Male	PubS-2010 (100%) Employee Male <sup>(1)</sup>
Safety	Female	PubS-2010 (100%) Employee Female <sup>(1)</sup>

1. Projected using the MP-2021 Ultimate projection scale.

These assumptions include a projection for expected future mortality improvement, which was adopted June 30, 2022.

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

### **Other Employment Terminations**

Tables A-6 to A-13 show, for all ages, the probabilities assumed in this valuation for future termination from active service other than for death, disability, or retirement. These probabilities do not apply to members eligible for service retirement. These probabilities were adopted June 30, 2022.

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

Table A-4 gives the assumed probabilities that vested members will withdraw their contributions and elect a refund immediately upon termination and the probability that remaining members will elect a deferred vested benefit. All non-vested members are assumed to elect a refund and withdraw their contributions. These probabilities were adopted June 30, 2022.

### **Probability of Eligible Survivors**

For members not currently in pay status, 77% of all males and 48% of all females are assumed to have eligible survivors (spouses or qualified domestic partners). Survivors are assumed to be three years younger than male members and two years older than female members. Survivors are assumed to be of the opposite gender as the member. There is no explicit assumption for children's benefits. We believe the survivor benefits based on this assumption are sufficient to cover children's benefits as they occur. These probabilities were adopted June 30, 2022.

### **Valuation of Vested Former Members**

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

### **Reciprocal Employment**

17% of General and 36% of Safety current and future vested former members are assumed to work for a reciprocal employer. These probabilities were adopted June 30, 2022.

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.

### Other Technical Assumptions

Decrements are assumed to occur mid-year, except that if the retirement rate is 100% at a given age then the member is assumed to retire at the beginning of the year at that age.

Decrement rates shown are probabilities and are non-competing.

Termination rates are assumed to be 0% if the member is eligible for service retirement.

### 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 2044. For Safety members, it is based on an 85% / 15% blend of the male and female annuity factors determined using the same mortality tables as used for service-retired members.
- B. The annuity factor used in determining the present value of future benefits (PVFB) at entry age is equal to the life only annuity factor at 7.00%.
- C. The Final Compensation is based on the salary paid in the year prior to attaining the retirement age.
- D. Example: For a General Plan C Member who enters at age 59 or earlier, the Final Compensation at retirement (age 60) will be the monthly average of the annual salaries during age 59.
- E. Member Rates are assumed to increase with entry age. There are a few exceptions at the higher entry ages where the calculated rate is less than the previous entry age. In these cases the member contribution rate is adjusted so that it is no less than the value for the previous entry age.

**Table A-1**  
**Summary of Valuation Assumptions as of June 30, 2023**

- I. Economic assumptions
  - A. Payroll / General wage increases 3.25%
  - B. Investment earnings 7.00%
  - C. Growth in membership 0.00%
  - D. Postretirement benefit increases (varies by plan) Plan COLA not greater than local price inflation assumption<sup>(1)</sup>
  - E. National price inflation assumption 2.75%
  - F. Local price 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<sup>(2)</sup> Table A-2

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

- F. Mortality among disabled members<sup>(2)</sup> Table A-3

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

- G. Mortality for beneficiaries<sup>(1)</sup> Table A-2  
 Basis – Beneficiaries are assumed to have the same mortality as a General member of the opposite gender who has taken a service retirement.
- H. Other terminations of employment Tables A-6 to A-13
- I. Refund of contributions on vested termination Table A-4

1. To account for existing Plan A COLA accumulation balances, retirees and beneficiaries with a retirement date prior to April 1, 2023 are assumed to receive 3.00% annual COLAs.

2. All mortality probabilities are projected using the MP-2021 Ultimate projection scale.

**Table A-2**  
**Mortality for Members Retired for Service<sup>(1)</sup>**

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

**Mortality Improvement Scale**

<u>Age</u>	<u>All Groups</u>
60 & Less	1.350%
61	1.350%
62	1.350%
63	1.340%
64	1.320%
65	1.310%
70	1.240%
75	1.170%
80	1.100%
85	0.870%
90	0.630%
95	0.400%
100	0.300%
105	0.200%
110	0.100%
115	0.000%

1. Mortality probabilities are those applicable for the fiscal year beginning in 2010. Annual projected improvements are assumed in the following years under the schedule shown. For example, the annual mortality probability for an 85-year old Safety male in fiscal year beginning in 2023 is 6.9310% calculated as follows:

$$\begin{aligned} \text{Age 85 probability in 2023} &= \text{Age 85 probability in 2010 with 13 years improvement} \\ &= 7.7648\% \times (100.0\% - 0.87\%) ^{13} = 6.9310\% \end{aligned}$$

**Table A-3**  
**Mortality for Members Retired for Disability<sup>(1)</sup>**

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

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

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

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

**Table A-5**  
**Annual Increase in Salary<sup>(1)</sup>**

<b>Years of Service</b>	<b>General</b>	<b>Safety</b>
<1	6.00%	9.00%
1	5.25%	8.50%
2	4.75%	7.50%
3	4.10%	5.75%
4	3.50%	4.25%
5	3.00%	3.00%
6	2.50%	2.50%
7	2.00%	2.10%
8	1.60%	1.70%
9	1.45%	1.45%
10	1.30%	1.30%
11	1.15%	1.20%
12	1.00%	1.10%
13	0.90%	1.00%
14	0.85%	0.90%
15	0.80%	0.90%
16	0.75%	0.90%
17	0.70%	0.90%
18	0.65%	0.90%
19	0.60%	2.25%
20	0.55%	0.90%
21	0.50%	0.90%
22	0.45%	0.90%
23	0.40%	0.90%
24	0.40%	3.00%
25	0.40%	0.90%
26	0.40%	0.90%
27	0.40%	0.90%
28	0.40%	0.90%
29	0.40%	3.00%
30 or More	0.40%	0.90%

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



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

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

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

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

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

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

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

Age	Service Retirement	Other Terminations	Service Disability	Ordinary Disability	Service Death	Ordinary Death
18	0.00000	0.00500	0.00010	0.00010	N/A	0.00043
19	0.00000	0.00500	0.00010	0.00010	N/A	0.00046
20	0.00000	0.00500	0.00010	0.00010	N/A	0.00044
21	0.00000	0.00500	0.00010	0.00010	N/A	0.00043
22	0.00000	0.00500	0.00010	0.00010	N/A	0.00040
23	0.00000	0.00500	0.00010	0.00010	N/A	0.00037
24	0.00000	0.00500	0.00010	0.00010	N/A	0.00035
25	0.00000	0.00500	0.00010	0.00010	N/A	0.00034
26	0.00000	0.00500	0.00010	0.00010	N/A	0.00036
27	0.00000	0.00500	0.00010	0.00010	N/A	0.00037
28	0.00000	0.00500	0.00010	0.00010	N/A	0.00040
29	0.00000	0.00500	0.00010	0.00010	N/A	0.00041
30	0.00000	0.00500	0.00010	0.00020	N/A	0.00043
31	0.00000	0.00500	0.00010	0.00020	N/A	0.00046
32	0.00000	0.00500	0.00010	0.00020	N/A	0.00048
33	0.00000	0.00500	0.00016	0.00020	N/A	0.00050
34	0.00000	0.00500	0.00022	0.00020	N/A	0.00053
35	0.00000	0.00500	0.00028	0.00020	N/A	0.00056
36	0.00000	0.00500	0.00034	0.00020	N/A	0.00060
37	0.00000	0.00500	0.00040	0.00020	N/A	0.00064
38	0.00000	0.00500	0.00048	0.00020	N/A	0.00068
39	0.00000	0.00500	0.00056	0.00020	N/A	0.00073
40	0.03000	0.00500	0.00064	0.00020	N/A	0.00079
41	0.03000	0.00500	0.00072	0.00020	N/A	0.00085
42	0.03000	0.00500	0.00080	0.00020	N/A	0.00092
43	0.03000	0.00500	0.00084	0.00024	N/A	0.00100
44	0.03000	0.00500	0.00088	0.00028	N/A	0.00108
45	0.03000	0.00500	0.00092	0.00032	N/A	0.00118
46	0.03000	0.00500	0.00096	0.00036	N/A	0.00128
47	0.03000	0.00500	0.00100	0.00040	N/A	0.00139
48	0.03000	0.00500	0.00104	0.00044	N/A	0.00152
49	0.03000	0.00500	0.00108	0.00048	N/A	0.00166
50	0.03000	0.00500	0.00112	0.00052	N/A	0.00179
51	0.03000	0.00500	0.00116	0.00056	N/A	0.00194
52	0.03000	0.00500	0.00120	0.00060	N/A	0.00210
53	0.03000	0.00500	0.00156	0.00064	N/A	0.00227
54	0.06000	0.00500	0.00192	0.00068	N/A	0.00244
55	0.10000	0.00500	0.00228	0.00072	N/A	0.00263
56	0.12000	0.00500	0.00264	0.00076	N/A	0.00283
57	0.17000	0.00500	0.00300	0.00080	N/A	0.00306
58	0.26000	0.00500	0.00330	0.00084	N/A	0.00330
59	0.26000	0.00500	0.00360	0.00088	N/A	0.00355
60	0.30000	0.00500	0.00390	0.00092	N/A	0.00383
61	0.30000	0.00500	0.00420	0.00096	N/A	0.00413
62	0.30000	0.00500	0.00450	0.00100	N/A	0.00445
63	0.30000	0.00500	0.00450	0.00104	N/A	0.00481
64	0.30000	0.00500	0.00450	0.00108	N/A	0.00520
65	0.30000	0.00500	0.00450	0.00112	N/A	0.00562
66	0.22000	0.00500	0.00450	0.00116	N/A	0.00607
67	0.22000	0.00500	0.00450	0.00120	N/A	0.00658
68	0.22000	0.00500	0.00450	0.00124	N/A	0.00713
69	0.22000	0.00500	0.00450	0.00128	N/A	0.00775
70	0.22000	0.00500	0.00450	0.00132	N/A	0.00844
71	0.22000	0.00500	0.00450	0.00136	N/A	0.00920
72	0.22000	0.00500	0.00450	0.00140	N/A	0.01004
73	0.22000	0.00500	0.00450	0.00144	N/A	0.01098
74	0.22000	0.00500	0.00450	0.00148	N/A	0.01201
75	1.00000	0.00000	0.00000	0.00000	N/A	0.01315

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

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

Age	Service Retirement	Other Terminations	Service Disability	Ordinary Disability	Service Death	Ordinary Death
18	0.00000	0.00500	0.00015	0.00010	N/A	0.00017
19	0.00000	0.00500	0.00015	0.00010	N/A	0.00017
20	0.00000	0.00500	0.00015	0.00010	N/A	0.00017
21	0.00000	0.00500	0.00015	0.00010	N/A	0.00016
22	0.00000	0.00500	0.00015	0.00010	N/A	0.00014
23	0.00000	0.00500	0.00015	0.00010	N/A	0.00013
24	0.00000	0.00500	0.00015	0.00010	N/A	0.00012
25	0.00000	0.00500	0.00015	0.00010	N/A	0.00012
26	0.00000	0.00500	0.00015	0.00010	N/A	0.00013
27	0.00000	0.00500	0.00015	0.00010	N/A	0.00014
28	0.00000	0.00500	0.00015	0.00010	N/A	0.00016
29	0.00000	0.00500	0.00015	0.00010	N/A	0.00017
30	0.00000	0.00500	0.00015	0.00010	N/A	0.00020
31	0.00000	0.00500	0.00015	0.00010	N/A	0.00021
32	0.00000	0.00500	0.00015	0.00010	N/A	0.00023
33	0.00000	0.00500	0.00020	0.00010	N/A	0.00025
34	0.00000	0.00500	0.00025	0.00010	N/A	0.00027
35	0.00000	0.00500	0.00030	0.00010	N/A	0.00030
36	0.00000	0.00500	0.00035	0.00010	N/A	0.00033
37	0.00000	0.00500	0.00040	0.00010	N/A	0.00036
38	0.00000	0.00500	0.00042	0.00014	N/A	0.00039
39	0.00000	0.00500	0.00044	0.00018	N/A	0.00043
40	0.03000	0.00500	0.00046	0.00022	N/A	0.00047
41	0.03000	0.00500	0.00048	0.00026	N/A	0.00052
42	0.03000	0.00500	0.00050	0.00030	N/A	0.00056
43	0.03000	0.00500	0.00060	0.00032	N/A	0.00061
44	0.03000	0.00500	0.00070	0.00034	N/A	0.00066
45	0.03000	0.00500	0.00080	0.00036	N/A	0.00073
46	0.03000	0.00500	0.00090	0.00038	N/A	0.00079
47	0.03000	0.00500	0.00100	0.00040	N/A	0.00086
48	0.03000	0.00500	0.00110	0.00042	N/A	0.00092
49	0.03000	0.00500	0.00120	0.00044	N/A	0.00100
50	0.03000	0.00500	0.00130	0.00046	N/A	0.00108
51	0.03000	0.00500	0.00140	0.00048	N/A	0.00117
52	0.03000	0.00500	0.00150	0.00050	N/A	0.00126
53	0.03000	0.00500	0.00156	0.00052	N/A	0.00137
54	0.06000	0.00500	0.00162	0.00054	N/A	0.00147
55	0.10000	0.00500	0.00168	0.00056	N/A	0.00160
56	0.12000	0.00500	0.00174	0.00058	N/A	0.00173
57	0.17000	0.00500	0.00180	0.00060	N/A	0.00187
58	0.26000	0.00500	0.00194	0.00064	N/A	0.00203
59	0.26000	0.00500	0.00208	0.00068	N/A	0.00221
60	0.30000	0.00500	0.00222	0.00072	N/A	0.00242
61	0.30000	0.00500	0.00236	0.00076	N/A	0.00264
62	0.30000	0.00500	0.00250	0.00080	N/A	0.00289
63	0.30000	0.00500	0.00250	0.00084	N/A	0.00317
64	0.30000	0.00500	0.00250	0.00088	N/A	0.00350
65	0.30000	0.00500	0.00250	0.00092	N/A	0.00385
66	0.22000	0.00500	0.00250	0.00096	N/A	0.00425
67	0.22000	0.00500	0.00250	0.00100	N/A	0.00471
68	0.22000	0.00500	0.00250	0.00104	N/A	0.00520
69	0.22000	0.00500	0.00250	0.00108	N/A	0.00575
70	0.22000	0.00500	0.00250	0.00112	N/A	0.00636
71	0.22000	0.00500	0.00250	0.00116	N/A	0.00703
72	0.22000	0.00500	0.00250	0.00120	N/A	0.00777
73	0.22000	0.00500	0.00250	0.00124	N/A	0.00859
74	0.22000	0.00500	0.00250	0.00128	N/A	0.00950
75	1.00000	0.00000	0.00000	0.00000	N/A	0.01050

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

Age	Service Retirement <sup>(1)</sup>		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations	Retirement Rate Loading <sup>(2)</sup>
	Plan D	Plan G							
18	0.00000	0.00000	0.00010	0.00010	N/A	0.00043	0	0.08000	80%
19	0.00000	0.00000	0.00010	0.00010	N/A	0.00046	1	0.06500	80%
20	0.00000	0.00000	0.00010	0.00010	N/A	0.00044	2	0.05000	80%
21	0.00000	0.00000	0.00010	0.00010	N/A	0.00043	3	0.04250	80%
22	0.00000	0.00000	0.00010	0.00010	N/A	0.00040	4	0.03500	80%
23	0.00000	0.00000	0.00010	0.00010	N/A	0.00037	5	0.03100	80%
24	0.00000	0.00000	0.00010	0.00010	N/A	0.00035	6	0.02900	80%
25	0.00000	0.00000	0.00010	0.00010	N/A	0.00034	7	0.02700	80%
26	0.00000	0.00000	0.00010	0.00010	N/A	0.00036	8	0.02500	80%
27	0.00000	0.00000	0.00010	0.00010	N/A	0.00037	9	0.02000	80%
28	0.00000	0.00000	0.00010	0.00010	N/A	0.00040	10	0.01700	80%
29	0.00000	0.00000	0.00010	0.00010	N/A	0.00041	11	0.01500	80%
30	0.00000	0.00000	0.00010	0.00020	N/A	0.00043	12	0.01350	80%
31	0.00000	0.00000	0.00010	0.00020	N/A	0.00046	13	0.01200	80%
32	0.00000	0.00000	0.00010	0.00020	N/A	0.00048	14	0.01100	80%
33	0.00000	0.00000	0.00016	0.00020	N/A	0.00050	15	0.01000	80%
34	0.00000	0.00000	0.00022	0.00020	N/A	0.00053	16	0.00950	80%
35	0.00000	0.00000	0.00028	0.00020	N/A	0.00056	17	0.00900	80%
36	0.00000	0.00000	0.00034	0.00020	N/A	0.00060	18	0.00850	80%
37	0.00000	0.00000	0.00040	0.00020	N/A	0.00064	19	0.00800	80%
38	0.00000	0.00000	0.00048	0.00020	N/A	0.00068	20	0.00750	90%
39	0.00000	0.00000	0.00056	0.00020	N/A	0.00073	21	0.00700	90%
40	0.01500	0.00000	0.00064	0.00020	N/A	0.00079	22	0.00650	90%
41	0.01500	0.00000	0.00072	0.00020	N/A	0.00085	23	0.00600	90%
42	0.01500	0.00000	0.00080	0.00020	N/A	0.00092	24	0.00550	90%
43	0.01500	0.00000	0.00084	0.00024	N/A	0.00100	25	0.00500	110%
44	0.01500	0.00000	0.00088	0.00028	N/A	0.00108	26	0.00450	110%
45	0.01500	0.00000	0.00092	0.00032	N/A	0.00118	27	0.00400	110%
46	0.01500	0.00000	0.00096	0.00036	N/A	0.00128	28	0.00400	110%
47	0.01500	0.00000	0.00100	0.00040	N/A	0.00139	29	0.00400	110%
48	0.01500	0.00000	0.00104	0.00044	N/A	0.00152	30 & Above	0.00000	160%
49	0.01500	0.00000	0.00108	0.00048	N/A	0.00166			
50	0.01500	0.01200	0.00112	0.00052	N/A	0.00179			
51	0.01200	0.00960	0.00116	0.00056	N/A	0.00194			
52	0.01200	0.00960	0.00120	0.00060	N/A	0.00210			
53	0.01500	0.01200	0.00156	0.00064	N/A	0.00227			
54	0.02000	0.01600	0.00192	0.00068	N/A	0.00244			
55	0.03000	0.02400	0.00228	0.00072	N/A	0.00263			
56	0.03000	0.02400	0.00264	0.00076	N/A	0.00283			
57	0.03000	0.02400	0.00300	0.00080	N/A	0.00306			
58	0.04000	0.03200	0.00330	0.00084	N/A	0.00330			
59	0.05000	0.04000	0.00360	0.00088	N/A	0.00355			
60	0.07000	0.05600	0.00390	0.00092	N/A	0.00383			
61	0.07000	0.05600	0.00420	0.00096	N/A	0.00413			
62	0.10000	0.10000	0.00450	0.00100	N/A	0.00445			
63	0.12000	0.12000	0.00450	0.00104	N/A	0.00481			
64	0.17000	0.17000	0.00450	0.00108	N/A	0.00520			
65	0.23000	0.18400	0.00450	0.00112	N/A	0.00562			
66	0.19000	0.15200	0.00450	0.00116	N/A	0.00607			
67	0.19000	0.30000	0.00450	0.00120	N/A	0.00658			
68	0.19000	0.19000	0.00450	0.00124	N/A	0.00713			
69	0.19000	0.19000	0.00450	0.00128	N/A	0.00775			
70	0.24000	0.24000	0.00450	0.00132	N/A	0.00844			
71	0.19000	0.19000	0.00450	0.00136	N/A	0.00920			
72	0.19000	0.19000	0.00450	0.00140	N/A	0.01004			
73	0.19000	0.19000	0.00450	0.00144	N/A	0.01098			
74	0.19000	0.19000	0.00450	0.00148	N/A	0.01201			
75	1.00000	1.00000	0.00000	0.00000	N/A	0.01315			

1. Service retirement rates vary by years of service. The applicable retirement rate loading that varies by years of service is shown on this page in a separate column.
2. The retirement rate loading is applied to the service retirement rate at each member's applicable age and years of service.

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

Age	Service Retirement <sup>(1)</sup>		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations	Retirement Rate Loading <sup>(2)</sup>
	Plan D	Plan G							
18	0.00000	0.00000	0.00015	0.00010	N/A	0.00017	0	0.08000	80%
19	0.00000	0.00000	0.00015	0.00010	N/A	0.00017	1	0.06500	80%
20	0.00000	0.00000	0.00015	0.00010	N/A	0.00017	2	0.05000	80%
21	0.00000	0.00000	0.00015	0.00010	N/A	0.00016	3	0.04250	80%
22	0.00000	0.00000	0.00015	0.00010	N/A	0.00014	4	0.03500	80%
23	0.00000	0.00000	0.00015	0.00010	N/A	0.00013	5	0.03100	80%
24	0.00000	0.00000	0.00015	0.00010	N/A	0.00012	6	0.02900	80%
25	0.00000	0.00000	0.00015	0.00010	N/A	0.00012	7	0.02700	80%
26	0.00000	0.00000	0.00015	0.00010	N/A	0.00013	8	0.02500	80%
27	0.00000	0.00000	0.00015	0.00010	N/A	0.00014	9	0.02000	80%
28	0.00000	0.00000	0.00015	0.00010	N/A	0.00016	10	0.01700	80%
29	0.00000	0.00000	0.00015	0.00010	N/A	0.00017	11	0.01500	80%
30	0.00000	0.00000	0.00015	0.00010	N/A	0.00020	12	0.01350	80%
31	0.00000	0.00000	0.00015	0.00010	N/A	0.00021	13	0.01200	80%
32	0.00000	0.00000	0.00015	0.00010	N/A	0.00023	14	0.01100	80%
33	0.00000	0.00000	0.00020	0.00010	N/A	0.00025	15	0.01000	80%
34	0.00000	0.00000	0.00025	0.00010	N/A	0.00027	16	0.00950	80%
35	0.00000	0.00000	0.00030	0.00010	N/A	0.00030	17	0.00900	80%
36	0.00000	0.00000	0.00035	0.00010	N/A	0.00033	18	0.00850	80%
37	0.00000	0.00000	0.00040	0.00010	N/A	0.00036	19	0.00800	80%
38	0.00000	0.00000	0.00042	0.00014	N/A	0.00039	20	0.00750	90%
39	0.00000	0.00000	0.00044	0.00018	N/A	0.00043	21	0.00700	90%
40	0.01500	0.00000	0.00046	0.00022	N/A	0.00047	22	0.00650	90%
41	0.01500	0.00000	0.00048	0.00026	N/A	0.00052	23	0.00600	90%
42	0.01500	0.00000	0.00050	0.00030	N/A	0.00056	24	0.00550	90%
43	0.01500	0.00000	0.00060	0.00032	N/A	0.00061	25	0.00500	110%
44	0.01500	0.00000	0.00070	0.00034	N/A	0.00066	26	0.00450	110%
45	0.01500	0.00000	0.00080	0.00036	N/A	0.00073	27	0.00400	110%
46	0.01500	0.00000	0.00090	0.00038	N/A	0.00079	28	0.00400	110%
47	0.01500	0.00000	0.00100	0.00040	N/A	0.00086	29	0.00400	110%
48	0.01500	0.00000	0.00110	0.00042	N/A	0.00092	30 & Above	0.00000	160%
49	0.01500	0.00000	0.00120	0.00044	N/A	0.00100			
50	0.01500	0.01200	0.00130	0.00046	N/A	0.00108			
51	0.01200	0.00960	0.00140	0.00048	N/A	0.00117			
52	0.01200	0.00960	0.00150	0.00050	N/A	0.00126			
53	0.01500	0.01200	0.00156	0.00052	N/A	0.00137			
54	0.02000	0.01600	0.00162	0.00054	N/A	0.00147			
55	0.03000	0.02400	0.00168	0.00056	N/A	0.00160			
56	0.03000	0.02400	0.00174	0.00058	N/A	0.00173			
57	0.03000	0.02400	0.00180	0.00060	N/A	0.00187			
58	0.04000	0.03200	0.00194	0.00064	N/A	0.00203			
59	0.05000	0.04000	0.00208	0.00068	N/A	0.00221			
60	0.07000	0.05600	0.00222	0.00072	N/A	0.00242			
61	0.07000	0.05600	0.00236	0.00076	N/A	0.00264			
62	0.10000	0.10000	0.00250	0.00080	N/A	0.00289			
63	0.12000	0.12000	0.00250	0.00084	N/A	0.00317			
64	0.17000	0.17000	0.00250	0.00088	N/A	0.00350			
65	0.23000	0.18400	0.00250	0.00092	N/A	0.00385			
66	0.19000	0.15200	0.00250	0.00096	N/A	0.00425			
67	0.19000	0.30000	0.00250	0.00100	N/A	0.00471			
68	0.19000	0.19000	0.00250	0.00104	N/A	0.00520			
69	0.19000	0.19000	0.00250	0.00108	N/A	0.00575			
70	0.24000	0.24000	0.00250	0.00112	N/A	0.00636			
71	0.19000	0.19000	0.00250	0.00116	N/A	0.00703			
72	0.19000	0.19000	0.00250	0.00120	N/A	0.00777			
73	0.19000	0.19000	0.00250	0.00124	N/A	0.00859			
74	0.19000	0.19000	0.00250	0.00128	N/A	0.00950			
75	1.00000	1.00000	0.00000	0.00000	N/A	0.01050			

1. Service retirement rates vary by years of service. The applicable retirement rate loading that varies by years of service is shown on this page in a separate column.
2. The retirement rate loading is applied to the service retirement rate at each member's applicable age and years of service.

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

Age	Service Retirement <sup>(1)</sup>	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations	Retirement Rate Loading <sup>(2)</sup>
18	0.00000	N/A	N/A	N/A	0.00043	0	0.08000	70%
19	0.00000	N/A	N/A	N/A	0.00046	1	0.06500	70%
20	0.00000	N/A	N/A	N/A	0.00044	2	0.05000	70%
21	0.00000	N/A	N/A	N/A	0.00043	3	0.04250	70%
22	0.00000	N/A	N/A	N/A	0.00040	4	0.03500	70%
23	0.00000	N/A	N/A	N/A	0.00037	5	0.03100	70%
24	0.00000	N/A	N/A	N/A	0.00035	6	0.02700	70%
25	0.00000	N/A	N/A	N/A	0.00034	7	0.02300	70%
26	0.00000	N/A	N/A	N/A	0.00036	8	0.02300	70%
27	0.00000	N/A	N/A	N/A	0.00037	9	0.02300	70%
28	0.00000	N/A	N/A	N/A	0.00040	10	0.02300	70%
29	0.00000	N/A	N/A	N/A	0.00041	11	0.01900	70%
30	0.00000	N/A	N/A	N/A	0.00043	12	0.01800	70%
31	0.00000	N/A	N/A	N/A	0.00046	13	0.01680	70%
32	0.00000	N/A	N/A	N/A	0.00048	14	0.01560	70%
33	0.00000	N/A	N/A	N/A	0.00050	15	0.01440	70%
34	0.00000	N/A	N/A	N/A	0.00053	16	0.01320	70%
35	0.00000	N/A	N/A	N/A	0.00056	17	0.01200	70%
36	0.00000	N/A	N/A	N/A	0.00060	18	0.01160	70%
37	0.00000	N/A	N/A	N/A	0.00064	19	0.01120	70%
38	0.00000	N/A	N/A	N/A	0.00068	20	0.01080	70%
39	0.00000	N/A	N/A	N/A	0.00073	21	0.01040	70%
40	0.00000	N/A	N/A	N/A	0.00079	22	0.01000	70%
41	0.00000	N/A	N/A	N/A	0.00085	23	0.01000	70%
42	0.00000	N/A	N/A	N/A	0.00092	24	0.01000	70%
43	0.00000	N/A	N/A	N/A	0.00100	25	0.01000	100%
44	0.00000	N/A	N/A	N/A	0.00108	26	0.01000	100%
45	0.00000	N/A	N/A	N/A	0.00118	27	0.01000	100%
46	0.00000	N/A	N/A	N/A	0.00128	28	0.01000	100%
47	0.00000	N/A	N/A	N/A	0.00139	29	0.01000	100%
48	0.00000	N/A	N/A	N/A	0.00152	30 & Above	0.01000	130%
49	0.00000	N/A	N/A	N/A	0.00166			
50	0.00000	N/A	N/A	N/A	0.00179			
51	0.00000	N/A	N/A	N/A	0.00194			
52	0.00000	N/A	N/A	N/A	0.00210			
53	0.00000	N/A	N/A	N/A	0.00227			
54	0.00000	N/A	N/A	N/A	0.00244			
55	0.02000	N/A	N/A	N/A	0.00263			
56	0.02000	N/A	N/A	N/A	0.00283			
57	0.02500	N/A	N/A	N/A	0.00306			
58	0.02500	N/A	N/A	N/A	0.00330			
59	0.03000	N/A	N/A	N/A	0.00355			
60	0.04000	N/A	N/A	N/A	0.00383			
61	0.06000	N/A	N/A	N/A	0.00413			
62	0.09000	N/A	N/A	N/A	0.00445			
63	0.09000	N/A	N/A	N/A	0.00481			
64	0.19000	N/A	N/A	N/A	0.00520			
65	0.27000	N/A	N/A	N/A	0.00562			
66	0.20000	N/A	N/A	N/A	0.00607			
67	0.20000	N/A	N/A	N/A	0.00658			
68	0.20000	N/A	N/A	N/A	0.00713			
69	0.20000	N/A	N/A	N/A	0.00775			
70	0.20000	N/A	N/A	N/A	0.00844			
71	0.20000	N/A	N/A	N/A	0.00920			
72	0.20000	N/A	N/A	N/A	0.01004			
73	0.20000	N/A	N/A	N/A	0.01098			
74	0.20000	N/A	N/A	N/A	0.01201			
75	1.00000	N/A	N/A	N/A	0.01315			

1. Service retirement rates vary by years of service. The applicable retirement rate loading that varies by years of service is shown on this page in a separate column.
2. The retirement rate loading is applied to the service retirement rate at each member's applicable age and years of service.

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

Age	Service Retirement <sup>(1)</sup>	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations	Retirement Rate Loading <sup>(2)</sup>
18	0.00000	N/A	N/A	N/A	0.00017	0	0.08000	70%
19	0.00000	N/A	N/A	N/A	0.00017	1	0.06500	70%
20	0.00000	N/A	N/A	N/A	0.00017	2	0.05000	70%
21	0.00000	N/A	N/A	N/A	0.00016	3	0.04250	70%
22	0.00000	N/A	N/A	N/A	0.00014	4	0.03500	70%
23	0.00000	N/A	N/A	N/A	0.00013	5	0.03100	70%
24	0.00000	N/A	N/A	N/A	0.00012	6	0.02700	70%
25	0.00000	N/A	N/A	N/A	0.00012	7	0.02300	70%
26	0.00000	N/A	N/A	N/A	0.00013	8	0.02300	70%
27	0.00000	N/A	N/A	N/A	0.00014	9	0.02300	70%
28	0.00000	N/A	N/A	N/A	0.00016	10	0.02300	70%
29	0.00000	N/A	N/A	N/A	0.00017	11	0.01900	70%
30	0.00000	N/A	N/A	N/A	0.00020	12	0.01800	70%
31	0.00000	N/A	N/A	N/A	0.00021	13	0.01680	70%
32	0.00000	N/A	N/A	N/A	0.00023	14	0.01560	70%
33	0.00000	N/A	N/A	N/A	0.00025	15	0.01440	70%
34	0.00000	N/A	N/A	N/A	0.00027	16	0.01320	70%
35	0.00000	N/A	N/A	N/A	0.00030	17	0.01200	70%
36	0.00000	N/A	N/A	N/A	0.00033	18	0.01160	70%
37	0.00000	N/A	N/A	N/A	0.00036	19	0.01120	70%
38	0.00000	N/A	N/A	N/A	0.00039	20	0.01080	70%
39	0.00000	N/A	N/A	N/A	0.00043	21	0.01040	70%
40	0.00000	N/A	N/A	N/A	0.00047	22	0.01000	70%
41	0.00000	N/A	N/A	N/A	0.00052	23	0.01000	70%
42	0.00000	N/A	N/A	N/A	0.00056	24	0.01000	70%
43	0.00000	N/A	N/A	N/A	0.00061	25	0.01000	100%
44	0.00000	N/A	N/A	N/A	0.00066	26	0.01000	100%
45	0.00000	N/A	N/A	N/A	0.00073	27	0.01000	100%
46	0.00000	N/A	N/A	N/A	0.00079	28	0.01000	100%
47	0.00000	N/A	N/A	N/A	0.00086	29	0.01000	100%
48	0.00000	N/A	N/A	N/A	0.00092	30 & Above	0.01000	130%
49	0.00000	N/A	N/A	N/A	0.00100			
50	0.00000	N/A	N/A	N/A	0.00108			
51	0.00000	N/A	N/A	N/A	0.00117			
52	0.00000	N/A	N/A	N/A	0.00126			
53	0.00000	N/A	N/A	N/A	0.00137			
54	0.00000	N/A	N/A	N/A	0.00147			
55	0.02000	N/A	N/A	N/A	0.00160			
56	0.02000	N/A	N/A	N/A	0.00173			
57	0.02500	N/A	N/A	N/A	0.00187			
58	0.02500	N/A	N/A	N/A	0.00203			
59	0.03000	N/A	N/A	N/A	0.00221			
60	0.04000	N/A	N/A	N/A	0.00242			
61	0.06000	N/A	N/A	N/A	0.00264			
62	0.09000	N/A	N/A	N/A	0.00289			
63	0.09000	N/A	N/A	N/A	0.00317			
64	0.19000	N/A	N/A	N/A	0.00350			
65	0.27000	N/A	N/A	N/A	0.00385			
66	0.20000	N/A	N/A	N/A	0.00425			
67	0.20000	N/A	N/A	N/A	0.00471			
68	0.20000	N/A	N/A	N/A	0.00520			
69	0.20000	N/A	N/A	N/A	0.00575			
70	0.20000	N/A	N/A	N/A	0.00636			
71	0.20000	N/A	N/A	N/A	0.00703			
72	0.20000	N/A	N/A	N/A	0.00777			
73	0.20000	N/A	N/A	N/A	0.00859			
74	0.20000	N/A	N/A	N/A	0.00950			
75	1.00000	N/A	N/A	N/A	0.01050			

1. Service retirement rates vary by years of service. The applicable retirement rate loading that varies by years of service is shown on this page in a separate column.
2. The retirement rate loading is applied to the service retirement rate at each member's applicable age and years of service.

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

Age	Service Retirement <sup>(1)</sup>		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations	Retirement Rate Loading <sup>(2)</sup>
	Plans A & B	Plan C							
18	0.00000	0.00000	0.00200	0.00000	0.00010	0.00037	0	0.05000	30%
19	0.00000	0.00000	0.00200	0.00000	0.00010	0.00040	1	0.03750	30%
20	0.00000	0.00000	0.00200	0.00000	0.00010	0.00041	2	0.02000	30%
21	0.00000	0.00000	0.00200	0.00000	0.00010	0.00041	3	0.01500	30%
22	0.00000	0.00000	0.00200	0.00000	0.00010	0.00040	4	0.01200	30%
23	0.00000	0.00000	0.00200	0.00000	0.00010	0.00039	5	0.01130	30%
24	0.00000	0.00000	0.00200	0.00000	0.00010	0.00038	6	0.01070	30%
25	0.00000	0.00000	0.00200	0.00000	0.00010	0.00037	7	0.01000	30%
26	0.00000	0.00000	0.00200	0.00000	0.00010	0.00038	8	0.00920	30%
27	0.00000	0.00000	0.00200	0.00000	0.00010	0.00039	9	0.00840	30%
28	0.00000	0.00000	0.00200	0.00000	0.00010	0.00040	10	0.00760	30%
29	0.00000	0.00000	0.00200	0.00000	0.00010	0.00041	11	0.00680	30%
30	0.00000	0.00000	0.00200	0.00000	0.00010	0.00041	12	0.00600	30%
31	0.00000	0.00000	0.00200	0.00000	0.00010	0.00042	13	0.00560	30%
32	0.00000	0.00000	0.00200	0.00000	0.00010	0.00043	14	0.00520	30%
33	0.00000	0.00000	0.00210	0.00000	0.00010	0.00044	15	0.00480	40%
34	0.00000	0.00000	0.00220	0.00000	0.00010	0.00045	16	0.00440	40%
35	0.00000	0.00000	0.00230	0.00000	0.00010	0.00047	17	0.00400	40%
36	0.00000	0.00000	0.00240	0.00000	0.00010	0.00049	18	0.00360	40%
37	0.00000	0.00000	0.00250	0.00000	0.00010	0.00050	19	0.00320	40%
38	0.00000	0.00000	0.00260	0.00000	0.00010	0.00053	20	0.00280	70%
39	0.00000	0.00000	0.00270	0.00000	0.00010	0.00056	21	0.00240	70%
40	0.00750	0.00000	0.00280	0.00000	0.00010	0.00059	22	0.00200	70%
41	0.00750	0.00000	0.00290	0.00000	0.00010	0.00062	23	0.00200	70%
42	0.00750	0.00000	0.00300	0.00000	0.00010	0.00067	24	0.00200	70%
43	0.00750	0.00000	0.00310	0.00000	0.00010	0.00071	25	0.00200	110%
44	0.00750	0.00000	0.00320	0.00000	0.00010	0.00076	26	0.00200	110%
45	0.00750	0.00000	0.00330	0.00000	0.00010	0.00082	27	0.00200	110%
46	0.00750	0.00000	0.00340	0.00000	0.00010	0.00088	28	0.00200	110%
47	0.00750	0.00000	0.00350	0.00000	0.00010	0.00095	29	0.00200	110%
48	0.00750	0.00000	0.00400	0.00000	0.00010	0.00102	30 & Above	0.00000	170%
49	0.00750	0.00000	0.00500	0.00000	0.00010	0.00111			
50	0.02000	0.02000	0.00750	0.00000	0.00010	0.00120			
51	0.02000	0.02000	0.00750	0.00000	0.00010	0.00129			
52	0.02000	0.02000	0.00750	0.00000	0.00010	0.00140			
53	0.03000	0.03000	0.02000	0.00000	0.00010	0.00151			
54	0.12000	0.08000	0.02000	0.00000	0.00010	0.00162			
55	0.22000	0.15000	0.07500	0.00000	0.00010	0.00175			
56	0.18000	0.15000	0.07500	0.00000	0.00010	0.00190			
57	0.14000	0.23000	0.10000	0.00000	0.00010	0.00205			
58	0.15000	0.15000	0.10000	0.00000	0.00010	0.00223			
59	0.22000	0.22000	0.10000	0.00000	0.00010	0.00243			
60	0.21000	0.21000	0.10000	0.00000	0.00010	0.00264			
61	0.20000	0.20000	0.05000	0.00000	0.00010	0.00288			
62	0.20000	0.20000	0.05000	0.00000	0.00010	0.00315			
63	0.20000	0.20000	0.05000	0.00000	0.00010	0.00344			
64	0.23000	0.23000	0.05000	0.00000	0.00010	0.00375			
65	1.00000	1.00000	0.00000	0.00000	0.00000	0.00410			

1. Service retirement rates vary by years of service. The applicable retirement rate loading that varies by years of service is shown on this page in a separate column.
2. The retirement rate loading is applied to the service retirement rate at each member's applicable age and years of service.



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

Age	Service Retirement <sup>(1)</sup>						Years of Service	Other Terminations	Retirement Rate Loading <sup>(2)</sup>
	Plans A & B	Plan C	Service Disability	Ordinary Disability	Service Death	Ordinary Death			
18	0.00000	0.00000	0.00300	0.00000	0.00010	0.00014	0	0.05000	30%
19	0.00000	0.00000	0.00300	0.00000	0.00010	0.00015	1	0.03750	30%
20	0.00000	0.00000	0.00300	0.00000	0.00010	0.00016	2	0.02000	30%
21	0.00000	0.00000	0.00300	0.00000	0.00010	0.00017	3	0.01500	30%
22	0.00000	0.00000	0.00300	0.00000	0.00010	0.00017	4	0.01200	30%
23	0.00000	0.00000	0.00300	0.00000	0.00010	0.00018	5	0.01130	30%
24	0.00000	0.00000	0.00300	0.00000	0.00010	0.00019	6	0.01070	30%
25	0.00000	0.00000	0.00300	0.00000	0.00010	0.00020	7	0.01000	30%
26	0.00000	0.00000	0.00300	0.00000	0.00010	0.00021	8	0.00920	30%
27	0.00000	0.00000	0.00300	0.00000	0.00010	0.00022	9	0.00840	30%
28	0.00000	0.00000	0.00340	0.00000	0.00010	0.00024	10	0.00760	30%
29	0.00000	0.00000	0.00380	0.00000	0.00010	0.00025	11	0.00680	30%
30	0.00000	0.00000	0.00420	0.00000	0.00010	0.00027	12	0.00600	30%
31	0.00000	0.00000	0.00460	0.00000	0.00010	0.00028	13	0.00560	30%
32	0.00000	0.00000	0.00500	0.00000	0.00010	0.00030	14	0.00520	30%
33	0.00000	0.00000	0.00560	0.00000	0.00010	0.00032	15	0.00480	40%
34	0.00000	0.00000	0.00620	0.00000	0.00010	0.00034	16	0.00440	40%
35	0.00000	0.00000	0.00680	0.00000	0.00010	0.00036	17	0.00400	40%
36	0.00000	0.00000	0.00740	0.00000	0.00010	0.00038	18	0.00360	40%
37	0.00000	0.00000	0.00800	0.00000	0.00010	0.00041	19	0.00320	40%
38	0.00000	0.00000	0.00840	0.00000	0.00010	0.00043	20	0.00280	70%
39	0.00000	0.00000	0.00880	0.00000	0.00010	0.00046	21	0.00240	70%
40	0.00750	0.00000	0.00920	0.00000	0.00010	0.00049	22	0.00200	70%
41	0.00750	0.00000	0.00960	0.00000	0.00010	0.00052	23	0.00200	70%
42	0.00750	0.00000	0.01000	0.00000	0.00010	0.00056	24	0.00200	70%
43	0.00750	0.00000	0.01040	0.00000	0.00010	0.00059	25	0.00200	110%
44	0.00750	0.00000	0.01080	0.00000	0.00010	0.00063	26	0.00200	110%
45	0.00750	0.00000	0.01120	0.00000	0.00010	0.00067	27	0.00200	110%
46	0.00750	0.00000	0.01160	0.00000	0.00010	0.00071	28	0.00200	110%
47	0.00750	0.00000	0.01200	0.00000	0.00010	0.00076	29	0.00200	110%
48	0.00750	0.00000	0.01300	0.00000	0.00010	0.00080	30 & Above	0.00000	170%
49	0.00750	0.00000	0.01500	0.00000	0.00010	0.00085			
50	0.02000	0.02000	0.01800	0.00000	0.00010	0.00091			
51	0.02000	0.02000	0.02000	0.00000	0.00010	0.00097			
52	0.02000	0.02000	0.02400	0.00000	0.00010	0.00103			
53	0.03000	0.03000	0.02800	0.00000	0.00010	0.00109			
54	0.12000	0.08000	0.03200	0.00000	0.00010	0.00116			
55	0.22000	0.15000	0.11000	0.00000	0.00010	0.00123			
56	0.18000	0.15000	0.06000	0.00000	0.00010	0.00131			
57	0.14000	0.23000	0.06000	0.00000	0.00010	0.00140			
58	0.15000	0.15000	0.06000	0.00000	0.00010	0.00148			
59	0.22000	0.22000	0.06000	0.00000	0.00010	0.00158			
60	0.21000	0.21000	0.06000	0.00000	0.00010	0.00168			
61	0.20000	0.20000	0.06000	0.00000	0.00010	0.00178			
62	0.20000	0.20000	0.06000	0.00000	0.00010	0.00190			
63	0.20000	0.20000	0.06000	0.00000	0.00010	0.00202			
64	0.23000	0.23000	0.06000	0.00000	0.00010	0.00215			
65	1.00000	1.00000	0.00000	0.00000	0.00000	0.00228			

1. Service retirement rates vary by years of service. The applicable retirement rate loading that varies by years of service is shown on this page in a separate column.
2. The retirement rate loading is applied to the service retirement rate at each member's applicable age and years of service.

## Appendix B Summary of Plan Provisions

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

<b>MEMBERSHIP</b>	<b>Government Code Section</b>
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, 31493.5, 31493.6, Bylaws)
Elective officers become members on the first day of the month after filing a declaration with the Board of Retirement (Board).	(31553, 31562)
General members in Plan E may transfer all their Plan E service credit to Plan D during an approved transfer period by making the required contributions. Transferred members relinquish, waive, and forfeit any and all vested or accrued benefits available under any other retirement plan and are entitled only to the benefits of Plan D.	(31494.1, 31494.3)

**RETIREMENT PLANS**

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

**Safety Member Plans:**

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

**General Member Plans:**

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

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

**MEMBER CONTRIBUTIONS**

**Plans A, B, D and General Plan C members**

- Contributions are based on the entry age and class of each member and are required of all members in Plans A, B, C, and D. Current member rates are shown in Appendix D. Section 5 provides additional detail on how these rates are calculated. (31620)
- Contributions cease when general members are credited with 30 years of service in a contributory plan, provided they were members of LACERA or a reciprocal plan on March 7, 1973, and continuously thereafter. All safety members are eligible for the 30-year cessation of contributions. (31625.2, 31836.1)
- Interest is credited to contributions semiannually on June 30 and December 31 at an interest rate set by the Board of Investments on amounts that have been on deposit for at least six months. (31591, 31700)
- In addition to the normal contributions, members pay one-half of the cost of their plan’s COLA. This is discussed further in Section 5 of this report. (31873)

**General Plan G and Safety Plan C members**

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

**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 and actively employed, regardless of service.
- Plan C: Safety members** (7522.25(d))  
 Age 50 with 5 years of service.
- Plan E: General members** (31491, 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**

- General Plans A-D and Safety Plans A-B** (31462.3)  
 Average of the member's highest monthly pensionable earnings during any 12-consecutive-month period.
- Plan E:** Average of the member's highest monthly pensionable earnings during any three 12-consecutive month periods. (31488)
- General Plan G and Safety Plan C** (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 \$175,250 for 2023. The amount of compensation taken into account shall be adjusted based on changes in the Consumer Price Index for All Urban Consumers: U.S. City Average. Adjustments shall be effective annually on January 1. (7522.10)

**SERVICE RETIREMENT ALLOWANCE (continued)**

**Monthly Allowance**

**Plans A-B: Safety members**

1/50 x Final Compensation x Safety age factor x Years of service. (The Safety Plan A and Safety Plan B age factors are the same.) (31664)

**Plans A-D: General members**

1/60 x Final Compensation x a Plan specific age factor x years of service. (The General Plan C and General D age factors are the same.) (31676.1)  
 (31676.11)  
 (31676.14)  
 (7522.25(d))

**Plan C: Safety members**

Final Compensation x Safety Plan percentage x Years of service.

**Plan E: General members [(a)+(b)-(c)] x d where:**

(a) 2% x Final Compensation x (Years of Service (up to 35 years), plus  
 (b) 1 % x Final Compensation x Years of Service in excess of 35 (up to 10)  
 (c) Estimated Primary Insurance Amount (PIA) x Years of Covered Service (up to 35) divided by 35.  
 (d) Early Retirement Adjustment Factor  
 The PIA is calculated based on certain assumptions specified by statute, and an assumed Social Security retirement age of 62.  
 If retirement occurs prior to age 65, benefit amount is adjusted by an Early Retirement Adjustment Factor.

(31491,  
 31491.3 (b)&(c))

**Plan G: General members**

Final Compensation x General Plan percentage x Years of Service. (7522.20(a))

**Social Security Integration**

**Plans A-C: General Members**

For County service covered by Social Security prior to January 1, 1983, the 1/60 factor is replaced by 1/90 for the first \$350 of compensation. (31808)

**Plan D:** The 1/90 factor is applied to the first \$1,050 of compensation.

**SERVICE RETIREMENT ALLOWANCE (continued)**

**Sample Plan Age Factors**

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

**Sample Plan Age Percentages**

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

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

**Maximum Allowance**

<b>Plans A-D, G:</b>	Allowance may not exceed 100% of final compensation.	(31676.1, 31676.11, 31676.14)
<b>Plan E:</b>	The sum of the normal retirement allowance and the estimated PIA cannot exceed 70% of Final Compensation for a member with 35 or less years of service, and cannot exceed 80% of Final Compensation if service exceeds 35 years.	(31491)

**Unmodified Retirement Allowance (Normal Form)**

<b>Plans A-D, G:</b>	Life Annuity payable to retired member with 65% continuance to an eligible survivor (or eligible children).	(31760.12, 31785.4)
<b>Plan E:</b>	Life Annuity payable to retired member with 55% continuance to an eligible survivor (or eligible children).	(31492.1)

Eligible survivor includes certain domestic partners. (31780.2)

**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)

<b>Unmodified Plus:</b>	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)
<b>Option 1:</b>	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)
<b>Option 2:</b>	100% of member's reduced allowance is payable to a beneficiary having an insurable interest in the life of the member.	(31762)
<b>Option 3:</b>	50% of member's reduced allowance is payable to a beneficiary having an insurable interest in the life of the member.	(31763)
<b>Option 4:</b>	Other % of member's reduced allowance is payable to a beneficiary(ies) having an insurable interest in the life of the member.	(31764)
	A member may not revoke and name another beneficiary if the member elects Option 2, 3, or 4.	(31782)
<b>Pension Advance Option:</b>	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)
<b>All Allowances</b>		(31452.7, 31600)
	All allowances are made on a pro-rata basis (based on the number of days in that month) if not in effect for the entire month of retirement. For deaths that occur mid-month, the full month's payment is made.	

**SERVICE-CONNECTED DISABILITY RETIREMENT ALLOWANCE**

**Eligibility**

<b>Plans A-D, G:</b>	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)
<b>Plan E:</b>	Not available under Plan E.	(31487)

**Monthly Allowance**

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

**Normal Form Of Payment**

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

**NONSERVICE-CONNECTED DISABILITY RETIREMENT ALLOWANCE**

**Eligibility**

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

**Monthly Allowance**

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

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

**Safety Members:** 1/60 is replaced by 1/50 and age 65 is replaced by age 55 in (a) and (b) above. (31727.2)

**Normal Form of Payment**

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



**SERVICE-CONNECTED PRE-RETIREMENT DEATH BENEFITS**

**Eligibility**

**Plans A-D, G:** Active members who die in service as a result of injury or disease arising out of and in the course of employment. (31787)

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

**Monthly Allowance** (31787)

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

**Optional Combined Benefit** (31781.3)

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

- (a) A lump sum equal to 1/12 of the compensation earned in the preceding 12 months x years of service (benefit not to exceed 50% of the 12 months' compensation), plus
- (b) A monthly payment equal to 50% of the member's Final Compensation, reduced by a monthly amount, which is the actuarial equivalent of (a) above based on the age of surviving spouse.

**Death Benefit (Lump Sum)** (31781)

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

**Additional Allowance for Children** (31787.5)

In the case of a surviving spouse of a member who is killed in the performance of duty or who dies as the result of an accident or an injury caused by external violence or physical force, incurred in the performance of the member's duty: 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, who is killed in the performance of duty or who dies as the result of an accident or injury caused by external violence or physical force, incurred in the performance of his or her duty, 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**

**Plans A-D, G:** Active members who die while in service or while physically or mentally incapacitated for the performance of duty. (31780)

**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)

**NONSERVICE-CONNECTED PRE-RETIREMENT DEATH BENEFITS (continued)**

**Fourth Optional Death Benefit**

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

**Fifth Optional Death Benefit**

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

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

**POSTRETIREMENT DEATH/BURIAL BENEFIT**

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

**DEFERRED RETIREMENT ALLOWANCE**

**Eligibility**

**Plans A, B, D and General Plan C:**

Five years of county or reciprocal service. (31700)  
 Member contributions must be left on deposit.

**Safety Plan C:** Age 50 with 5 years of service. (7522.25(d))

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

**Plan G:** Age 52 with 5 years of service. (7522.20(a))

**DEFERRED RETIREMENT ALLOWANCE** (continued)

**Monthly Allowance**

<b>Plans A-D, G:</b>	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)
<b>Plan E:</b>	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**

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

**TRANSFER FROM CALPERS**

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

**COST-OF-LIVING INCREASES**

Cost-of-living increases (or decreases) are applied to all retirement allowances (service and disability), optional death allowances, and annual death allowances effective April 1, based on changes in the Consumer Price Index (CPI) from the previous January 1 to the current January 1, to the nearest 1/2 of 1%. (31870, 31870.1)

**Plan A:** Members (and their beneficiaries) are limited to a maximum 3% cost-of-living increase. (31870.1)

**Plans B-D, G:** Members (and their beneficiaries) are limited to a maximum 2% cost-of-living increase. (31870)

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 a maximum 2% cost-of-living increase. The 2% is pro-rated based on service earned after June 4, 2002. "Elective COLA" increases for service earned prior to June 4, 2002 may be purchased by the member. (31495.5)

**STAR PROGRAM**

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

## Appendix C Valuation Data and Schedules

On the following table, Exhibit C-1, we present a summary of LACERA membership at June 30, 2023 for active members. Similar information is shown in Exhibit C-2 Retired for retired members and C-2 Former for vested former members.

Note that salary amounts shown are the prior year annual pensionable earnings for those members of plans with a one-year final compensation period. For plans with a three-year final compensation period, the monthly rate of pay at June 2023 is shown.

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

Exhibit C-3: Age Distribution of Active Members

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

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

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

Data on LACERA membership as of June 30, 2023 was supplied to us by LACERA staff. Based on our review of this data and discussions with LACERA staff, all retiree and beneficiary records were included in our valuation.

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

**Exhibit C-1**  
**LACERA Membership – Active Members as of June 30, 2023**

	<b>Sex</b>	<b>Vested</b>	<b>NonVested</b>	<b>Total Number</b>	<b>Annual Salary</b>	<b>Average Age</b>	<b>Average Monthly Salary</b>	<b>Average Service</b>
<b>General Members</b>								
Plan A	M	19	-	19	\$ 3,125,040	77.2	\$ 13,706	43.9
	F	32	-	32	3,113,136	72.9	8,107	41.4
Plan B	M	3	-	3	352,800	73.3	9,800	30.0
	F	9	-	9	1,255,812	69.7	11,628	41.7
Plan C	M	3	-	3	231,564	71.0	6,432	44.5
	F	10	-	10	1,490,868	68.5	12,424	42.8
Plan D	M	10,911	48	10,959	1,242,678,480	52.7	9,449	21.2
	F	22,931	78	23,009	2,392,244,472	52.3	8,664	21.3
Plan E	M	4,037	3	4,040	416,857,920	56.5	8,599	24.5
	F	8,939	9	8,948	765,561,924	56.7	7,130	25.2
Plan G	M	6,275	6,187	12,462	1,080,777,780	40.6	7,227	5.0
	F	12,237	12,564	24,801	1,934,911,644	39.9	6,501	4.9
<b>Total</b>		<b>65,406</b>	<b>18,889</b>	<b>84,295</b>	<b>\$ 7,842,601,440</b>	<b>47.6</b>	<b>\$ 7,753</b>	<b>14.6</b>
<b>Safety Members</b>								
Plan A	M	-	-	-	-	N/A	N/A	N/A
	F	-	-	-	-	N/A	N/A	N/A
Plan B	M	6,322	71	6,393	959,406,420	47.6	12,506	20.8
	F	1,147	4	1,151	165,152,904	45.8	11,957	19.5
Plan C	M	2,141	2,152	4,293	474,020,484	33.5	9,201	5.0
	F	365	408	773	84,896,772	32.5	9,152	5.0
<b>Total</b>		<b>9,975</b>	<b>2,635</b>	<b>12,610</b>	<b>\$ 1,683,476,580</b>	<b>41.7</b>	<b>\$ 11,125</b>	<b>14.3</b>
<b>Grand Total</b>		<b>75,381</b>	<b>21,524</b>	<b>96,905</b>	<b>\$ 9,526,078,020</b>	<b>46.9</b>	<b>\$ 8,192</b>	<b>14.6</b>

**Exhibit C-2**  
**Retired LACERA Membership – Retired Members and Beneficiaries as of June 30, 2023**

	<b>Sex</b>	<b>Number</b>	<b>Annual Allowance</b>	<b>Average Age</b>	<b>Average Monthly Benefit</b>
<b>General Members</b>					
Plan A	M	5,960	\$ 467,547,256	81.9	\$ 6,537
	F	11,114	640,192,346	81.4	4,800
Plan B	M	199	15,048,340	76.8	6,302
	F	491	28,518,830	76.5	4,840
Plan C	M	141	8,709,324	75.9	5,147
	F	331	17,192,383	75.8	4,328
Plan D	M	7,948	411,466,150	69.5	4,314
	F	15,250	706,425,063	69.4	3,860
Plan E	M	5,449	197,937,297	73.2	3,027
	F	11,557	350,394,611	73.0	2,527
Plan G	M	131	2,299,715	64.8	1,463
	F	174	2,395,296	64.2	1,147
Total		58,745	\$ 2,848,126,611	74.1	\$ 4,040
<b>Safety Members</b>					
Plan A	M	3,904	\$ 457,329,012	78.9	\$ 9,762
	F	2,007	167,145,817	79.8	6,940
Plan B	M	6,825	769,949,369	62.2	9,401
	F	1,497	124,358,207	60.0	6,923
Plan C	M	21	1,189,072	54.7	4,719
	F	9	360,170	40.7	3,335
Total		14,263	\$ 1,520,331,647	69.0	\$ 8,883
<b>Grand Total</b>		73,008	\$ 4,368,458,258	73.1	\$ 4,986



**Exhibit C-2**  
**Former LACERA Membership – Vested Former Members as of June 30, 2023<sup>(1)</sup>**  
**Subtotaled by Plan and Retirement Type**

	<b>Sex</b>	<b>Number</b>	<b>Average Age</b>
<b>General Members</b>			
Plan A	M	14	76.7
	F	30	75.6
Plan B	M	2	75.5
	F	6	73.3
Plan C	M	5	70.0
	F	8	68.9
Plan D	M	2,524	51.0
	F	5,286	50.5
Plan E	M	894	57.3
	F	2,012	57.9
Plan G	M	2,441	39.2
	F	5,770	38.5
Total		18,992	46.7
<b>Safety Members</b>			
Plan A	M	4	71.0
	F	-	-
Plan B	M	666	46.2
	F	118	46.5
Plan C	M	545	32.7
	F	89	33.0
Total		1,422	40.3
<b>Grand Total</b>		20,414	46.2

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

**Exhibit C-2a**  
**LACERA Membership – Retired Members and Beneficiaries as of June 30, 2023**  
**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>
<b>General Plans:</b>				
<b>Plan A</b>				
	Healthy	11,909	\$ 882,503	\$ 6,175
	Disabled	1,117	52,497	3,917
	Beneficiaries	4,048	172,740	3,556
	Total	<u>17,074</u>	<u>\$ 1,107,740</u>	<u>\$ 5,407</u>
<b>Plan B</b>				
	Healthy	569	\$ 38,616	\$ 5,656
	Disabled	48	1,909	3,314
	Beneficiaries	73	3,042	3,472
	Total	<u>690</u>	<u>\$ 43,567</u>	<u>\$ 5,262</u>
<b>Plan C</b>				
	Healthy	361	\$ 22,240	\$ 5,134
	Disabled	47	1,742	3,088
	Beneficiaries	64	1,920	2,500
	Total	<u>472</u>	<u>\$ 25,902</u>	<u>\$ 4,573</u>
<b>Plan D</b>				
	Healthy	18,771	\$ 969,034	\$ 4,302
	Disabled	2,436	94,851	3,245
	Beneficiaries	1,991	54,007	2,260
	Total	<u>23,198</u>	<u>\$ 1,117,892</u>	<u>\$ 4,016</u>
<b>Plan E</b>				
	Healthy	15,385	\$ 521,222	\$ 2,823
	Disabled	N/A	N/A	N/A
	Beneficiaries	1,621	27,110	1,394
	Total	<u>17,006</u>	<u>\$ 548,332</u>	<u>\$ 2,687</u>
<b>Plan G</b>				
	Healthy	252	\$ 3,493	\$ 1,155
	Disabled	31	916	2,463
	Beneficiaries	22	286	1,083
	Total	<u>305</u>	<u>\$ 4,695</u>	<u>\$ 1,283</u>
<b>Safety Plans:</b>				
<b>Plan A</b>				
	Healthy	1,832	\$ 224,610	\$ 10,217
	Disabled	2,447	267,974	9,126
	Beneficiaries	1,632	131,890	6,735
	Total	<u>5,911</u>	<u>\$ 624,474</u>	<u>\$ 8,804</u>
<b>Plan B</b>				
	Healthy	3,318	\$ 371,365	\$ 9,327
	Disabled	4,595	493,362	8,947
	Beneficiaries	409	29,581	6,027
	Total	<u>8,322</u>	<u>\$ 894,308</u>	<u>\$ 8,955</u>
<b>Plan C</b>				
	Healthy	12	\$ 746	\$ 5,180
	Disabled	16	730	3,803
	Beneficiaries	2	73	3,049
	Total	<u>30</u>	<u>\$ 1,549</u>	<u>\$ 4,303</u>
<b>Grand Totals</b>		73,008	4,368,459	4,986

**Exhibit C-2b**  
**LACERA Membership – Retired Members and Beneficiaries as of June 30, 2023**  
**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>
<b>Healthy Retirees</b>				
	General A	11,909	\$ 882,503	\$ 6,175
	General B	569	38,616	5,656
	General C	361	22,240	5,134
	General D	18,771	969,034	4,302
	General E	15,385	521,222	2,823
	General G	252	3,493	1,155
	Safety A	1,832	224,610	10,217
	Safety B	3,318	371,365	9,327
	Safety C	12	746	5,180
	Total	52,409	\$ 3,033,829	\$ 4,824
<b>Disabled Retirees</b>				
	General A	1,117	\$ 52,497	\$ 3,917
	General B	48	1,909	3,314
	General C	47	1,742	3,088
	General D	2,436	94,851	3,245
	General E	N/A	N/A	N/A
	General G	31	916	2,463
	Safety A	2,447	267,974	9,126
	Safety B	4,595	493,362	8,947
	Safety C	16	730	3,803
	Total	10,737	\$ 913,981	\$ 7,094
<b>Beneficiaries</b>				
	General A	4,048	\$ 172,740	\$ 3,556
	General B	73	3,042	3,472
	General C	64	1,920	2,500
	General D	1,991	54,007	2,260
	General E	1,621	27,110	1,394
	General G	22	286	1,083
	Safety A	1,632	131,890	6,735
	Safety B	409	29,581	6,027
	Safety C	2	73	3,049
	Total	9,862	\$ 420,649	\$ 3,554
<b>Grand Totals</b>		73,008	\$ 4,368,459	\$ 4,986

**Exhibit C-3  
 Age Distribution of Active Members as of June 30, 2023**

	Age Groups						Total
	0-29	30-39	40-49	50-59	60-69	70+	
<b>General Plans:</b>							
Plan A							
Male	-	-	-	-	2	17	19
Female	-	-	-	-	6	26	32
Plan B							
Male	-	-	-	-	-	3	3
Female	-	-	-	-	5	4	9
Plan C							
Male	-	-	-	-	1	2	3
Female	-	-	-	-	5	5	10
Plan D							
Male	-	645	3,424	4,395	2,219	276	10,959
Female	-	1,314	7,718	9,174	4,294	509	23,009
Plan E							
Male	-	137	805	1,496	1,323	279	4,040
Female	-	244	1,644	3,458	3,099	503	8,948
Plan G							
Male	1,327	5,400	3,368	1,627	678	62	12,462
Female	2,771	11,478	6,266	3,142	1,059	85	24,801
<b>Safety Plans:</b>							
Plan A							
Male	-	-	-	-	-	-	-
Female	-	-	-	-	-	-	-
Plan B							
Male	-	911	2,743	2,545	192	2	6,393
Female	-	220	586	331	13	1	1,151
Plan C							
Male	1,196	2,472	509	93	22	1	4,293
Female	247	448	67	10	1	-	773
<b>Grand Totals:</b>	<u>5,541</u>	<u>23,269</u>	<u>27,130</u>	<u>26,271</u>	<u>12,919</u>	<u>1,775</u>	<u>96,905</u>

**Exhibit C-4**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2023**  
**All Plans**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>												<b>Total Count</b>
	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	463	111	29	45	22	2	-	-	-	-	-	-	672
25-29	1,509	805	694	750	476	635	-	-	-	-	-	-	4,869
30-34	1,506	924	895	1,235	1,189	4,418	353	16	-	-	-	-	10,536
35-39	967	655	617	884	913	5,228	2,228	1,189	52	-	-	-	12,733
40-44	711	385	401	553	574	3,445	2,475	3,936	954	66	1	-	13,501
45-49	490	240	266	379	410	2,229	1,606	3,555	3,520	863	71	-	13,629
50-54	310	192	183	255	279	1,579	1,127	2,586	3,613	2,448	1,239	105	13,916
55-59	242	130	138	185	191	1,152	805	1,774	2,460	1,903	2,327	1,048	12,355
60-64	84	67	56	97	124	767	647	1,411	1,756	1,047	1,474	1,509	9,039
65 & Over	27	24	20	41	57	430	457	1,002	1,379	635	650	933	5,655
<b>Total Count</b>	<b>6,309</b>	<b>3,533</b>	<b>3,299</b>	<b>4,424</b>	<b>4,235</b>	<b>19,885</b>	<b>9,698</b>	<b>15,469</b>	<b>13,734</b>	<b>6,962</b>	<b>5,762</b>	<b>3,595</b>	<b>96,905</b>

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>												<b>Average Comp.</b>
	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	53,176	60,384	72,456	83,885	64,940	82,332	-	-	-	-	-	-	57,727
25-29	61,063	66,096	73,183	82,288	84,438	90,027	-	-	-	-	-	-	72,955
30-34	66,388	74,101	74,006	80,411	81,944	88,552	101,237	92,428	-	-	-	-	81,612
35-39	73,275	82,854	87,991	84,875	91,269	93,217	104,665	104,059	120,608	-	-	-	93,325
40-44	75,820	85,400	83,951	87,019	94,847	96,494	111,737	106,082	111,219	112,708	230,076	-	100,977
45-49	75,109	76,474	80,056	80,611	89,304	94,311	113,507	105,673	112,948	125,242	139,075	-	104,728
50-54	66,856	77,897	80,718	78,654	87,734	92,296	109,510	106,023	112,332	127,252	129,046	127,102	109,868
55-59	69,869	70,319	82,330	78,423	80,754	88,339	101,425	98,560	103,887	118,909	120,312	112,130	105,619
60-64	90,205	81,226	80,948	68,881	85,868	87,398	101,883	91,073	96,350	112,896	111,305	113,792	101,727
65 & Over	91,752	94,115	87,336	77,889	100,326	90,140	101,779	86,626	86,351	103,422	102,607	108,255	95,476
<b>Avg. Annual Compensation</b>	<b>\$ 67,523</b>	<b>\$ 75,199</b>	<b>\$ 79,051</b>	<b>\$ 82,039</b>	<b>\$ 87,298</b>	<b>\$ 92,121</b>	<b>\$ 107,782</b>	<b>\$ 102,317</b>	<b>\$ 106,279</b>	<b>\$ 120,252</b>	<b>\$ 118,139</b>	<b>\$ 112,260</b>	<b>\$ 98,303</b>

**Exhibit C-4a**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2023**  
**General Plan A**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Total Count</b>	
	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	-	-	-	-	-	-	-	-	-	-	-	-	-
65 & Over	-	-	-	-	-	-	2	3	3	3	3	37	51
<b>Total Count</b>	-	-	-	-	-	-	2	3	3	3	3	37	51

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	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	-	-	-	-	-	-	-	-	-	-	-	-	-
65 & Over	-	-	-	-	-	-	57,216	64,056	66,896	132,048	94,076	136,554	122,317
<b>Avg. Annual Compensation</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 57,216	\$ 64,056	\$ 66,896	\$ 132,048	\$ 94,076	\$ 136,554	\$ 122,317

**Exhibit C-4b  
 Age and Service Distribution of Active Members by Count  
 and Average Compensation as of June 30, 2023  
 General Plan B**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Total Count</b>	
	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	-	-	-	-	-	-	-	-	-	-	-	-	-
65 & Over	-	-	-	-	-	-	-	-	2	1	1	8	12
<b>Total Count</b>	-	-	-	-	-	-	-	-	2	1	1	8	12

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	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	-	-	-	-	-	-	-	-	-	-	-	-	-
65 & Over	-	-	-	-	-	-	-	-	151,626	170,316	148,872	123,272	134,051
<b>Avg. Annual Compensation</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 151,626	\$ 170,316	\$ 148,872	\$ 123,272	\$ 134,051

**Exhibit C-4c  
 Age and Service Distribution of Active Members by Count  
 and Average Compensation as of June 30, 2023  
 General Plan C**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Total Count</b>	
	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	-	-	-	-	-	-	-	-	-	-	-	5	5
65 & Over	-	-	-	-	-	-	-	-	-	-	-	8	8
<b>Total Count</b>	-	-	-	-	-	-	-	-	-	-	-	13	13

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	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	-	-	-	-	-	-	-	-	-	-	-	103,471	103,471
65 & Over	-	-	-	-	-	-	-	-	-	-	-	150,635	150,635
<b>Avg. Annual Compensation</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 132,495	\$ 132,495



**Exhibit C-4d**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2023**  
**General Plan D**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>												<b>Total Count</b>
	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	-	1	-	-	7	6	90	8	-	-	-	-	112
35-39	2	1	4	4	11	68	1,155	562	40	-	-	-	1,847
40-44	4	2	6	4	11	109	1,543	2,485	582	56	-	-	4,802
45-49	5	2	2	8	9	89	1,058	2,396	2,189	530	52	-	6,340
50-54	3	4	3	5	12	63	775	1,778	2,295	1,371	653	76	7,038
55-59	1	-	2	4	2	53	537	1,232	1,596	1,219	1,277	608	6,531
60-64	1	2	-	1	2	24	389	949	1,150	683	782	680	4,663
65 & Over	-	-	1	3	1	15	288	643	778	386	292	228	2,635
<b>Total Count</b>	<b>16</b>	<b>12</b>	<b>18</b>	<b>29</b>	<b>55</b>	<b>427</b>	<b>5,835</b>	<b>10,053</b>	<b>8,630</b>	<b>4,245</b>	<b>3,056</b>	<b>1,592</b>	<b>33,968</b>

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>												<b>Average Comp.</b>
	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	-	109,548	-	-	103,567	84,490	79,223	76,490	-	-	-	-	81,102
35-39	121,812	116,844	70,437	123,888	105,770	105,203	99,126	87,898	117,646	-	-	-	96,399
40-44	170,871	89,808	127,852	138,393	117,532	110,732	109,270	99,793	102,189	107,055	-	-	103,624
45-49	143,942	179,268	55,890	94,613	157,885	116,345	112,984	103,312	106,977	111,727	127,939	-	107,387
50-54	63,176	128,424	74,412	175,306	160,023	124,402	108,598	106,133	109,427	118,143	114,836	120,368	111,065
55-59	165,888	-	279,936	95,169	93,726	118,826	101,173	99,572	104,821	118,403	116,512	121,424	110,065
60-64	37,584	264,312	-	217,692	114,096	99,812	105,027	95,910	100,945	117,411	114,966	123,475	108,391
65 & Over	-	-	138,096	106,600	46,572	103,376	99,397	89,808	92,006	106,546	110,893	131,147	99,968
<b>Avg. Annual Compensation</b>	<b>\$ 127,489</b>	<b>\$ 150,572</b>	<b>\$ 115,658</b>	<b>\$ 124,163</b>	<b>\$ 126,996</b>	<b>\$ 112,802</b>	<b>\$ 105,867</b>	<b>\$ 100,037</b>	<b>\$ 104,803</b>	<b>\$ 116,098</b>	<b>\$ 115,416</b>	<b>\$ 123,642</b>	<b>\$ 107,010</b>

**Exhibit C-4e**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2023**  
**General Plan E**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Total Count</b>	
	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	-	-	-	-	-	1	18	1	-	-	-	-	20
35-39	-	-	-	-	-	1	196	163	1	-	-	-	361
40-44	-	-	-	-	-	2	268	536	122	-	-	-	928
45-49	-	-	-	-	-	4	210	615	612	78	2	-	1,521
50-54	-	-	-	-	-	1	169	514	735	432	241	16	2,108
55-59	-	-	-	-	-	-	157	418	638	472	763	398	2,846
60-64	-	-	-	-	-	2	157	430	555	327	665	796	2,932
65 & Over	-	-	-	-	-	1	105	350	587	243	348	638	2,272
<b>Total Count</b>	-	-	-	-	-	12	1,280	3,027	3,250	1,552	2,019	1,848	12,988

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	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	-	-	-	-	-	68,556	76,034	78,036	-	-	-	-	75,760
35-39	-	-	-	-	-	139,812	85,675	75,777	53,076	-	-	-	81,266
40-44	-	-	-	-	-	131,532	96,110	82,268	79,779	-	-	-	86,045
45-49	-	-	-	-	-	65,124	100,110	87,225	87,197	90,132	72,966	-	89,065
50-54	-	-	-	-	-	62,280	100,959	87,697	88,209	98,016	90,869	99,299	91,492
55-59	-	-	-	-	-	-	96,978	81,410	84,797	100,315	101,870	90,111	92,866
60-64	-	-	-	-	-	53,424	88,686	77,894	82,630	98,615	104,075	102,151	94,186
65 & Over	-	-	-	-	-	24,636	106,141	80,273	77,851	97,589	94,776	96,044	89,320
<b>Avg. Annual Compensation</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 77,141	\$ 95,545	\$ 82,876	\$ 84,198	\$ 98,379	\$ 100,032	\$ 97,425	\$ 91,039

**Exhibit C-4f**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2023**  
**General Plan G**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Total Count</b>	
	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	388	77	18	16	16	1	-	-	-	-	-	-	516
25-29	1,314	673	502	458	297	338	-	-	-	-	-	-	3,582
30-34	1,386	821	735	986	976	3,431	89	1	-	-	-	-	8,425
35-39	918	605	537	778	809	4,430	370	6	-	-	-	-	8,453
40-44	690	358	363	501	527	3,035	263	1	-	-	-	-	5,738
45-49	480	232	251	345	390	2,043	146	9	-	-	-	-	3,896
50-54	299	183	172	241	265	1,469	112	6	2	-	-	-	2,749
55-59	238	127	123	175	186	1,079	85	4	2	1	-	-	2,020
60-64	81	65	51	95	122	730	89	9	2	-	-	-	1,244
65 & Over	27	24	19	38	56	411	61	2	1	1	-	-	640
<b>Total Count</b>	<b>5,821</b>	<b>3,165</b>	<b>2,771</b>	<b>3,633</b>	<b>3,644</b>	<b>16,967</b>	<b>1,215</b>	<b>38</b>	<b>7</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>37,263</b>

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	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	49,239	52,501	57,613	53,625	54,830	73,104	-	-	-	-	-	-	50,373
25-29	58,003	63,200	62,767	64,950	67,129	69,167	-	-	-	-	-	-	62,345
30-34	64,720	72,173	68,286	72,825	75,368	79,758	84,380	53,976	-	-	-	-	74,270
35-39	72,418	82,061	86,459	81,243	88,735	88,235	95,455	74,252	-	-	-	-	85,673
40-44	74,857	85,139	81,437	84,279	93,030	93,426	107,640	110,892	-	-	-	-	89,737
45-49	74,266	75,240	78,606	77,934	86,800	92,070	109,507	98,597	-	-	-	-	86,896
50-54	65,660	75,869	77,467	75,316	84,244	89,785	117,661	149,092	122,280	-	-	-	84,950
55-59	67,859	69,112	70,957	76,224	79,739	86,016	100,565	261,084	182,256	47,832	-	-	81,506
60-64	90,587	75,593	73,771	66,906	85,405	86,113	104,505	111,909	96,750	-	-	-	85,332
65 & Over	91,752	94,115	84,664	75,622	101,286	89,748	106,046	77,514	152,076	129,636	-	-	91,691
<b>Avg. Annual Compensation</b>	<b>\$ 66,036</b>	<b>\$ 73,695</b>	<b>\$ 74,298</b>	<b>\$ 75,818</b>	<b>\$ 82,955</b>	<b>\$ 87,469</b>	<b>\$ 102,569</b>	<b>\$ 121,023</b>	<b>\$ 136,378</b>	<b>\$ 88,734</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 80,930</b>

**Exhibit C-4g  
 Age and Service Distribution of Active Members by Count  
 and Average Compensation as of June 30, 2023  
 Safety Plan A**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Total Count</b>	
	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	-	-	-	-	-	-	-	-	-	-	-	-	-
65 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	-	-	-	-	-	-	-	-	-	-	-	-	-

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	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	-	-	-	-	-	-	-	-	-	-	-	-	-
65 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Avg. Annual Compensation</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

**Exhibit C-4h  
 Age and Service Distribution of Active Members by Count  
 and Average Compensation as of June 30, 2023  
 Safety Plan B**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Total Count</b>	
	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	-	-	-	1	-	10	131	6	-	-	-	-	148
35-39	-	-	3	9	4	33	466	457	11	-	-	-	983
40-44	-	1	12	8	4	30	372	913	250	10	1	-	1,601
45-49	-	-	3	3	4	15	183	531	717	255	17	-	1,728
50-54	1	-	7	2	1	8	68	287	579	645	345	13	1,956
55-59	-	-	9	1	-	3	25	118	224	211	287	42	920
60-64	-	-	3	-	-	-	9	23	49	37	26	28	175
65 & Over	-	-	-	-	-	-	1	4	7	1	6	14	33
<b>Total Count</b>	<b>1</b>	<b>1</b>	<b>37</b>	<b>24</b>	<b>13</b>	<b>99</b>	<b>1,255</b>	<b>2,339</b>	<b>1,837</b>	<b>1,159</b>	<b>682</b>	<b>97</b>	<b>7,544</b>

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	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	-	-	-	120,516	-	129,623	126,924	122,486	-	-	-	-	126,883
35-39	-	-	96,536	118,269	140,898	130,099	131,520	134,333	137,519	-	-	-	132,657
40-44	-	117,924	113,826	121,223	133,041	126,010	135,271	137,136	147,583	144,370	230,076	-	137,953
45-49	-	-	148,124	123,284	144,624	133,340	134,625	137,710	153,129	164,072	180,916	-	148,068
50-54	128,640	-	152,637	113,496	118,740	144,744	127,562	137,255	154,430	166,197	182,610	200,691	160,015
55-59	-	-	161,771	166,908	-	123,648	135,971	142,561	150,898	163,763	186,245	186,246	165,049
60-64	-	-	148,372	-	-	-	152,521	129,757	143,908	155,760	186,390	211,428	162,189
65 & Over	-	-	-	-	-	-	158,892	152,514	150,345	136,152	150,108	184,352	164,821
<b>Avg. Annual Compensation</b>	<b>\$ 128,640</b>	<b>\$ 117,924</b>	<b>\$ 137,011</b>	<b>\$ 121,603</b>	<b>\$ 137,922</b>	<b>\$ 130,291</b>	<b>\$ 132,652</b>	<b>\$ 136,923</b>	<b>\$ 152,162</b>	<b>\$ 164,739</b>	<b>\$ 184,025</b>	<b>\$ 195,178</b>	<b>\$ 149,067</b>

**Exhibit C-4i**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2023**  
**Safety Plan C**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Total Count</b>	
	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	75	34	11	29	6	1	-	-	-	-	-	-	156
25-29	195	132	192	292	179	297	-	-	-	-	-	-	1,287
30-34	120	102	160	248	206	970	25	-	-	-	-	-	1,831
35-39	47	49	73	93	89	696	41	1	-	-	-	-	1,089
40-44	17	24	20	40	32	269	29	1	-	-	-	-	432
45-49	5	6	10	23	7	78	9	4	2	-	-	-	144
50-54	7	5	1	7	1	38	3	1	2	-	-	-	65
55-59	3	3	4	5	3	17	1	2	-	-	-	-	38
60-64	2	-	2	1	-	11	3	-	-	-	1	-	20
65 & Over	-	-	-	-	-	3	-	-	1	-	-	-	4
<b>Total Count</b>	<b>471</b>	<b>355</b>	<b>473</b>	<b>738</b>	<b>523</b>	<b>2,380</b>	<b>111</b>	<b>9</b>	<b>5</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>5,066</b>

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	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	73,544	78,236	96,745	100,579	91,902	91,560	-	-	-	-	-	-	82,050
25-29	81,687	80,857	100,418	109,482	113,159	113,766	-	-	-	-	-	-	102,483
30-34	85,659	89,271	100,279	110,409	112,363	119,283	124,042	-	-	-	-	-	111,831
35-39	87,959	91,948	99,879	110,349	110,285	121,947	129,376	140,460	-	-	-	-	116,004
40-44	92,538	87,570	98,478	109,369	112,209	121,792	122,654	143,232	-	-	-	-	115,908
45-49	87,233	89,928	100,856	110,335	109,030	121,865	123,032	119,508	123,744	-	-	-	115,441
50-54	110,669	111,718	155,316	114,559	114,072	125,869	113,072	109,476	113,832	-	-	-	120,984
55-59	197,296	121,420	154,509	124,306	135,008	134,449	144,624	138,660	-	-	-	-	139,693
60-64	101,028	-	162,840	107,736	-	151,749	155,304	-	-	-	103,704	-	143,716
65 & Over	-	-	-	-	-	99,560	-	-	90,324	-	-	-	97,251
<b>Avg. Annual Compensation</b>	<b>\$ 83,728</b>	<b>\$ 85,939</b>	<b>\$ 100,967</b>	<b>\$ 109,720</b>	<b>\$ 112,126</b>	<b>\$ 120,069</b>	<b>\$ 126,302</b>	<b>\$ 127,613</b>	<b>\$ 113,095</b>	<b>\$ -</b>	<b>\$ 103,704</b>	<b>\$ -</b>	<b>\$ 110,327</b>

**Exhibit C-5**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2023**  
**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	2020-24		
Under 35	-	-	-	-	-	-	6	4	12	58	67	147	\$ 1,152
35-39	-	-	-	-	-	1	2	4	8	55	68	138	2,503
40-44	-	-	-	-	-	1	2	10	26	93	96	228	3,078
45-49	-	-	-	-	-	1	9	30	80	149	155	424	3,474
50-54	-	-	-	-	1	14	71	75	117	257	709	1,244	3,805
55-59	-	-	-	1	40	104	138	137	261	1,094	2,403	4,178	6,243
60-64	-	-	2	21	83	148	175	192	855	3,002	2,979	7,457	5,870
65-69	-	4	28	62	117	147	221	776	2,545	3,862	4,483	12,245	5,135
70-74	3	31	71	98	129	234	784	2,539	3,603	4,759	1,957	14,208	4,810
75-79	11	109	190	158	273	947	2,643	3,005	3,388	1,867	951	13,542	5,013
80-84	28	107	146	198	763	1,704	2,171	1,811	1,200	771	551	9,450	4,902
85-89	51	81	131	462	1,061	1,059	1,031	591	448	442	358	5,715	4,443
90-94	45	78	269	391	656	431	258	216	201	214	159	2,918	4,073
95-99	18	66	133	153	169	80	56	70	74	58	40	917	3,724
100 & Over	11	27	35	33	21	17	13	8	15	12	5	197	3,210
<b>Total Count</b>	167	503	1,005	1,577	3,313	4,888	7,580	9,468	12,833	16,693	14,981	<b>73,008</b>	
<b>Avg Monthly Benefit</b>	\$ 2,542	\$ 3,163	\$ 3,202	\$ 3,749	\$ 4,721	\$ 4,856	\$ 5,611	\$ 4,871	\$ 4,867	\$ 4,983	\$ 5,288		<b>\$ 4,986</b>

**Exhibit C-5a**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2023**  
**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	2020-24		
Under 35	-	-	-	-	-	-	1	-	1	1	2	5	\$ 1,009
35-39	-	-	-	-	-	-	-	2	-	4	2	8	1,122
40-44	-	-	-	-	-	-	1	3	3	1	3	11	1,996
45-49	-	-	-	-	-	-	1	3	4	-	-	8	2,603
50-54	-	-	-	-	-	3	1	5	3	3	5	20	2,826
55-59	-	-	-	1	1	1	4	4	3	5	7	26	3,215
60-64	-	-	-	1	2	4	4	12	9	14	9	55	3,343
65-69	-	2	5	7	3	10	33	82	209	132	38	521	5,492
70-74	2	19	27	27	29	79	281	714	866	213	124	2,381	6,003
75-79	5	50	63	49	118	495	1,096	1,283	491	225	189	4,064	6,157
80-84	16	53	67	93	543	854	1,283	506	243	220	211	4,089	5,682
85-89	32	50	76	365	709	706	451	169	171	197	180	3,106	4,913
90-94	25	56	219	281	524	253	105	107	113	122	98	1,903	4,212
95-99	16	54	113	138	137	50	34	51	52	35	31	711	3,793
100 & Over	11	23	34	31	12	14	12	7	11	7	4	166	3,302
<b>Total Count</b>	107	307	604	993	2,078	2,469	3,307	2,948	2,179	1,179	903	<b>17,074</b>	
<b>Avg Monthly Benefit</b>	\$ 1,946	\$ 2,545	\$ 2,577	\$ 3,242	\$ 4,544	\$ 4,842	\$ 6,559	\$ 6,648	\$ 6,506	\$ 5,011	\$ 4,181		<b>\$ 5,407</b>



**Exhibit C-5b**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2023**  
**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	2020-24			
Under 35	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	1	-	1	1	2,905
55-59	-	-	-	-	-	-	-	-	-	-	1	1	1	3,318
60-64	-	-	-	-	-	-	2	1	1	1	5	9	9	4,722
65-69	-	-	-	-	1	1	2	14	30	52	7	107	107	5,725
70-74	-	-	-	3	4	2	11	36	85	45	10	196	196	6,592
75-79	-	-	2	3	4	15	27	45	49	11	5	161	161	5,108
80-84	-	-	1	3	3	9	30	24	15	6	2	93	93	4,571
85-89	-	-	1	-	5	14	21	15	7	3	2	68	68	4,373
90-94	-	-	1	4	10	15	3	3	1	2	2	41	41	2,544
95-99	-	-	-	2	3	2	3	1	-	1	-	12	12	2,190
100 & Over	-	-	-	1	-	-	-	-	-	-	-	1	1	1,780
<b>Total Count</b>	-	-	5	16	30	58	97	140	188	122	34	<b>690</b>		
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ 1,605	\$ 1,666	\$ 1,972	\$ 2,600	\$ 3,805	\$ 4,984	\$ 6,729	\$ 7,125	\$ 5,439			<b>\$ 5,262</b>

**Exhibit C-5c**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2023**  
**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	2020-24		
Under 35	-	-	-	-	-	-	-	-	-	1	1	2	\$ 2,655
35-39	-	-	-	-	-	-	-	-	-	1	-	1	5,309
40-44	-	-	-	-	-	-	-	-	1	-	-	1	1,722
45-49	-	-	-	-	-	-	-	-	1	-	-	1	1,408
50-54	-	-	-	-	-	-	-	-	1	-	-	1	1,722
55-59	-	-	-	-	-	-	-	-	-	1	1	2	1,273
60-64	-	-	-	-	-	-	1	-	2	8	5	16	4,342
65-69	-	-	1	4	-	1	-	5	12	34	17	74	5,674
70-74	-	1	2	2	2	3	16	14	51	35	4	130	6,188
75-79	-	-	2	1	4	7	9	28	29	11	3	94	4,556
80-84	-	-	-	4	8	9	15	17	12	3	2	70	3,028
85-89	-	-	-	4	6	6	16	5	3	2	2	44	3,024
90-94	-	-	-	3	4	9	2	3	1	1	-	23	2,087
95-99	-	-	-	-	6	2	1	1	1	2	-	13	1,951
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	-	1	5	18	30	37	60	73	114	99	35	<b>472</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ 2,016	\$ 1,657	\$ 1,159	\$ 1,501	\$ 2,278	\$ 3,003	\$ 3,561	\$ 6,172	\$ 6,519	\$ 5,969		<b>\$ 4,573</b>

**Exhibit C-5d**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2023**  
**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	2020-24		
Under 35	-	-	-	-	-	-	2	1	9	30	28	70	\$ 806
35-39	-	-	-	-	-	-	2	-	2	21	26	51	1,796
40-44	-	-	-	-	-	-	-	4	8	35	45	92	2,093
45-49	-	-	-	-	-	1	1	6	36	51	58	153	2,485
50-54	-	-	-	-	1	3	19	17	43	129	414	626	2,389
55-59	-	-	-	-	5	9	32	46	130	571	844	1,637	3,141
60-64	-	-	-	1	9	36	50	79	450	1,106	1,845	3,576	4,390
65-69	-	-	3	7	28	43	81	383	752	2,028	2,311	5,636	4,737
70-74	-	1	2	13	23	53	218	464	1,240	2,171	906	5,091	4,241
75-79	-	-	2	10	28	139	255	638	1,233	792	304	3,401	3,835
80-84	-	-	2	10	37	118	278	523	430	228	112	1,738	3,285
85-89	-	-	2	10	36	92	242	181	110	71	56	800	2,803
90-94	-	-	2	6	21	68	71	47	28	24	9	276	2,640
95-99	-	-	-	3	5	15	2	7	4	6	2	44	1,819
100 & Over	-	-	-	-	4	-	-	-	-	2	1	7	1,083
<b>Total Count</b>	-	1	13	60	197	577	1,253	2,396	4,475	7,265	6,961	<b>23,198</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ 3,141	\$ 2,051	\$ 1,721	\$ 1,915	\$ 2,136	\$ 2,499	\$ 2,951	\$ 3,771	\$ 4,257	\$ 4,799		<b>\$ 4,016</b>

**Exhibit C-5e**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2023**  
**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	2020-24		
Under 35	-	-	-	-	-	-	-	2	-	15	18	35	\$ 772
35-39	-	-	-	-	-	1	-	2	3	8	9	23	797
40-44	-	-	-	-	-	1	1	1	4	10	5	22	1,107
45-49	-	-	-	-	-	-	-	1	9	23	12	45	1,343
50-54	-	-	-	-	-	-	1	3	10	20	31	65	1,136
55-59	-	-	-	-	-	-	2	7	19	72	302	402	1,169
60-64	-	-	-	-	-	-	1	3	73	469	621	1,167	2,051
65-69	-	-	-	-	-	-	3	74	543	1,109	1,907	3,636	3,296
70-74	-	-	-	-	-	4	65	592	1,046	2,154	777	4,638	3,074
75-79	-	-	-	-	-	40	375	706	1,503	713	338	3,675	2,663
80-84	-	-	-	-	8	192	323	703	429	220	142	2,017	2,229
85-89	-	-	-	4	60	134	277	178	111	107	55	926	1,774
90-94	-	-	-	14	49	81	58	28	25	27	10	292	1,389
95-99	-	-	1	1	18	9	6	4	6	3	3	51	875
100 & Over	-	-	-	1	3	3	1	1	3	-	-	12	540
<b>Total Count</b>	-	-	1	20	138	465	1,113	2,305	3,784	4,950	4,230	<b>17,006</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ 81	\$ 246	\$ 544	\$ 792	\$ 1,252	\$ 1,701	\$ 2,656	\$ 3,095	\$ 3,443		<b>\$ 2,687</b>

**Exhibit C-5f**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2023**  
**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			2020-24
Under 35	-	-	-	-	-	-	-	-	-	2	3	5	\$ 1,911
35-39	-	-	-	-	-	-	-	-	-	-	4	4	1,688
40-44	-	-	-	-	-	-	-	-	-	1	3	4	1,876
45-49	-	-	-	-	-	-	-	-	-	2	4	6	1,925
50-54	-	-	-	-	-	-	-	-	-	3	13	16	1,169
55-59	-	-	-	-	-	-	-	-	-	2	29	31	880
60-64	-	-	-	-	-	-	-	-	1	6	54	61	1,006
65-69	-	-	-	-	-	-	-	-	-	15	79	94	1,167
70-74	-	-	-	-	-	-	-	-	-	14	45	59	1,243
75-79	-	-	-	-	-	-	-	-	-	7	11	18	2,697
80-84	-	-	-	-	-	-	-	-	-	4	3	7	2,423
85-89	-	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	-	-	-	-	-	-	-	-	1	56	248	<b>305</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,007	\$ 1,683	\$ 1,194		<b>\$ 1,283</b>

**Exhibit C-5g**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2023**  
**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	2020-24		
Under 35	-	-	-	-	-	-	-	-	2	2	1	5	\$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	1	2	-	3	6,681
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	1	3	-	2	2	3	11	6,707
60-64	-	-	-	-	2	-	3	-	9	9	7	30	7,887
65-69	-	2	7	11	8	11	11	38	130	28	32	278	10,559
70-74	1	10	36	31	42	65	142	468	111	64	72	1,042	9,971
75-79	6	59	114	89	104	230	829	225	52	89	96	1,893	9,139
80-84	12	54	76	88	162	521	231	34	68	87	77	1,410	8,583
85-89	19	31	52	79	243	105	24	43	45	62	62	765	7,579
90-94	20	22	46	83	47	5	18	27	32	37	40	377	6,826
95-99	2	12	19	9	-	2	10	6	11	11	4	86	6,295
100 & Over	-	4	1	-	2	-	-	-	1	3	-	11	6,228
<b>Total Count</b>	60	194	351	390	610	940	1,271	841	464	396	394	<b>5,911</b>	
<b>Avg Monthly Benefit</b>	\$ 3,607	\$ 4,146	\$ 4,416	\$ 5,917	\$ 7,847	\$ 9,100	\$ 10,710	\$ 11,187	\$ 10,046	\$ 7,819	\$ 7,719		<b>\$ 8,804</b>

**Exhibit C-5h**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2023**  
**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	2020-24		
Under 35	-	-	-	-	-	-	3	1	-	6	10	20	\$ 2,433
35-39	-	-	-	-	-	-	-	-	3	20	23	46	4,302
40-44	-	-	-	-	-	-	-	2	10	46	38	96	4,641
45-49	-	-	-	-	-	-	7	20	29	70	80	206	4,717
50-54	-	-	-	-	-	8	50	50	60	101	245	514	5,992
55-59	-	-	-	-	34	93	97	80	107	441	1,214	2,066	9,813
60-64	-	-	2	19	70	108	116	96	310	1,386	427	2,534	9,893
65-69	-	-	12	33	77	81	91	180	869	464	90	1,897	9,094
70-74	-	-	4	22	29	28	51	251	204	62	19	670	8,377
75-79	-	-	7	6	15	21	52	80	30	19	5	235	6,034
80-84	-	-	-	-	2	1	11	4	3	3	2	26	4,977
85-89	-	-	-	-	2	2	-	-	1	-	1	6	2,985
90-94	-	-	1	-	1	-	1	1	1	1	-	6	1,645
95-99	-	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	-	-	26	80	230	342	479	765	1,627	2,619	2,154	<b>8,322</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ 2,629	\$ 2,882	\$ 3,720	\$ 4,071	\$ 4,496	\$ 6,748	\$ 9,041	\$ 10,036	\$ 10,989		<b>\$ 8,955</b>

**Exhibit C-5i**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2023**  
**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	2020-24		
Under 35	-	-	-	-	-	-	-	-	-	1	4	5	\$ 3,463
35-39	-	-	-	-	-	-	-	-	-	1	4	5	3,306
40-44	-	-	-	-	-	-	-	-	-	-	2	2	4,097
45-49	-	-	-	-	-	-	-	-	-	1	1	2	3,392
50-54	-	-	-	-	-	-	-	-	-	-	1	1	3,842
55-59	-	-	-	-	-	-	-	-	-	-	2	2	3,119
60-64	-	-	-	-	-	-	-	-	-	3	6	9	2,089
65-69	-	-	-	-	-	-	-	-	-	-	2	2	3,147
70-74	-	-	-	-	-	-	-	-	-	1	-	1	25,359
75-79	-	-	-	-	-	-	-	-	1	-	-	1	19,751
80-84	-	-	-	-	-	-	-	-	-	-	-	-	-
85-89	-	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	-	-	-	-	-	-	-	-	1	7	22	<b>30</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 19,751	\$ 5,522	\$ 3,214		<b>\$ 4,303</b>



## 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	2.78%	5.57%	4.77%	4.77%	7.51%	4.47%	8.94%	11.66%
17	2.84%	5.68%	4.86%	4.86%	7.51%	4.47%	8.94%	11.66%
18	2.90%	5.79%	4.96%	4.96%	7.51%	4.47%	8.94%	11.66%
19	2.95%	5.91%	5.06%	5.06%	7.51%	4.55%	9.09%	11.66%
20	3.01%	6.03%	5.16%	5.16%	7.51%	4.58%	9.16%	11.66%
21	3.07%	6.15%	5.27%	5.27%	7.51%	4.61%	9.22%	11.66%
22	3.13%	6.27%	5.37%	5.37%	7.51%	4.69%	9.38%	11.66%
23	3.20%	6.39%	5.48%	5.48%	7.51%	4.77%	9.54%	11.66%
24	3.26%	6.52%	5.59%	5.59%	7.51%	4.85%	9.70%	11.66%
25	3.33%	6.65%	5.70%	5.70%	7.51%	4.89%	9.77%	11.66%
26	3.39%	6.79%	5.82%	5.82%	7.51%	4.92%	9.84%	11.66%
27	3.46%	6.92%	5.93%	5.93%	7.51%	5.00%	10.01%	11.66%
28	3.53%	7.06%	6.05%	6.05%	7.51%	5.09%	10.18%	11.66%
29	3.60%	7.21%	6.17%	6.17%	7.51%	5.18%	10.36%	11.66%
30	3.68%	7.35%	6.30%	6.30%	7.51%	5.23%	10.47%	11.66%
31	3.75%	7.50%	6.42%	6.42%	7.51%	5.29%	10.58%	11.66%
32	3.83%	7.66%	6.55%	6.55%	7.51%	5.38%	10.77%	11.66%
33	3.91%	7.81%	6.69%	6.69%	7.51%	5.48%	10.96%	11.66%
34	3.98%	7.96%	6.82%	6.82%	7.51%	5.58%	11.16%	11.66%
35	4.06%	8.12%	6.96%	6.96%	7.51%	5.69%	11.37%	11.66%
36	4.14%	8.28%	7.10%	7.10%	7.51%	5.79%	11.59%	11.66%
37	4.22%	8.43%	7.25%	7.25%	7.51%	5.90%	11.80%	11.66%
38	4.30%	8.59%	7.39%	7.39%	7.51%	6.01%	12.02%	11.66%
39	4.38%	8.75%	7.54%	7.54%	7.51%	6.12%	12.24%	11.66%
40	4.46%	8.91%	7.69%	7.69%	7.51%	6.23%	12.47%	11.66%
41	4.54%	9.08%	7.83%	7.83%	7.51%	6.35%	12.69%	11.66%
42	4.62%	9.24%	7.98%	7.98%	7.51%	6.45%	12.90%	11.66%
43	4.70%	9.41%	8.13%	8.13%	7.51%	6.55%	13.10%	11.66%
44	4.78%	9.57%	8.28%	8.28%	7.51%	6.64%	13.28%	11.66%
45	4.86%	9.73%	8.44%	8.44%	7.51%	6.70%	13.40%	11.66%
46	4.94%	9.88%	8.59%	8.59%	7.51%	6.70%	13.41%	11.66%
47	5.01%	10.03%	8.75%	8.75%	7.51%	6.70%	13.41%	11.66%
48	5.07%	10.15%	8.91%	8.91%	7.51%	6.70%	13.41%	11.66%
49	5.12%	10.24%	9.06%	9.06%	7.51%	6.70%	13.41%	11.66%
50	5.15%	10.29%	9.21%	9.21%	7.51%	6.70%	13.41%	11.66%
51	5.16%	10.32%	9.36%	9.36%	7.51%	6.70%	13.41%	11.66%
52	5.16%	10.32%	9.49%	9.49%	7.51%	6.70%	13.41%	11.66%
53	5.16%	10.32%	9.61%	9.61%	7.51%	6.70%	13.41%	11.66%
54	5.16%	10.32%	9.69%	9.69%	7.51%	6.70%	13.41%	11.66%
55	5.16%	10.32%	9.74%	9.74%	7.51%	6.70%	13.41%	11.66%
56	5.16%	10.32%	9.76%	9.76%	7.51%	6.70%	13.41%	11.66%
57	5.16%	10.32%	9.76%	9.76%	7.51%	6.70%	13.41%	11.66%
58	5.16%	10.32%	9.76%	9.76%	7.51%	6.70%	13.41%	11.66%
59	5.16%	10.32%	9.76%	9.76%	7.51%	6.70%	13.41%	11.66%
60	5.16%	10.32%	9.76%	9.76%	7.51%	6.70%	13.41%	11.66%

**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	5.06%	7.02%	6.02%	6.04%	9.28%	8.37%	11.93%	14.97%
17	5.17%	7.16%	6.13%	6.15%	9.28%	8.37%	11.93%	14.97%
18	5.28%	7.30%	6.26%	6.28%	9.28%	8.37%	11.93%	14.97%
19	5.37%	7.45%	6.39%	6.41%	9.28%	8.52%	12.13%	14.97%
20	5.48%	7.60%	6.51%	6.53%	9.28%	8.57%	12.22%	14.97%
21	5.59%	7.76%	6.65%	6.67%	9.28%	8.63%	12.30%	14.97%
22	5.70%	7.91%	6.78%	6.80%	9.28%	8.78%	12.52%	14.97%
23	5.83%	8.06%	6.92%	6.94%	9.28%	8.93%	12.73%	14.97%
24	5.94%	8.22%	7.05%	7.08%	9.28%	9.08%	12.94%	14.97%
25	6.06%	8.39%	7.19%	7.22%	9.28%	9.15%	13.04%	14.97%
26	6.17%	8.56%	7.34%	7.37%	9.28%	9.21%	13.13%	14.97%
27	6.30%	8.73%	7.48%	7.51%	9.28%	9.36%	13.36%	14.97%
28	6.43%	8.90%	7.63%	7.66%	9.28%	9.53%	13.58%	14.97%
29	6.55%	9.09%	7.79%	7.81%	9.28%	9.69%	13.82%	14.97%
30	6.70%	9.27%	7.95%	7.98%	9.28%	9.79%	13.97%	14.97%
31	6.83%	9.46%	8.10%	8.13%	9.28%	9.90%	14.12%	14.97%
32	6.97%	9.66%	8.27%	8.29%	9.28%	10.07%	14.37%	14.97%
33	7.12%	9.85%	8.44%	8.47%	9.28%	10.26%	14.62%	14.97%
34	7.25%	10.04%	8.61%	8.63%	9.28%	10.44%	14.89%	14.97%
35	7.39%	10.24%	8.78%	8.81%	9.28%	10.65%	15.17%	14.97%
36	7.54%	10.44%	8.96%	8.99%	9.28%	10.84%	15.46%	14.97%
37	7.68%	10.63%	9.15%	9.18%	9.28%	11.04%	15.74%	14.97%
38	7.83%	10.83%	9.33%	9.36%	9.28%	11.25%	16.04%	14.97%
39	7.98%	11.03%	9.51%	9.54%	9.28%	11.45%	16.33%	14.97%
40	8.12%	11.24%	9.70%	9.73%	9.28%	11.66%	16.64%	14.97%
41	8.27%	11.45%	9.88%	9.91%	9.28%	11.88%	16.93%	14.97%
42	8.41%	11.65%	10.07%	10.10%	9.28%	12.07%	17.21%	14.97%
43	8.56%	11.87%	10.26%	10.29%	9.28%	12.26%	17.48%	14.97%
44	8.70%	12.07%	10.45%	10.48%	9.28%	12.43%	17.72%	14.97%
45	8.85%	12.27%	10.65%	10.68%	9.28%	12.54%	17.88%	14.97%
46	8.99%	12.46%	10.84%	10.87%	9.28%	12.54%	17.89%	14.97%
47	9.12%	12.65%	11.04%	11.08%	9.28%	12.54%	17.89%	14.97%
48	9.23%	12.80%	11.24%	11.28%	9.28%	12.54%	17.89%	14.97%
49	9.32%	12.91%	11.43%	11.47%	9.28%	12.54%	17.89%	14.97%
50	9.38%	12.98%	11.62%	11.66%	9.28%	12.54%	17.89%	14.97%
51	9.40%	13.01%	11.81%	11.85%	9.28%	12.54%	17.89%	14.97%
52	9.40%	13.01%	11.98%	12.01%	9.28%	12.54%	17.89%	14.97%
53	9.40%	13.01%	12.13%	12.17%	9.28%	12.54%	17.89%	14.97%
54	9.40%	13.01%	12.23%	12.27%	9.28%	12.54%	17.89%	14.97%
55	9.40%	13.01%	12.29%	12.33%	9.28%	12.54%	17.89%	14.97%
56	9.40%	13.01%	12.32%	12.36%	9.28%	12.54%	17.89%	14.97%
57	9.40%	13.01%	12.32%	12.36%	9.28%	12.54%	17.89%	14.97%
58	9.40%	13.01%	12.32%	12.36%	9.28%	12.54%	17.89%	14.97%
59	9.40%	13.01%	12.32%	12.36%	9.28%	12.54%	17.89%	14.97%
60	9.40%	13.01%	12.32%	12.36%	9.28%	12.54%	17.89%	14.97%

## 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)	Annual Salary (in millions)	Average Age	Average Service	Average Monthly Salary	Number	Annual Salary (in millions)	Average Age	Average Service	Average Monthly Salary	Number	Annual Salary (in millions)	Average Age	Average Service	Average Monthly Salary	Number
1998	\$ 2,837	44.7	12.9	\$ 3,594	65,782	\$ 725	39.9	13.8	\$ 5,519	10,947	\$ 3,562	44.0	13.0	\$ 3,870	76,729
1999	\$ 3,105	44.6	12.7	\$ 3,769	68,652	\$ 753	40.0	13.7	\$ 5,696	11,024	\$ 3,858	43.9	12.8	\$ 4,035	79,676
2000	\$ 3,353	44.4	12.5	\$ 3,884	71,940	\$ 790	39.8	13.8	\$ 5,849	11,264	\$ 4,143	43.8	12.6	\$ 4,150	83,204
2001	\$ 3,608	44.5	12.3	\$ 4,006	75,048	\$ 860	39.6	13.0	\$ 5,967	12,021	\$ 4,468	43.9	12.4	\$ 4,277	87,069
2002	\$ 3,833	44.7	12.3	\$ 4,145	77,062	\$ 894	39.6	13.8	\$ 6,115	12,190	\$ 4,727	44.0	12.5	\$ 4,414	89,252
2003	\$ 3,954	45.2	12.7	\$ 4,336	75,995	\$ 899	40.1	13.7	\$ 6,370	11,765	\$ 4,853	44.5	12.9	\$ 4,609	87,760
2004	\$ 3,967	45.6	13.1	\$ 4,418	74,826	\$ 885	40.6	14.7	\$ 6,467	11,409	\$ 4,852	44.9	13.3	\$ 4,689	86,235
2005	\$ 4,046	45.8	13.2	\$ 4,486	75,167	\$ 905	41.0	14.9	\$ 6,722	11,217	\$ 4,951	45.2	13.4	\$ 4,777	86,384
2006	\$ 4,267	45.7	13.0	\$ 4,608	77,167	\$ 969	41.2	15.0	\$ 7,047	11,464	\$ 5,236	45.1	13.3	\$ 4,924	88,631
2007	\$ 4,673	45.7	12.8	\$ 4,878	79,829	\$ 1,104	40.8	14.4	\$ 7,499	12,267	\$ 5,777	45.1	13.0	\$ 5,227	92,096
2008	\$ 5,017	45.8	12.8	\$ 5,119	81,664	\$ 1,187	40.5	13.7	\$ 7,714	12,828	\$ 6,204	45.1	12.9	\$ 5,471	94,492
2009	\$ 5,348	46.1	13.1	\$ 5,377	82,878	\$ 1,240	40.8	14.0	\$ 8,002	12,910	\$ 6,588	45.4	13.2	\$ 5,731	95,788
2010	\$ 5,318	46.6	13.6	\$ 5,444	81,413	\$ 1,257	41.3	14.5	\$ 8,062	12,997	\$ 6,575	45.9	13.7	\$ 5,804	94,410
2011	\$ 5,295	47.0	14.0	\$ 5,506	80,145	\$ 1,240	41.9	15.1	\$ 8,172	12,641	\$ 6,535	46.3	14.2	\$ 5,869	92,786
2012	\$ 5,272	47.3	14.4	\$ 5,528	79,467	\$ 1,230	42.3	15.5	\$ 8,209	12,485	\$ 6,502	46.7	14.6	\$ 5,892	91,952
2013	\$ 5,253	47.6	14.8	\$ 5,541	79,006	\$ 1,235	42.3	15.7	\$ 8,207	12,539	\$ 6,488	46.9	14.9	\$ 5,906	91,545
2014	\$ 5,488	47.6	14.9	\$ 5,720	79,943	\$ 1,253	42.6	15.8	\$ 8,337	12,523	\$ 6,741	47.0	15.0	\$ 6,075	92,466
2015	\$ 5,706	47.6	14.8	\$ 5,854	81,228	\$ 1,300	42.8	16.0	\$ 8,702	12,446	\$ 7,006	46.9	15.0	\$ 6,233	93,674
2016	\$ 5,950	47.4	14.6	\$ 5,980	82,916	\$ 1,343	42.8	16.0	\$ 8,931	12,528	\$ 7,293	46.8	14.8	\$ 6,367	95,444
2017	\$ 6,290	47.3	14.5	\$ 6,202	84,513	\$ 1,388	42.5	15.6	\$ 9,110	12,698	\$ 7,678	46.7	14.6	\$ 6,582	97,211
2018	\$ 6,610	47.2	14.4	\$ 6,428	85,703	\$ 1,452	42.2	15.3	\$ 9,471	12,771	\$ 8,062	46.6	14.5	\$ 6,822	98,474
2019	\$ 6,816	47.3	14.4	\$ 6,574	86,392	\$ 1,540	42.0	15.1	\$ 10,032	12,794	\$ 8,356	46.6	14.5	\$ 7,020	99,186
2020	\$ 7,186	47.3	14.4	\$ 6,889	86,930	\$ 1,591	41.4	14.4	\$ 10,058	13,178	\$ 8,777	46.5	14.4	\$ 7,306	100,108
2021	\$ 7,438	47.5	14.6	\$ 7,210	85,963	\$ 1,651	41.4	14.2	\$ 10,471	13,138	\$ 9,088	46.7	14.5	\$ 7,642	99,101
2022	\$ 7,335	47.6	14.7	\$ 7,304	83,689	\$ 1,627	41.6	14.3	\$ 10,551	12,850	\$ 8,962	46.8	14.7	\$ 7,736	96,539
2023	\$ 7,843	47.6	14.6	\$ 7,753	84,295	\$ 1,683	41.7	14.3	\$ 11,125	12,610	\$ 9,526	46.9	14.6	\$ 8,192	96,905

**Exhibit E-2  
 Retired Membership Data**

General Members					Safety Members				Total Members			
Valuation Date (June 30)	Number	Annual Allowance (in millions)	Average Age	Average Monthly Benefit	Number	Annual Allowance (in millions)	Average Age	Average Monthly Benefit	Number	Annual Allowance (in millions)	Average Age	Average Monthly Benefit
1998	35,462	\$ 692	71.1	\$ 1,626	7,425	\$ 267	62.5	\$ 3,001	42,887	\$ 959	69.6	\$ 1,864
1999	35,837	\$ 725	71.4	\$ 1,686	7,674	\$ 291	63.1	\$ 3,166	43,511	\$ 1,016	70.0	\$ 1,947
2000	36,596	\$ 780	71.4	\$ 1,778	8,032	\$ 324	63.1	\$ 3,358	44,628	\$ 1,104	69.9	\$ 2,062
2001	37,077	\$ 890	71.6	\$ 2,001	8,319	\$ 382	63.4	\$ 3,828	45,396	\$ 1,272	70.1	\$ 2,336
2002	37,618	\$ 914	71.8	\$ 2,025	8,624	\$ 403	63.7	\$ 3,892	46,242	\$ 1,317	70.3	\$ 2,374
2003	38,283	\$ 984	71.9	\$ 2,142	8,949	\$ 443	63.9	\$ 4,128	47,232	\$ 1,427	70.4	\$ 2,518
2004	39,097	\$ 1,056	72.0	\$ 2,250	9,235	\$ 478	64.2	\$ 4,318	48,332	\$ 1,534	70.5	\$ 2,645
2005	40,251	\$ 1,138	72.1	\$ 2,355	9,518	\$ 514	64.6	\$ 4,504	49,769	\$ 1,652	70.7	\$ 2,766
2006	41,309	\$ 1,224	72.2	\$ 2,469	9,683	\$ 549	65.0	\$ 4,728	50,992	\$ 1,773	70.8	\$ 2,898
2007	41,584	\$ 1,280	72.2	\$ 2,565	9,808	\$ 578	65.4	\$ 4,914	51,392	\$ 1,858	70.9	\$ 3,013
2008	42,298	\$ 1,356	72.4	\$ 2,671	10,052	\$ 623	65.8	\$ 5,167	52,350	\$ 1,979	71.1	\$ 3,150
2009	42,825	\$ 1,423	72.6	\$ 2,768	10,244	\$ 663	66.3	\$ 5,394	53,069	\$ 2,086	71.4	\$ 3,275
2010	43,752	\$ 1,514	72.7	\$ 2,883	10,444	\$ 706	66.7	\$ 5,638	54,196	\$ 2,220	71.6	\$ 3,414
2011	44,726	\$ 1,597	72.9	\$ 2,976	10,645	\$ 746	67.0	\$ 5,836	55,371	\$ 2,343	71.7	\$ 3,526
2012	45,899	\$ 1,686	73.0	\$ 3,061	10,871	\$ 789	67.3	\$ 6,049	56,770	\$ 2,475	71.9	\$ 3,633
2013	46,939	\$ 1,774	73.2	\$ 3,149	11,147	\$ 837	67.5	\$ 6,261	58,086	\$ 2,611	72.1	\$ 3,746
2014	47,867	\$ 1,836	73.4	\$ 3,196	11,362	\$ 876	67.8	\$ 6,427	59,229	\$ 2,712	72.3	\$ 3,816
2015	48,958	\$ 1,898	73.5	\$ 3,231	11,648	\$ 914	68.0	\$ 6,541	60,606	\$ 2,813	72.5	\$ 3,867
2016	50,034	\$ 1,988	73.6	\$ 3,311	11,880	\$ 965	68.3	\$ 6,766	61,914	\$ 2,952	72.6	\$ 3,974
2017	51,083	\$ 2,079	73.8	\$ 3,391	12,241	\$ 1,030	68.4	\$ 7,012	63,324	\$ 3,109	72.7	\$ 4,091
2018	52,292	\$ 2,192	73.9	\$ 3,493	12,588	\$ 1,104	68.5	\$ 7,308	64,880	\$ 3,296	72.8	\$ 4,233
2019	53,560	\$ 2,316	73.9	\$ 3,603	12,947	\$ 1,184	68.6	\$ 7,620	66,507	\$ 3,500	72.9	\$ 4,385
2020	54,693	\$ 2,436	74.0	\$ 3,712	13,319	\$ 1,270	68.8	\$ 7,946	68,012	\$ 3,706	73.0	\$ 4,541
2021	55,828	\$ 2,552	74.1	\$ 3,809	13,669	\$ 1,350	68.8	\$ 8,228	69,497	\$ 3,902	73.0	\$ 4,679
2022	57,606	\$ 2,716	74.0	\$ 3,928	13,965	\$ 1,434	68.9	\$ 8,560	71,571	\$ 4,150	73.0	\$ 4,832
2023	58,745	\$ 2,848	74.1	\$ 4,040	14,263	\$ 1,520	69.0	\$ 8,883	73,008	\$ 4,368	73.1	\$ 4,986

**Exhibit E-3  
Contribution Rates**

Valuation Date (June 30)	General Plans					Safety Plans					Total All Plans				
	Calculated Normal Cost	Member Contributions	Net Employer Normal Cost	UAAL Rate	Total Employer Contribution	Calculated Normal Cost	Member Contributions	Net Employer Normal Cost	UAAL Rate	Total Employer Contribution	Calculated Normal Cost	Member Contributions	Net Employer Normal Cost	UAAL Rate	Total Employer Contribution
1998	10.27%	3.06%	7.21%	0.00%	7.21%	25.00%	8.70%	16.30%	0.00%	16.30%	13.27%	4.21%	9.06%	0.00%	9.06%
1999	10.98%	3.20%	7.78%	0.00%	7.78%	25.41%	9.12%	16.29%	0.00%	16.29%	13.81%	4.36%	9.45%	0.00%	9.45%
2000	10.91%	3.33%	7.58%	0.00%	7.58%	25.22%	9.44%	15.78%	0.00%	15.78%	13.66%	4.51%	9.15%	0.00%	9.15%
2001	11.27%	3.45%	7.82%	0.00%	7.82%	25.47%	9.27%	16.20%	0.00%	16.20%	14.01%	4.57%	9.44%	0.00%	9.44%
2002	12.04%	3.53%	8.51%	0.21%	8.72%	25.92%	9.37%	16.55%	0.21%	16.76%	14.66%	4.63%	10.03%	0.21%	10.24%
2003	12.25%	3.72%	8.53%	4.66%	13.19%	25.89%	9.55%	16.34%	4.66%	21.00%	14.80%	4.81%	9.99%	4.66%	14.65%
2004	12.20%	3.82%	8.38%	6.41%	14.79%	24.61%	9.61%	15.00%	6.41%	21.41%	14.48%	4.88%	9.60%	6.41%	16.01%
2005	12.22%	3.91%	8.31%	5.33%	13.64%	24.69%	9.68%	15.01%	5.33%	20.34%	14.50%	4.97%	9.53%	5.33%	14.86%
2006	12.22%	4.07%	8.15%	3.49%	11.64%	24.70%	9.70%	15.00%	3.49%	18.49%	14.54%	5.12%	9.42%	3.49%	12.91%
2007	13.15%	4.38%	8.77%	2.24%	11.01%	26.04%	10.18%	15.86%	2.24%	18.10%	15.67%	5.51%	10.16%	2.24%	12.40%
2008	13.18%	4.47%	8.71%	1.99%	10.70%	26.01%	10.22%	15.79%	1.99%	17.78%	15.68%	5.59%	10.09%	1.99%	12.08%
2009	13.29%	4.57%	8.72%	4.12%	12.84%	26.08%	10.21%	15.87%	4.12%	19.99%	15.75%	5.65%	10.10%	4.12%	14.22%
2010	13.32%	4.68%	8.64%	6.47%	15.11%	25.00%	10.19%	14.81%	6.47%	21.28%	15.59%	5.75%	9.84%	6.47%	16.31%
2011	13.36%	4.91%	8.45%	7.89%	16.34%	25.09%	10.50%	14.59%	7.89%	22.48%	15.65%	6.00%	9.65%	7.89%	17.54%
2012	13.50%	5.01%	8.49%	10.09%	18.58%	25.42%	10.52%	14.90%	10.09%	24.99%	15.81%	6.08%	9.73%	10.09%	19.82%
2013	13.25%	5.01%	8.24%	11.90%	20.14%	24.67%	10.26%	14.41%	11.90%	26.31%	15.47%	6.03%	9.44%	11.90%	21.34%
2014	13.14%	5.09%	8.05%	10.04%	18.09%	24.71%	10.23%	14.48%	10.04%	24.52%	15.37%	6.08%	9.29%	10.04%	19.33%
2015	13.28%	5.22%	8.06%	8.49%	16.55%	24.71%	10.26%	14.45%	8.49%	22.94%	15.46%	6.18%	9.28%	8.49%	17.77%
2016	14.51%	5.72%	8.79%	9.73%	18.52%	25.54%	10.57%	14.97%	9.73%	24.70%	16.62%	6.65%	9.97%	9.73%	19.70%
2017	14.62%	5.87%	8.75%	10.10%	18.85%	25.69%	10.56%	15.13%	10.10%	25.23%	16.70%	6.76%	9.94%	10.10%	20.04%
2018	14.77%	6.04%	8.73%	10.99%	19.72%	25.70%	10.59%	15.11%	10.99%	26.10%	16.80%	6.88%	9.92%	10.99%	20.91%
2019	16.24%	6.74%	9.50%	11.73%	21.23%	28.58%	11.78%	16.80%	11.73%	28.53%	18.54%	7.68%	10.86%	11.73%	22.59%
2020	16.31%	6.86%	9.45%	13.75%	23.20%	28.95%	11.88%	17.07%	13.75%	30.82%	18.69%	7.80%	10.89%	13.75%	24.64%
2021	16.35%	6.94%	9.41%	13.58%	22.99%	29.09%	11.88%	17.21%	13.58%	30.79%	18.75%	7.87%	10.88%	13.58%	24.46%
2022	16.85%	7.23%	9.62%	14.72%	24.34%	29.97%	12.45%	17.52%	14.72%	32.24%	19.33%	8.21%	11.12%	14.72%	25.84%
2023	16.95%	7.37%	9.58%	14.87%	24.45%	30.14%	12.84%	17.30%	14.87%	32.17%	19.38%	8.37%	11.01%	14.87%	25.88%

**Exhibit E-4  
Funded Status History**

Valuation Year	Actuarial Accrued Liability (AAL)	Fair Value Basis			Actuarial Value Basis			Annual Total Payroll	Asset Smoothing Ratio (AVA / FVA)	Asset Volatility Ratio (FVA / Payroll)	Liability Volatility Ratio (AAL / Payroll)
		Fair Value of Assets (FVA) <sup>1</sup>	Unfunded AAL (UAAL)/Surplus FVA Basis	Funded Ratio FVA Basis	Actuarial Value of Assets (AVA) <sup>1</sup>	Unfunded AAL (UAAL)/Surplus AVA Basis	Funded Ratio AVA Basis				
1996 <sup>2</sup>	17,300	18,600	1,300	107.5%	17,700	400	102.3%	3,356	95.2%	5.5	5.2
1997 <sup>2</sup>	19,300	21,100	1,800	109.3%	19,600	300	101.6%	3,373	92.9%	6.3	5.7
1998	20,960	22,332	1,372	106.5%	20,851	(109)	99.5%	3,562	93.4%	6.3	5.9
1999	22,785	24,382	1,597	107.0%	23,536	751	103.3%	3,858	96.5%	6.3	5.9
2000	24,721	27,257	2,536	110.3%	25,427	706	102.9%	4,143	93.3%	6.6	6.0
2001	26,490	23,916	(2,574)	90.3%	26,490	-	100.0%	4,469	110.8%	5.4	5.9
2002	28,437	24,085	(4,352)	84.7%	28,262	(175)	99.4%	4,730	117.3%	5.1	6.0
2003	30,474	24,616	(5,858)	80.8%	26,564	(3,910)	87.2%	4,934	107.9%	5.0	6.2
2004	32,700	28,094	(4,606)	85.9%	27,089	(5,611)	82.8%	4,942	96.4%	5.7	6.6
2005	34,375	30,904	(3,471)	89.9%	29,497	(4,878)	85.8%	5,051	95.4%	6.1	6.8
2006	36,259	34,256	(2,003)	94.5%	32,820	(3,439)	90.5%	5,333	95.8%	6.4	6.8
2007	39,503	40,073	570	101.4%	37,042	(2,461)	93.8%	5,886	92.4%	6.8	6.7
2008	41,975	37,834	(4,141)	90.1%	39,662	(2,313)	94.5%	6,257	104.8%	6.0	6.7
2009	44,469	29,723	(14,746)	66.8%	39,542	(4,927)	88.9%	6,673	133.0%	4.5	6.7
2010	46,646	32,629	(14,017)	69.9%	38,839	(7,807)	83.3%	6,739	119.0%	4.8	6.9
2011	48,599	38,587	(10,012)	79.4%	39,194	(9,405)	80.6%	6,705	101.6%	5.8	7.2
2012	50,809	37,453	(13,356)	73.7%	39,039	(11,770)	76.8%	6,675	104.2%	5.6	7.6
2013	53,247	41,334	(11,913)	77.6%	39,932	(13,315)	75.0%	6,656	96.6%	6.2	8.0
2014	54,942	47,223	(7,719)	86.0%	43,654	(11,288)	79.5%	6,815	92.4%	6.9	8.1
2015	56,819	48,308	(8,511)	85.0%	47,328	(9,491)	83.3%	7,078	98.0%	6.8	8.0
2016	62,199	47,347	(14,852)	76.1%	49,358	(12,841)	79.4%	7,390	104.2%	6.4	8.4
2017	65,311	52,217	(13,094)	80.0%	52,166	(13,145)	79.9%	7,749	99.9%	6.7	8.4
2018	68,527	55,737	(12,790)	81.3%	55,233	(13,294)	80.6%	8,079	99.1%	6.9	8.5
2019	74,635	57,712	(16,923)	77.3%	57,617	(17,018)	77.2%	8,423	99.8%	6.9	8.9
2020	78,275	57,925	(20,350)	74.0%	59,763	(18,512)	76.3%	8,819	103.2%	6.6	8.9
2021	81,898	72,282	(9,616)	88.3%	64,909	(16,989)	79.3%	9,080	89.8%	8.0	9.0
2022	86,320	68,973	(17,347)	79.9%	68,712	(17,608)	79.6%	9,048	99.6%	7.6	9.5
2023	90,651	72,502	(18,149)	80.0%	72,415	(18,236)	79.9%	9,548	99.9%	7.6	9.5

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



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

<b>Valuation Year</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Prior Year UAAL	11,770	13,315	11,288	9,491	12,841	13,145	13,294	17,018	18,512	16,989	17,608
Normal Cost	1,430	1,163	1,068	1,118	1,246	1,243	1,352	1,553	1,634	1,681	1,743
Contributions	(1,455)	(1,824)	(1,936)	(1,902)	(1,880)	(2,116)	(2,303)	(2,459)	(2,774)	(2,959)	(3,095)
Interest	895	999	814	682	954	968	976	1,212	1,311	1,202	1,244
Changes in Assumptions/Methodology	511	-	-	2,922	-	-	2,528	-	-	1,364	-
Changes in Benefit Provisions	-	-	-	-	-	-	-	-	-	-	-
Expected Current Year UAAL	13,151	13,653	11,234	12,311	13,161	13,240	15,847	17,324	18,683	18,277	17,500
Actual Current Year UAAL	13,315	11,288	9,491	12,841	13,145	13,294	17,018	18,512	16,989	17,608	18,236
Total (Gain)/Loss on UAAL	164	(2,365)	(1,743)	530	(16)	54	1,171	1,188	(1,694)	(669)	736
Asset (Gains)/Losses	893	(1,664)	(1,263)	496	(421)	(411)	477	701	(2,039)	(996)	(118)
Salary Increases	(563)	(291)	79	162	277	223	486	388	484	(21)	771
All Other Actuarial (Gains)/Losses	(166)	(410)	(559)	(128)	128	242	208	99	(139)	348	83

**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 <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	16.01%
2005	16.01%	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	14.86%
2006	14.86%	-0.29%	0.00%	0.02%	0.00%	-1.82%	0.14%	12.91%
2007	12.91%	-0.28%	1.34%	0.61%	0.00%	-2.14%	-0.04%	12.40%
2008	12.40%	-0.17%	0.00%	0.21%	0.00%	-0.24%	-0.12%	12.08%
2009	12.08%	-0.04%	-1.76%	0.21%	0.00%	3.91%	-0.18%	14.22%
2010	14.22%	0.00%	-0.27%	-0.10%	0.00%	2.29%	0.17%	16.31%
2011	16.31%	0.00%	0.25%	-0.14%	0.00%	1.39%	-0.27%	17.54%
2012	17.54%	0.00%	0.54%	-0.11%	0.00%	1.92%	-0.07%	19.82%
2013	19.82%	0.00%	0.82%	-0.01%	0.00%	0.74%	-0.03%	21.34%
2014	21.34%	0.00%	0.00%	-0.15%	0.00%	-1.43%	-0.43%	19.33%
2015	19.33%	0.00%	0.00%	0.04%	0.00%	-1.04%	-0.56%	17.77%
2016	17.77%	0.00%	2.87%	0.20%	0.00%	0.39%	-0.02%	21.21%
2017	21.21%	0.00%	0.00%	0.05%	0.00%	-0.32%	0.06%	21.00%
2018	21.00%	0.00%	0.00%	0.04%	0.00%	-0.30%	0.17%	20.91%
2019	20.91%	0.00%	1.10%	0.20%	0.00%	0.42%	-0.04%	22.59%
2020	22.59%	0.00%	1.09%	0.04%	0.00%	0.58%	0.34%	24.64%
2021	24.64%	0.00%	1.10%	0.39%	0.00%	-1.69%	0.02%	24.46%
2022	24.46%	0.00%	1.38%	0.49%	0.00%	-0.80%	0.31%	25.84%
2023	25.84%	0.00%	0.00%	0.26%	0.00%	-0.09%	-0.13%	25.88%

1. Data not available.

**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% <sup>1</sup>	4.40%	See June 30, 2009 valuation report.
2010	Included STAR reserve as a valuation asset.	June 30, 2010	-0.52% <sup>1</sup>	1.40%	See June 30, 2010 valuation report.
2011	Included STAR reserve as a valuation asset.	June 30, 2011	-0.52% <sup>1</sup>	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% <sup>1</sup>	1.20%	See June 30, 2012 valuation report.
2019	Adopted 20-year layered amortization period for new layers. Existing layers are set to be no greater than 22 years, so they are fully amortized no later than 2042.	June 30, 2019	0.30%	0.00%	See June 30, 2019 valuation report.
2022	Excluded STAR reserve from valuation assets.	June 30, 2022	0.46%	-0.70%	See June 30, 2022 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**

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

1. Excess of assumed wage inflation over price inflation.

2. Excess of assumed investment return over price inflation.

3. Information not available.

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

	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 <sup>1</sup>	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 <sup>1</sup>	Refer to the 2007 Investigation of Experience Report.
2010	Mortality, retirement, termination, probability of refund, assumed benefit commencement age revised.	July 1, 2010	-0.27%	-0.1%	Refer to the 2010 Investigation of Experience Report.
2013	Mortality, retirement, termination, probability of refund, merit salary scale for Safety members, probability of eligible survivor, assumption for beneficiary age, reciprocity assumption revised.	July 1, 2013	0.45%	-0.6%	Refer to the 2013 Investigation of Experience Report.
2016	Mortality, retirement, termination, probability of eligible survivor, assumed benefit commencement age, reciprocity assumption revised.	July 1, 2016	1.73%	-2.5%	Refer to the 2016 Investigation of Experience Report.
2019	Mortality, retirement, termination, probability of refund, merit salary scale, assumed benefit commencement age.	July 1, 2019	0.80%	-0.4%	2019 Investigation of Experience.
2022	Mortality, retirement, termination, probability of refund, merit salary scale, probability of eligible survivor, assumption for beneficiary age, reciprocity assumption revised.	July 1, 2022	0.92%	-0.7%	2022 Investigation of Experience.

1. Information not available.

## 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 fair value of total assets.

### **County Contribution Credit Reserve**

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

### **Employer Reserve**

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

### **Entry Age Actuarial Cost Method**

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

### **Funded Ratio**

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

### **Funding Goal**

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

### **Layered Amortization Period**

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

### **Member Reserve**

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

### **Non-Valuation Reserves**

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

### **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