



# Los Angeles County Employees Retirement Association

Actuarial Valuation of Retirement Benefits

June 30, 2022

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February 16, 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, 2022**

Dear Trustees of the Board:

As requested, we have performed an actuarial valuation of retirement benefits for the Los Angeles County Employees Retirement Association (LACERA) as of June 30, 2022 that is to be used in determining the contribution rates effective July 1, 2023. The major findings of the valuation are contained in this report. This report reflects the benefit provisions and contribution rates in effect as of June 30, 2022, and LACERA's Retirement Benefit Funding Policy (Funding Policy) that was adopted in December of 2009 and amended as of February 2013, and it reflects changes adopted at the Board of Investments December 2022 meeting.

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

All costs, liabilities, rates of interest, and other factors for LACERA have been determined on the basis of actuarial assumptions and methods that are individually reasonable (taking into account the experience of LACERA and reasonable expectations); and that, in combination, offer a reasonable estimate of anticipated experience affecting LACERA. Further, in our opinion, each actuarial assumption used is reasonably related to the experience of the Plan and to reasonable expectations, which, in combination, represent a reasonable estimate of anticipated experience for LACERA.

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.

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.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts of LACERA. The calculations in the enclosed report have been made on a basis consistent with our understanding of LACERA's funding requirements as stated under their Funding Policy. 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.

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

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

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

The consultants who worked on this assignment are retirement 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, appearing to read "Nick Collier", written over a horizontal line.

Nick Collier, ASA, EA, MAAA  
Consulting Actuary

A handwritten signature in black ink, appearing to read "Craig Glyde", written over a horizontal line.

Craig Glyde, ASA, EA, MAAA  
Consulting Actuary

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## 1. Summary of Findings

### 2022 Valuation Results

	Valuation Date	
	June 30, 2022	June 30, 2021
Employer Contribution Rate	25.84% <sup>(1)</sup>	24.46% <sup>(2)</sup>
Funded Ratio	79.6%	79.3%

1. The June 30, 2022 valuation calculates the employer contribution rate effective July 1, 2023.
2. The June 30, 2021 valuation calculates the employer contribution rate effective July 1, 2022.

This report presents the results of the June 30, 2022 actuarial valuation. This valuation determines the member and employer contribution rates payable starting July 1, 2023. Several key points are summarized below:

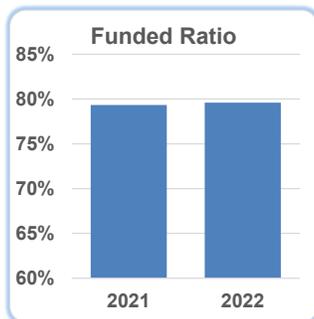
### Investment Returns

For the fiscal year ending in 2022, the fund returned 0.1% on a market-value basis (net of investment expenses). In total, there was a \$6.7 billion loss on market assets relative to the assumed rate of return of 7.0%. The return on the actuarial value of assets was 8.5% (equivalent to a gain of \$1.0 billion relative to the assumed rate) as a result of recognizing deferred investment gains from prior years. Effective June 30, 2022 there are deferred investment gains of \$0.3 billion to be recognized evenly over the next three fiscal years.



### Funded Ratio

The Funded Ratio increased from 79.3% to 79.6%. The recognition of deferred investment gains from prior years (primarily the strong return for fiscal year 2020-2021) and contributions to amortize the Unfunded Actuarial Accrued Liability (UAAL) increased the Funded Ratio. The less-than-assumed investment return for fiscal year 2021-2022, assumption and method changes adopted at the December 2022 Board of Investments (BOI) meeting, and CPI / retiree COLAs greater than assumed partially offset the positive factors. On a market-value basis, the Funded Ratio decreased from 88.3% to 79.9%.

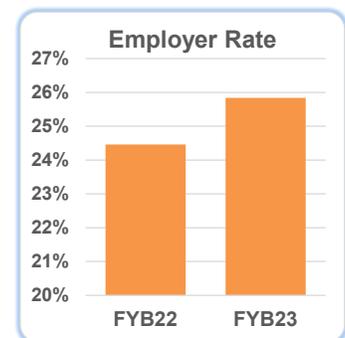


The [Analysis of Change – Funded Ratio](#) section that follows later in Section 1 provides an analysis of the sources of change in the Funded Ratio since last year.

### Employer Contribution Rate

The total calculated employer contribution rate increased from the prior valuation by 1.38% of payroll, from 24.46% to 25.84%. The most significant factors causing this increase were the assumption and method changes, the less-than-assumed investment return for fiscal year 2021-2022, and payroll growth less than expected. These factors were partially offset by the rate-reducing impact of the recognition of deferred investment gains from prior years (primarily the strong return for fiscal 2020-2021).

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 all Plans effective July 1, 2023 based on the new assumptions adopted with the 2022 Investigation of Experience. Member contribution rates for all plans, except General Plans E and G and Safety Plan C, vary based on a member's entry age to LACERA and the underlying actuarial assumptions. General Plan G and Safety Plan C member rates are required to be equal to 50% of the Gross Normal Cost rate of the respective plan which is dependent on the actuarial assumptions and the plan membership.

Comparing the member contribution rates calculated in this valuation with the rates members are currently paying, we have the following observations.

- Legacy plans (General A-D & Safety A-B): Member contribution rates generally increased on a relative basis in the range of 1% to 4% with younger entry ages tending to have the larger relative increases. These increases were primarily due to the new assumptions adopted.
- General Plan G: The member contribution rate increased by 0.16% of pay (a relative increase of less than 2%). This increase was primarily due to the new assumptions adopted and to changes in the demographics of the plan's active membership.
- Safety Plan C: The member contribution rate increased by 0.43% of pay (a relative increase of 3%). This increase was primarily due to the larger-than-assumed increase in the PEPRA compensation limit and lower salary increases than expected by the assumptions. Each of these factors results in an increase in the Normal Cost rate for members whose projected compensation is greater than the projected PEPRA compensation limit, based on the assumed future salary and limit increases. A significant portion of Safety Plan C active members are projected to have compensation greater than the PEPRA compensation limit (although very few are currently at the limit).

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

## Economic and Demographic Assumptions

The assumptions developed as a result of the 2022 Investigation of Experience study, described in our report dated January 6, 2023 were adopted by the BOI for use in this valuation. These changes include updating the rates of assumed merit salary increases, updating the assumed rates of service retirement to reflect a member's length of service in addition to their age, and updating the mortality improvement scale to reflect the most recent improvement scale published by the Society of Actuaries Retirement Plans Experience Committee (RPEC). Of these changes, the update to the service retirement assumption had the greatest single impact on the results of this valuation.

The net effect of all the assumption changes was an increase in the Unfunded Actuarial Accrued Liability (UAAL) of approximately \$750 million effective June 30, 2022, a decrease in the Funded Ratio of 0.7%, and an increase in the employer contribution rate of 0.92% of payroll.

The new assumptions generally caused increases in the member contribution rates for all Plans.

## Actuarial Methods

As a result of the 2022 Investigation of Experience study, the BOI adopted changes in actuarial methods for use in this valuation. These changes include designating the Supplemental Targeted Adjustment for Retirees (STAR) Reserve as a Non-Valuation Reserve. The impact of this change is an increase in UAAL of \$614 million effective June 30, 2022, a decrease in the Funded Ratio of 0.7%, and an increase in the employer contribution rate of 0.46% of payroll.

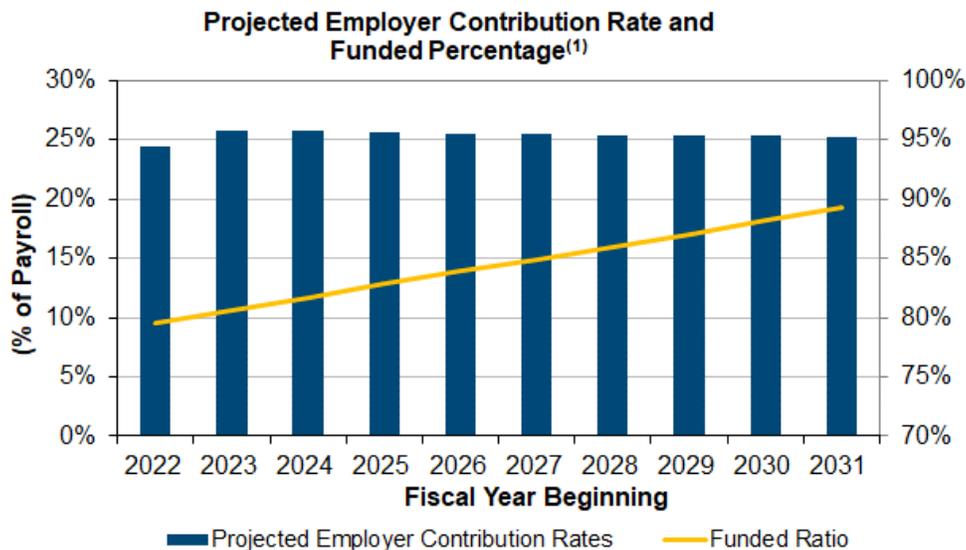
Other changes included a modification to the actuarial asset smoothing method which should result in slightly smoother employer contribution rates in the future. The modified method still smooths asset gains and losses over 5 years; however, before smoothing is applied, the current year gain (or loss) is offset against prior losses (or gains), if any. In addition to smoother employer contribution rates, the offsetting method is expected to reduce the likelihood and magnitude of spikes or dips in employer contribution rates in most cases. To implement this new method, investment gains and losses were recognized under the prior asset valuation method and the remaining deferred gains and losses were then combined and offset. As a result, effective June 30, 2022 Valuation Assets are the same under the new method as under the prior method, and there is no impact on the UAAL, Funded Ratio or employer contribution rate.

**Projected Future Employer Contribution Rates**

The employer contribution rate beginning July 1, 2023 is 25.84% 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, 2023. 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 additional changes in future employer contribution rates as deferred investment gains and losses are recognized. As will almost certainly be the case, actual experience will not exactly match the actuarial assumptions over those years, and a different pattern of future employer contribution rates will emerge.

To illustrate this potential variance, 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 market value of 7.0% per year). This projection is shown in the chart below.



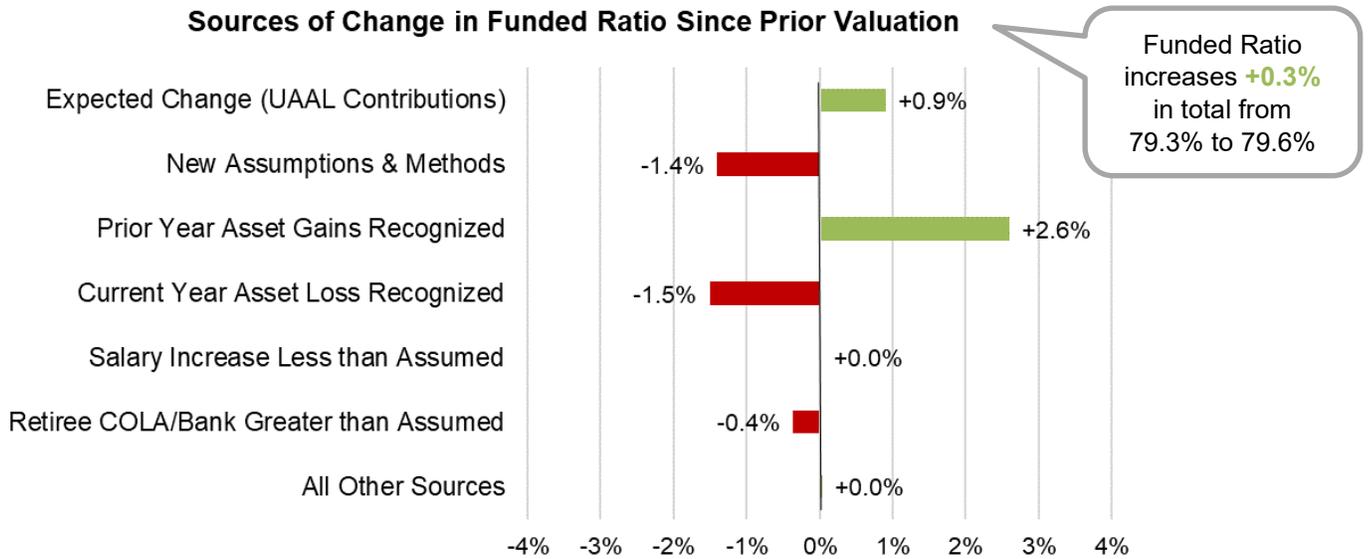
1. Projections assume that actuarial assumptions are met after June 30, 2022, and reflect the scheduled recognition of asset gains and losses currently being deferred.

As shown in the chart above, if all assumptions are met in future years, the employer contribution rate will decrease slightly from the 25.84% rate calculated in this valuation over the next few years and then stabilize at

about 25% of pay. Under the projection scenario, the Funded Ratio will be approximately 89% as of June 30, 2031 if all assumptions are met. However, future results will vary as actual experience will not exactly meet the assumptions.

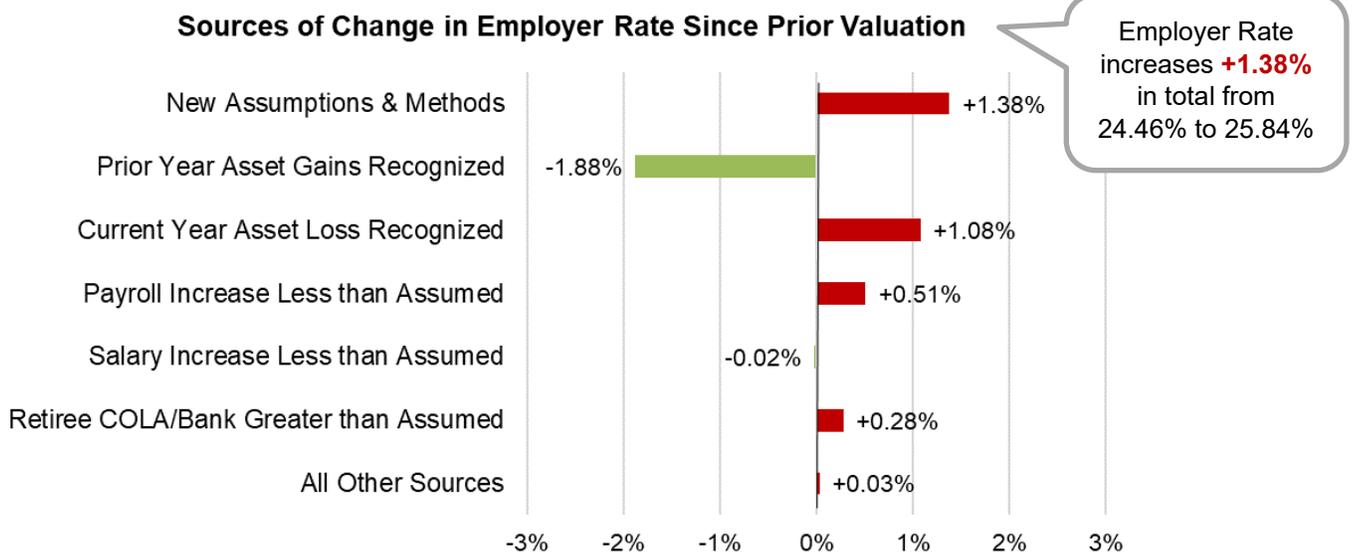
**Analysis of Change – Funded Ratio**

The following table shows an analysis of the primary causes of the change in the Funded Ratio since the last valuation. The recognition of a portion of the prior year’s investment gains was the most significant factor causing the Funded Ratio increase, although it was most offset by a number of other 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. The recognition of a portion of the current year’s investment loss and the new assumptions and methods were the most significant factors causing the increase in the employer contribution rate.

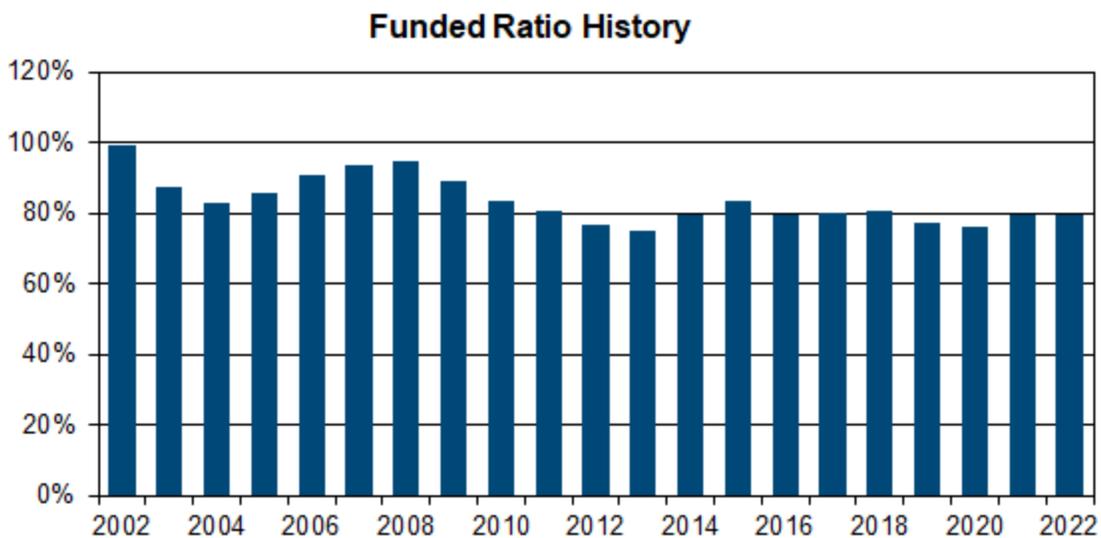


**Funding Progress**

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, 2022, the market value of the fund (including non-valuation reserves) was \$70.3 billion. The actuarial value of assets was \$70.0 billion, split between \$1.3 billion of Non-Valuation Assets and \$68.7 billion of Valuation Assets. The actuarial value of assets is approximately 100% of the market value of assets.

On a market-value basis, for the fiscal year ended June 30, 2022, LACERA earned 0.1% net of investment expenses, as reported by LACERA in the June 30, 2022 Annual Comprehensive Financial Report (ACFR). The market 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 8.5% 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 \$68.7 billion are equal to 79.6% of the \$86.3 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, 2022, the non-valuation reserves include:

- the Contingency Reserve, which is equal to 1% of the market value of assets, or \$703 million, and
- the STAR Reserve of \$614 million.

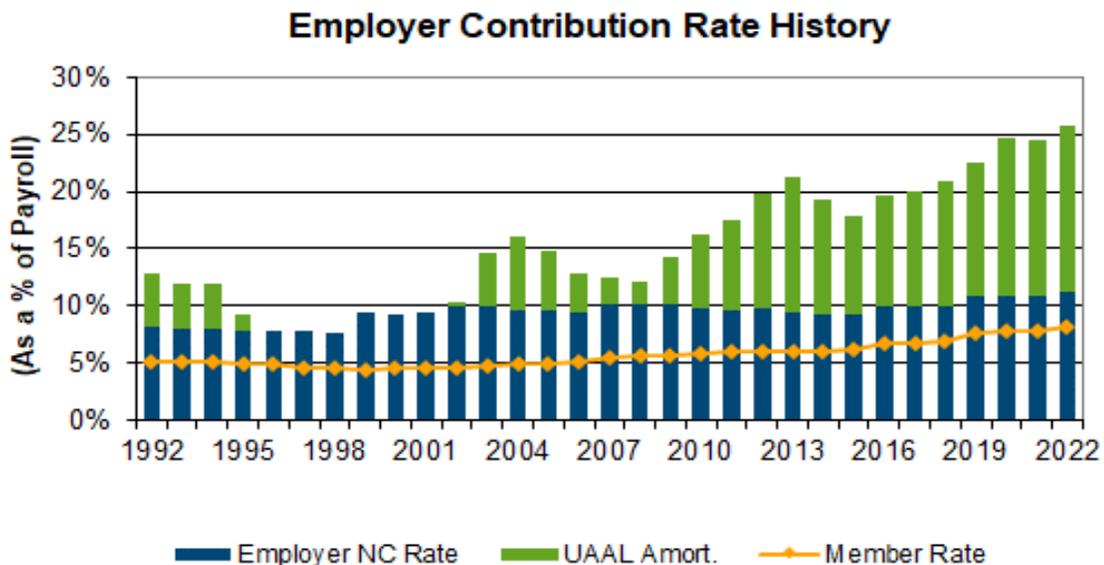
Note that this Contingency Reserve is different than the Contingency Reserve amount determined by LACERA for accounting purposes and included in the ACFR.

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

The smoothing method is currently deferring \$261 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.

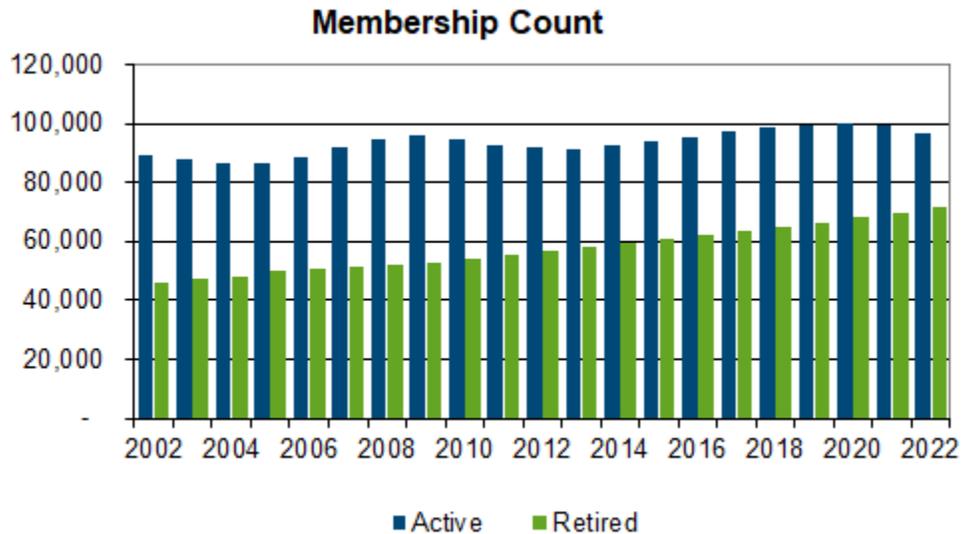
**Employer Contribution Rate History**

Based on the results of the valuation, the calculated employer contribution rate will increase for the fiscal year beginning in 2023 to a rate of 25.84% of pay, compared to 24.46% for the fiscal year beginning in 2022. A historical perspective of the employer contribution rates is shown in the following chart.

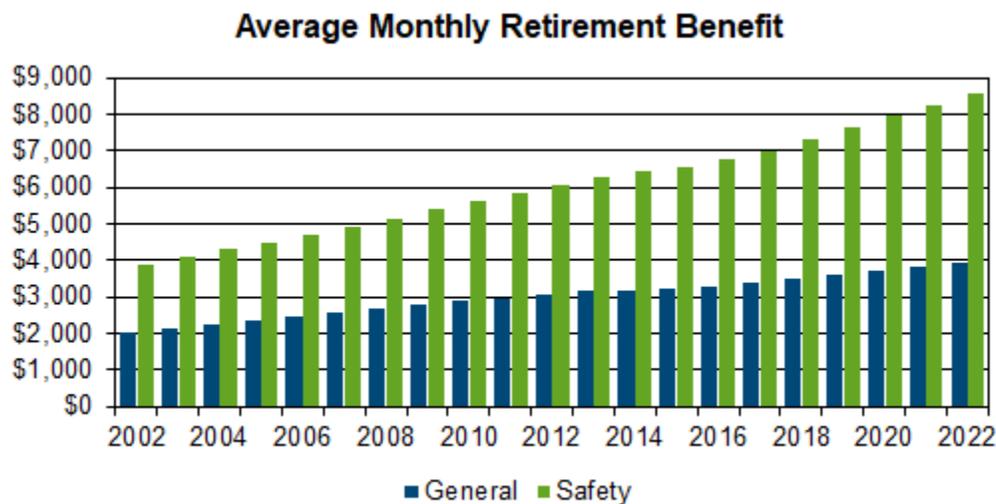


**Member Information**

Active payroll and active membership have both decreased since 2021. As of June 30, 2022, the annualized payroll is \$9.0 billion for 96,539 active members. This reflects a 0.3% decrease in total payroll and a 2.6% decrease in the number of active members. Average member pay increased by 2.3% over the period.



Retired member counts and average retirement benefit amounts continue to increase steadily. For 2022, there were 71,571 retired members and beneficiaries with an average benefit of \$4,832 per month. This represents a 3.0% increase in count and a 3.3% 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 (relative to active members) and average monthly benefit is a key driver of the negative cashflows 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, 2021</b>	<b>99,101</b>	<b>17,188</b>	<b>49,766</b>	<b>10,313</b>	<b>9,418</b>	<b>185,786</b>
New Members	4,096	224	7		844	5,171
Status Change:						
to Active	135	(134)	(1)			-
to Inactive	(2,666)	2,666				-
to Service Retirement	(3,276)	(416)	3,692			-
to Disabled Retirement	(242)	(11)	(241)	494		-
Refunds	(397)	(344)				(741)
Terminated non-vested	(27)					(27)
Benefits Expired			(2)		(14)	(16)
Deaths	(185)	(126)	(1,750)	(358)	(597)	(3,016)
<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>

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>	25.84%	20.90%	31.01%
Change		-4.94%	5.17%
<b>Funded Ratio</b>	79.6%	84.5%	74.8%
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, one thing is certain: 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 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, 2022 and June 30, 2021 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, 2022	June 30, 2021	Percentage Change
Total Membership			
A. Active Members	96,539	99,101	(2.6)%
B. Retired Members & Beneficiaries	71,571	69,497	3.0%
C. Vested Former Members <sup>(1)</sup>	19,047	17,188	10.8%
D. Total	187,157	185,786	0.7%
Pay Rate as of valuation date			
A. Annual Total (\$millions)	\$ 9,048	\$ 9,080	(0.3)%
B. Monthly Average per Active Member	7,811	7,635	2.3%
Average Monthly Benefit Paid to Current Retirees and Beneficiaries			
A. Service Retirement	4,707	4,577	2.8%
B. Disability Retirement	6,744	6,440	4.7%
C. Surviving Spouse and Dependents	3,429	3,289	4.3%
D. Total	4,832	4,679	3.3%
Actuarial Accrued Liability (\$millions)			
A. Active Members	36,683	35,124	4.4%
B. Retired Members	48,161	45,397	6.1%
C. Vested Former Members	1,476	1,377	7.2%
D. Total	86,320	81,898	5.4%
Assets			
A. Market Value of Fund (\$millions)	70,290	73,012	(3.7)%
B. Actuarial Value (\$millions)			
1. Valuation Reserves	68,712	64,909	5.9%
2. Non-valuation Reserves	1,317	730	80.4%
C. Annual Investment Return			
1. Market Basis (Net Return)	0.1%	25.2%	n/a
2. Valuation (Actuarial) Basis	8.5%	10.4%	n/a
Unfunded Actuarial Accrued Liability (\$ millions)	\$ 17,608	\$ 16,989	3.6%
Employer contribution rate for all plans combined as a percent of total payroll			
A. Gross Normal Cost	19.33%	18.75%	3.1%
B. Member Contributions <sup>(2)</sup>	(8.21)%	(7.87)%	4.3%
C. Employer Normal Cost	11.12%	10.88%	2.2%
D. UAAL Amortization	14.72%	13.58%	8.4%
E. Employer Contribution Rate	25.84%	24.46%	5.6%
Funded Ratio	79.6%	79.3%	0.4%
Results Based on Market Value (Informational Purposes Only)			
Calculated Contribution Rate	25.63%	18.57%	38.1%
Funded Ratio (excluding non-valuation reserves)	79.9%	88.3%	(9.5)%

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

2. Includes non-contributory members. The average rate for contributory plans increased from 9.16% to 9.45%.

## 2. Scope of the Report

This report presents the actuarial valuation of the Los Angeles County Employees Retirement Association as of June 30, 2022. 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 2022 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, 2022.
- 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 in Spring of 2022 as part of Milliman's Risk Assessment based on the June 30, 2021 actuarial valuation.

This report includes several appendices:

- Appendix A A summary of the actuarial procedures and assumptions used to estimate liabilities and contributions.
- Appendix B A summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2022.
- 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

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is June 30, 2022. On that date, the assets available for the payment of retirement benefits are appraised. These assets are compared with the actuarial liabilities (both accrued and future) for current members, which are generally in excess of the actuarial assets. The purpose of the valuation is to determine what future contributions by the members and employers are needed to pay all expected future benefits.

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

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

	Market Value of Total Assets	Actuarial Value		
		Non-Valuation Reserves	Valuation Assets	Total Fund Return (%) <sup>(1)</sup>
2013	\$ 41.8	0.4	39.9	11.9
2014	47.7	0.5	43.7	16.5
2015	48.8	0.5	47.3	4.1
2016	47.8	0.5	49.4	0.8
2017	52.7	0.5	52.2	12.7
2018	56.3	0.6	55.2	9.0
2019	58.3	0.6	57.6	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

*1. As reported in the Investment Section of LACERA's ACFR for the fiscal year ended June 30, 2022. All returns are shown net of investment expenses and calculated on a time-weighted basis.*

On June 30, 2022, the total market value of the fund, less current liabilities, was \$70.3 billion. The actuarial value of the fund was determined to be \$70.0 billion, including the non-valuation reserves. The average total fund return for the last 10 years is 8.6% 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

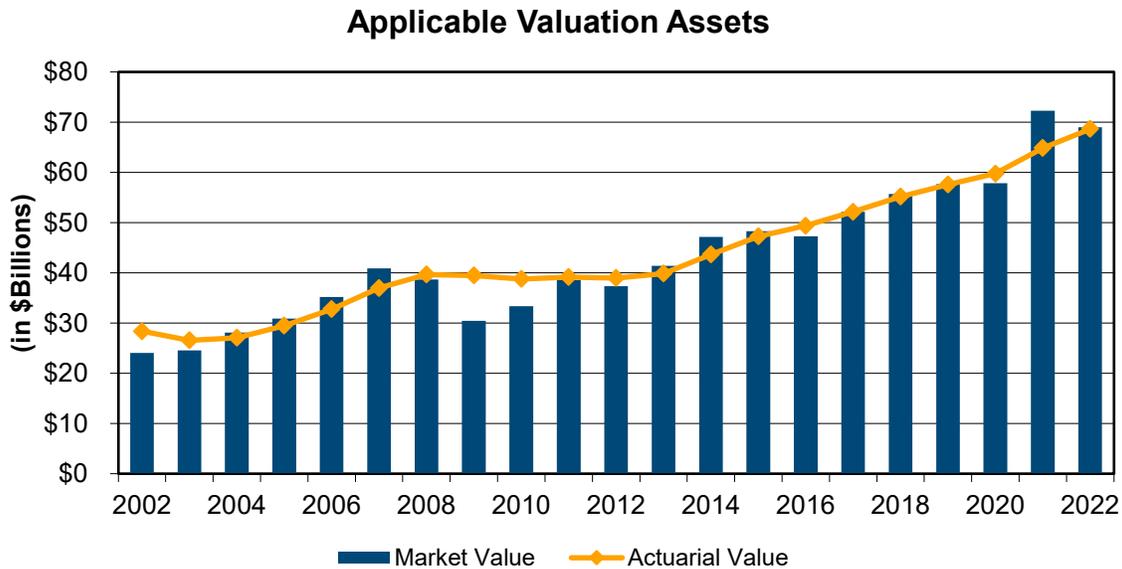
The actuarial asset method projects the expected market value of assets based on the prior year's market value of assets, the actual cash flow of contributions and benefit payments, and the assumed investment rate of return.

For the previous year, the assumed rate of return was 7.0%, net of all expenses. The difference between the actual market value and the expected market value is recognized evenly (also referred to as “smoothing”) over a five-year period.

Effective June 30, 2022 the actuarial asset method employs a method of offsetting investment gains and losses. In this valuation all deferred investment gains and losses are combined and offset into one single amount such that the actuarial asset value is unchanged from the prior method. In future years, 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 June 30, 2022 actuarial value of assets is shown in Exhibit 5 and reflects the combination of all investment gains and losses as of that date into one single amount. Note the smoothing process is deferring past investment gains and losses, and is currently in a net actuarial gain position. The result is an actuarial value of assets that is less than the June 30, 2022 market value by \$0.3 billion. The following graph shows a historical comparison of the actuarial and market 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 Market Value of Assets as of the valuation date to the extent there are positive recognized earnings to allocate.
- Priority 7: Allocate to the Employer Reserve an amount, if necessary, when combined with other Valuation Reserves, to provide 100% funding of the AAL as of the valuation date to reach the Funding Goal. In the event there are negative recognized earnings, allocate the entire amount.
- Priority 8: The Board may consider additional actions as permitted under the County Employee Retirement Law (CERL) using funds in excess of the amount needed to meet the Funding Goal for funding discretionary benefits. "Excess Earnings" as defined in the County Employees Retirement Law (CERL) may be appropriated upon reaching the Funding Goal; however, the Board may consider adjustment to the employer's contributions only upon satisfying California Government Code Section 7522.52(b).

### Valuation Assets

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

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, 2022 STAR Reserve accounting value of \$614 million was excluded from Valuation Assets and as such is not used to determine the employer contribution rates for the fiscal year beginning July 1, 2023.

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

**Exhibit 2**  
**Statement of Fiduciary Net Position**  
**As of June 30, 2022 and June 30, 2021**

	2022	2021
<b>Assets</b>		
Cash and Short-Term Investments	\$ 3,058,494,546	\$ 3,034,716,419
Cash Collateral on Loaned Securities	1,401,076,878	1,198,528,379
Receivables		
Contributions Receivable	119,635,183	114,101,681
Accounts Receivable - Sale of Investments	355,515,478	439,841,239
Accrued Interest and Dividends	226,860,897	169,925,118
Accounts Receivable - Other	10,226,949	109,138,958
Total Receivables	<u>712,238,507</u>	<u>833,006,996</u>
Investments at Fair Value		
Equity	24,464,719,621	29,705,842,700
Fixed Income	18,641,786,544	21,077,313,430
Private Equity	12,753,842,152	11,471,947,142
Real Estate	5,802,979,342	5,294,150,081
Hedge Funds	4,440,433,903	2,748,464,892
Real Assets	1,363,251,696	0
Total Investments	<u>67,467,013,256</u>	<u>70,297,718,245</u>
<b>Total Assets</b>	<b><u>72,638,823,188</u></b>	<b><u>75,363,970,038</u></b>
<b>Liabilities</b>		
Accounts Payable - Purchase of Investments	835,073,030	1,055,062,733
Retiree Payroll and Other Payables	1,779,455	1,550,257
Accrued Expenses	63,266,240	50,275,900
Tax Withholding Payable	42,715,354	40,144,308
Obligations under Securities Lending Program	1,401,076,878	1,198,528,379
Accounts Payable - Other	5,299,875	6,382,744
<b>Total Liabilities</b>	<b><u>2,349,210,833</u></b>	<b><u>2,351,944,321</u></b>
<b>Fiduciary Net Position Restricted For Pension Benefits</b>	<b><u>\$ 70,289,612,355</u></b>	<b><u>\$ 73,012,025,718</u></b>

**Exhibit 3**  
**Statement of Changes in Fiduciary Net Position**  
**For the Fiscal Years Ended June 30, 2022 and 2021**

	2022	2021
<b>Additions</b>		
Contributions		
Employer	\$ 2,199,888,716	\$ 2,012,877,282
Member <sup>(1)</sup>	<u>758,632,238</u>	<u>760,993,626</u>
Total Contributions	<u>2,958,520,953</u>	<u>2,773,870,909</u>
Investment Income		
From Investing Activities:		
Net Appreciation/(Depreciation) in Fair Value of Investments	(6,717,556,042)	9,981,327,917
Investment Income/(Loss)	<u>5,476,668,193</u>	<u>5,915,583,546</u>
Total Investing Activity Income	<u>(1,240,887,848)</u>	15,896,911,462
Less Expenses From Investing Activities	<u>(310,360,199)</u>	<u>(271,751,482)</u>
Net Investing Activity Income	<u>(1,551,248,047)</u>	15,625,159,981
From Securities Lending Activities:		
Securities Lending Income	12,294,541	5,071,951
Less Expenses From Securities Lending Activities:		
Borrower Rebates	125,823	869,192
Management Fees	<u>(1,317,057)</u>	<u>(1,186,215)</u>
Total Expenses from Securities Lending Activities	<u>(1,191,234)</u>	<u>(317,023)</u>
Net Securities Lending Income	11,103,307	4,754,928
Total Net Investment Income	<u>(1,540,144,740)</u>	<u>15,629,914,908</u>
Miscellaneous	4,117,638	2,927,574
Total Additions	<u>1,422,493,851</u>	<u>18,406,713,391</u>
<b>Deductions</b>		
Retiree Payroll	4,002,272,810	3,785,607,812
Administrative Expenses	86,110,835	76,369,711
Investment Expenses	14,010,176	14,216,047
Refunds	38,088,986	24,512,008
Lump Sum Death Benefits	4,205,274	4,142,050
Miscellaneous	<u>219,132</u>	<u>247,956</u>
Total Deductions	<u>4,144,907,213</u>	<u>3,905,095,584</u>
Net Increase/(Decrease)	(2,722,413,362)	14,501,617,807
<b>Fiduciary Net Position Restricted For Pension Benefits</b>		
Beginning of Year	73,012,025,718	58,510,407,911
End of Year	<u>\$ 70,289,612,355</u>	<u>\$ 73,012,025,718</u>

1. Member contributions include employer pick-up contributions.

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

(Dollars in Thousands)

	June 30, 2022	June 30, 2021
1. Member Reserves		
a. Active Members	\$ 25,804,263	\$ 24,646,373
b. Unclaimed Deposits	<u>-</u>	<u>-</u>
c. Total Member Reserves	25,804,263	24,646,373
2. Employer Reserves		
a. Actual Employer Contributions	32,011,255	29,026,898
b. Advanced Employer Contributions	<u>-</u>	<u>-</u>
c. Total Employer Contributions	32,011,255	29,026,898
3. County Contribution Credit Reserve	-	-
4. STAR Reserve	614,011	614,011
5. Contingency Reserve	<u>-</u>	<u>147,104</u>
6. Total Reserves at Book Value	58,429,529	54,434,386
7. Unrealized Investment Portfolio Appreciation	11,860,083	18,577,640
8. <b>Total Reserves at Fair Value</b>	<u><b>\$ 70,289,612</b></u>	<u><b>\$ 73,012,026</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, 2022.

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

(Dollars in Thousands)

June 30, 2022 Valuation								
Plan Year Ending	Contributions	Benefit Payments	Expected Market Value	Actual Market Value	Investment Gain / (Loss)	Percent Excluded	Preliminary Investment Gain / (Loss) Excluded	Adjusted Investment Gain / (Loss) Excluded
6/30/2022	\$ 2,958,521	\$ 4,044,567	\$ 76,999,453	\$ 70,289,612	\$ (6,709,841) x	80%	= \$ (5,367,873) →	\$ 0
6/30/2021	2,773,871	3,814,262	61,529,948	73,012,026	11,482,078 x	60%	= 6,889,247 →	261,095
6/30/2020	2,459,433	3,606,340	61,189,106	58,510,408	(2,678,698) x	40%	= (1,071,479) →	0
6/30/2019	2,303,566	3,407,155	59,238,837	58,294,837	(944,000) x	20%	= (188,800) →	0
6/30/2018	2,116,085	3,203,375	55,441,551	56,299,982	858,431 x	0%	= 0 →	0
(a) Total Gain / (Loss) Excluded =								\$ 261,095
(b) Total Market Value of Assets =								\$ 70,289,612
(c) Total Actuarial Value of Assets [(b) - (a)] =								\$ 70,028,517

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

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

	2023 Val	2024 Val	2025 Val	2026 Val	Total
Amount to be Recognized	\$ 87,032	\$ 87,032	\$ 87,032	\$ -	\$ 261,095

Note: After recognizing investment gains and losses under the old asset valuation method (shown in the Preliminary Investment Gain / (Loss) Excluded column), the remaining deferred gains and losses were combined and offset. Since the remaining deferred losses totaling \$6,628,152 were less than the remaining deferred gains totaling, \$6,889,247, the losses excluded were offset against the deferred gain excluded, resulting in an excluded gain of \$261,095. As the deferred losses were fully offset against the deferred gain, the excluded losses equal \$0.

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

(Dollars in Thousands)

	June 30, 2022	June 30, 2021
1. Total Market Value of Assets	\$ 72,638,823	\$ 75,363,970
2. Current Liabilities	<u>2,349,211</u>	<u>2,351,944</u>
3. Net Assets Held in Trust for Pension Benefits	70,289,612	73,012,026
4. Market Stabilization Reserve <sup>(1)</sup>	<u>261,095</u>	<u>7,372,529</u>
5. Actuarial Value of Assets	70,028,517	65,639,497
6. Non-Valuation Reserves <sup>(2)</sup>		
a. Unclaimed Deposits	-	-
b. Contingency Reserve	702,896	730,120
c. Advanced Employer Contributions	-	-
d. County Contribution Credit Reserve	-	-
e. Reserve for STAR Program	<u>614,011</u>	<u>-</u>
f. Total Non-Valuation Reserves	1,316,907	730,120
7. Actuarial Value of Assets <u>minus</u> Non-Valuation Reserves	<u>\$ 68,711,610</u>	<u>\$ 64,909,377</u>
8. Valuation Assets <sup>(2)</sup>		
a. Member Reserves	25,804,263	24,646,373
b. Employer Reserves for Funding Purposes	<u>42,907,347</u>	<u>40,263,004</u>
c. Total Valuation Assets	<u>\$ 68,711,610</u>	<u>\$ 64,909,377</u>

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

2. The values used for funding purposes for all reserves are based on the Board's Funding Policy 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.

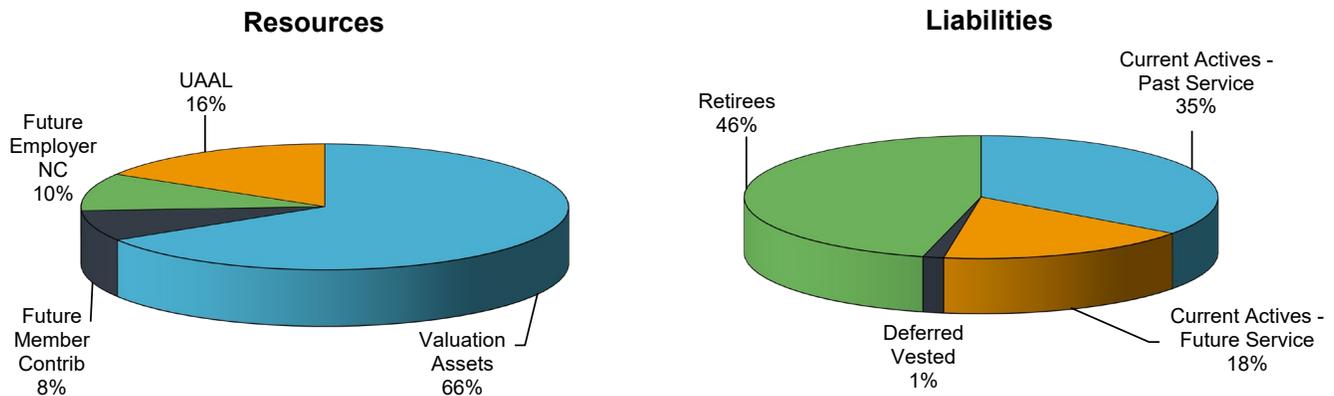
#### 4. Actuarial Liabilities

In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of LACERA's assets as of the valuation date, June 30, 2022. In this section, the discussion will focus on the commitments of LACERA for retirement benefits, which are referred to as its actuarial liabilities.

##### Actuarial Balance Sheet – Liabilities

The first step in the valuation process is to compare the total resources of LACERA with the present value of all future benefits (liabilities) for all plans. Resources include Valuation Assets and expected future contributions by both the employers and members. Liabilities reflect benefits already earned in the past and those expected to be earned in the future by current members. This relationship is shown in the pie charts below.

The AAL is the total of these liabilities less expected future Normal Cost contributions. The 2022 actuarial valuation indicates that LACERA's Valuation Assets are less than its AAL.



The difference between the Valuation Assets and the liabilities is the amount that needs to be funded by future member and employer contributions. Both the current and future assets (contributions) are included on the actuarial balance sheet and compared to the liabilities. The difference between these two values is the UAAL.

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

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

The actuarial assumptions used to determine the liabilities as of June 30, 2022 are based on the results of the 2022 Investigation of Experience Report. See Appendix A of this report for details.

All liabilities reflect the benefits effective through June 30, 2022. This includes permanent STAR COLAs that have been adopted through the valuation date, but does not include the value of any STAR benefits that have been adopted but are not effective until after the valuation date and STAR benefits that may be granted in the future.

**Exhibit 7**  
**Actuarial Balance Sheet – June 30, 2022**

(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	\$ 10,327	\$ 466	\$ 291	\$ 12,592	\$ 5,314	\$ 42	\$ 6,722	\$ 12,390	\$ 17	\$ 48,161
- Vested Former	4	1	0	737	462	109	0	152	11	1,476
- Inactive Total	10,331	467	291	13,329	5,776	151	6,722	12,542	28	49,637
Present Value of Benefits - Actives										
- Service Retirement	69	18	21	23,041	6,125	7,542	2	9,108	1,881	47,807
- Transfer Service (prior LACERA plan)	0	0	0	250	401	13	0	15	0	679
- Disability Retirement	0	0	0	797	N/A	500	0	2,902	970	5,169
- Death	0	0	0	285	N/A	138	0	63	29	515
- Termination	0	0	0	141	67	406	0	34	88	736
- Active Total	69	18	21	24,514	6,593	8,599	2	12,122	2,968	54,906
<b>Total Actuarial Liabilities</b>	<b>\$ 10,400</b>	<b>\$ 485</b>	<b>\$ 312</b>	<b>\$ 37,843</b>	<b>\$ 12,369</b>	<b>\$ 8,750</b>	<b>\$ 6,724</b>	<b>\$ 24,664</b>	<b>\$ 2,996</b>	<b>\$ 104,543</b>
<b>ASSETS</b>										
Valuation Assets	(5,432)	312	262	34,823	15,900	4,519	(3,147)	20,468	1,007	68,712
PV Future Member Contributions	1	0	0	2,637	N/A	3,286	0	1,033	1,224	8,181
PV Future Employer Normal Cost Contributions	1	1	0	3,069	994	3,037	0	1,783	1,157	10,042
UAAL or (Surplus Funding)	15,830	172	50	(2,686)	(4,525)	(2,092)	9,871	1,380	(392)	17,608
<b>Total Current and Future Assets</b>	<b>\$ 10,400</b>	<b>\$ 485</b>	<b>\$ 312</b>	<b>\$ 37,843</b>	<b>\$ 12,369</b>	<b>\$ 8,750</b>	<b>\$ 6,724</b>	<b>\$ 24,664</b>	<b>\$ 2,996</b>	<b>\$ 104,543</b>

### Actuarial Balance Sheet – Assets

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

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

### Actuarial Cost Method

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

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

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

### Normal Cost

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

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

**Actuarial Accrued Liability**

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

(Dollars in millions)	2022	2021	Percent Change
A. Actuarial present value of all future benefits for contributing members, former contributing members, and their survivors	\$ 104,543	\$ 100,064	4.5%
B. Actuarial present value of total future normal costs for current members	18,223	18,166	0.3%
C. Actuarial accrued liability [A-B]	86,320	81,898	5.4%
D. Valuation Assets	68,712	64,909	5.9%
E. UAAL or (Surplus Funding) [C-D]	17,608	16,989	3.6%
F. Funded Ratio [D/C]	79.6%	79.3%	0.4%

**Unfunded Actuarial Accrued Liability**

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

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

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

**Funding Adequacy**

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

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.

### Analysis of Change in Unfunded Actuarial Accrued Liability

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

The 2022 actuarial valuation reflects a decrease in the UAAL of approximately \$1.5 billion since the prior year. The effect of the gains and losses on the UAAL is shown in Exhibit 8a. A summary of these factors is:

- Investment Returns: Returns on market assets were 0.1% (net of investment expenses) compared to the assumed return of 7.0%. This, combined with recognitions of gains and losses from prior periods, resulted in an actuarial asset gain of \$1.0 billion.
- Active Member Experience (non salary): This includes gains and losses from termination, service retirement, disability retirement, and death different than assumed. This resulted in an actuarial loss of \$31 million.
- Salary Increases: Individual salaries for continuing active members increased at a rate less than the valuation assumption. This resulted in an actuarial gain of \$21 million.
- Actual CPI versus Assumption: The actual CPI increase was higher than assumed. This resulted in Plan A COLA increases higher than the assumption (note that other plans are assumed to receive the maximum COLA), which generated an actuarial loss of \$40 million. In addition, the excess CPI resulted in an increase in the COLA accumulation banks, which generated an actuarial loss of \$315 million.
- 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 \$36 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, and transfers between plans. These factors combined resulted in an actuarial gain of \$2 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.

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

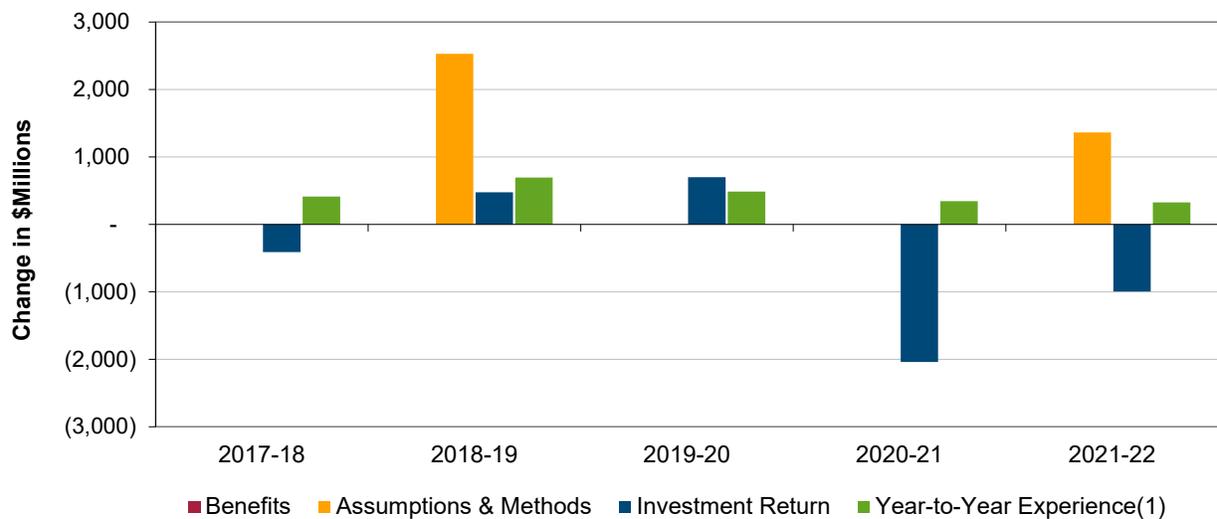
(Dollars in Millions)

	Amount	As a Percent of June 30, 2022 Actuarial Accrued Liability
<b>Unfunded Actuarial Accrued Liability - June 30, 2021</b>	<b>\$ 16,989</b>	<b>19.68%</b>
Interest Accrued	1,202	1.39%
Benefits Accrued (Normal Cost)	1,681	1.95%
<u>Contributions</u>		
Employer - Cash	\$ (2,200)	-2.55%
Employer - Contribution Credit	-	0.00%
Member	(759)	-0.88%
Total	<u>(2,959)</u>	-3.43%
<b>Expected Unfunded Actuarial Accrued Liability - June 30, 2022</b>	<b>\$ 16,913</b>	<b>19.59%</b>
<b>Sources of Change:</b>		
Increase in UAAL due to New Assumptions	750	0.87%
Increase in UAAL due to New Methods	614	0.71%
<u>Asset (Gains) and Losses</u>		
(Gain) / Loss due to Investment Income	(996)	-1.15%
<u>Liability (Gains) and Losses</u>		
Active Member Experience (non salary)	\$ 31	0.04%
Salary Increases Greater than Expected	(21)	-0.02%
CPI Greater than Expected	355	0.41%
Mortality Experience	(36)	-0.04%
All Other Experience	(2)	0.00%
Total	<u>327</u>	0.38%
<b>Total Changes</b>	<b>\$ 695</b>	<b>0.80%</b>
<b>Unfunded Actuarial Accrued Liability - June 30, 2022</b>	<b>\$ 17,608</b>	<b>20.40%</b>

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

(Dollars in Millions)

	2017-18	2018-19	2019-20	2020-21	2021-22	2017-22
<b>Prior Valuation UAAL</b>	<b>\$ 13,145</b>	<b>\$ 13,294</b>	<b>\$ 17,018</b>	<b>\$ 18,512</b>	<b>\$ 16,989</b>	<b>\$ 13,145</b>
Increase in UAAL due to:						
Expected Increase / (Decrease)	146	25	306	171	(76)	572
■ Asset (Gains) and Losses	(411)	477	701	(2,039)	(996)	(2,268)
■ Changes in Benefits	-	-	-	-	-	-
■ Changes in Assumptions	-	2,528	-	-	750	3,278
■ Changes in Methods	-	-	-	-	614	614
■ Salary Increases	223	486	388	484	(21)	1,560
■ CPI Increases	45	44	43	(73)	355	414
■ Mortality Experience	(20)	(6)	1	(96)	(36)	(157)
■ All Other Experience	166	170	55	30	29	450
<b>Total Increase / (Decrease)</b>	<b>149</b>	<b>3,724</b>	<b>1,494</b>	<b>(1,523)</b>	<b>619</b>	<b>4,463</b>
<b>Valuation UAAL</b>	<b>\$ 13,294</b>	<b>\$ 17,018</b>	<b>\$ 18,512</b>	<b>\$ 16,989</b>	<b>\$ 17,608</b>	<b>\$ 17,608</b>
<b>Funded Ratio</b>	<b>80.6%</b>	<b>77.2%</b>	<b>76.3%</b>	<b>79.3%</b>	<b>79.6%</b>	<b>79.6%</b>



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

## 5. Member Contributions

### Normal Contributions for non-PEPRA Plans

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

Normal contributions for each 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.

Since new assumptions were adopted for the 2022 valuation, we are recommending changes to the member contribution rates for General Plans A to D and Safety Plans A and B. Member contributions are shown in Appendix D. A sample of these recommended member contribution rates is shown in Exhibit 9.

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

### 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.

Since new assumptions were adopted for the 2022 valuation we are recommending changes in the member cost-of-living contribution rates. The recommended cost-of-living contribution rates, expressed as a percentage of the normal member contribution rates, are as follows:

Plan	Recommended COLA %	Current COLA %	Ratio (Recommended / Current)
General A	82.08%	84.46%	97.2%
General B	26.10%	25.90%	100.8%
General C	26.19%	26.81%	97.7%
General D	26.59%	25.94%	102.5%
General E	0.00%	0.00%	N/A
Safety A	87.15%	87.15%	100.0%
Safety B	33.43%	33.03%	101.2%

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 2022 valuation.

	General Plan G	Safety Plan C
<b>All Ages: Recommended</b>	<b>9.24%</b>	<b>14.76%</b>
All Ages: Current	9.08%	14.33%
Ratio (Recommended / Current)	101.8%	103.0%

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, 2022 is 9.45% of covered payroll, compared to 8.21% of covered payroll for all active members including non-contributory members. The 8.21% 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 2022 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%	5.98%	101.3%
	35	4.06%	3.33%	7.39%	7.36%	100.4%
	45	4.86%	3.99%	8.85%	8.91%	99.3%
	55	5.16%	4.24%	9.40%	9.46%	99.4%
<b>Plan B</b>	25	6.65%	1.74%	8.39%	8.15%	102.9%
	35	8.12%	2.12%	10.24%	10.05%	101.9%
	45	9.73%	2.54%	12.27%	12.16%	100.9%
	55	10.32%	2.69%	13.01%	12.90%	100.9%
<b>Plan C</b>	25	5.70%	1.49%	7.19%	7.00%	102.7%
	35	6.96%	1.82%	8.78%	8.62%	101.9%
	45	8.44%	2.21%	10.65%	10.56%	100.9%
	55	9.74%	2.55%	12.29%	12.28%	100.1%
<b>Plan D</b>	25	5.70%	1.52%	7.22%	6.95%	103.9%
	35	6.96%	1.85%	8.81%	8.56%	102.9%
	45	8.44%	2.24%	10.68%	10.49%	101.8%
	55	9.74%	2.59%	12.33%	12.19%	101.1%
<b>Plan G</b>	All Ages	7.48%	1.76%	9.24%	9.08%	101.8%
<b>Safety Members</b>						
<b>Plan A</b>	25	4.89%	4.26%	9.15%	8.87%	103.2%
	35	5.69%	4.96%	10.65%	10.54%	101.0%
	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%	12.61%	103.4%
	35	11.37%	3.80%	15.17%	14.99%	101.2%
	45	13.40%	4.48%	17.88%	17.83%	100.3%
	55	13.41%	4.48%	17.89%	17.83%	100.3%
<b>Plan C</b>	All Ages	11.49%	3.27%	14.76%	14.33%	103.0%

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 2023, the total calculated employer contribution rate increases to 25.84% from the current fiscal year rate of 24.46%. This is equal to the aggregate employer Normal Cost contribution rate of 11.12% based on the 2022 valuation, plus the layered amortization payment of the UAAL, shown in Exhibit 12.

(All values as a % of Payroll)

Employer Normal Cost Contribution Rate	11.12%
Layered Amortization of UAAL	<u>14.72%</u>
Calculated Employer Contribution Rate	25.84%

**Exhibit 10**  
**Calculated Normal Cost Contribution Rates – June 30, 2022**

	General							Safety				Grand Total
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	
<b>A. Normal Cost Contribution Rate</b>												
Service Retirement	20.05%	19.22%	13.70%	15.14%	10.39%	15.83%	14.61%	25.31%	19.63%	17.88%	19.14%	15.46%
Disability Retirement	0.96%	1.10%	0.70%	1.08%	0.00%	1.25%	0.96%	11.93%	9.32%	10.36%	9.61%	2.60%
Death	0.28%	0.29%	0.22%	0.32%	0.00%	0.30%	0.26%	0.42%	0.34%	0.29%	0.33%	0.27%
Termination	0.46%	0.40%	0.40%	1.10%	0.63%	1.10%	1.02%	0.85%	0.85%	0.99%	0.89%	1.00%
<b>Total</b>	<b>21.75%</b>	<b>21.01%</b>	<b>15.02%</b>	<b>17.64%</b>	<b>11.02%</b>	<b>18.48%</b>	<b>16.85%</b>	<b>38.50%</b>	<b>30.14%</b>	<b>29.52%</b>	<b>29.97%</b>	<b>19.33%</b>
<b>B. Member Contributions</b>	<b>(5.49)%</b>	<b>(9.94)%</b>	<b>(7.29)%</b>	<b>(8.20)%</b>	<b>0.00%</b>	<b>(9.24)%</b>	<b>(7.23)%</b>	<b>(11.04)%</b>	<b>(11.54)%</b>	<b>(14.76)%</b>	<b>(12.45)%</b>	<b>(8.21)%</b>
<b>C. Net Employer Normal Cost as of June 30, 2022 (A) - (B)</b>	<b>16.26%</b>	<b>11.07%</b>	<b>7.73%</b>	<b>9.44%</b>	<b>11.02%</b>	<b>9.24%</b>	<b>9.62%</b>	<b>27.46%</b>	<b>18.60%</b>	<b>14.76%</b>	<b>17.52%</b>	<b>11.12%</b>
<b>D. Net Employer Normal Cost as of June 30, 2021</b>	<b>17.01%</b>	<b>10.55%</b>	<b>7.65%</b>	<b>9.17%</b>	<b>10.72%</b>	<b>9.08%</b>	<b>9.41%</b>	<b>26.35%</b>	<b>18.22%</b>	<b>14.33%</b>	<b>17.21%</b>	<b>10.88%</b>
<b>E. Increase (Decrease) as a Percentage of Payroll (C) - (D)</b>	<b>(0.75)%</b>	<b>0.52%</b>	<b>0.08%</b>	<b>0.27%</b>	<b>0.30%</b>	<b>0.16%</b>	<b>0.21%</b>	<b>1.11%</b>	<b>0.38%</b>	<b>0.43%</b>	<b>0.31%</b>	<b>0.24%</b>
<b>F. Estimated Payroll for fiscal year beginning July 1, 2023<sup>(1)</sup></b>	<b>\$ 7</b>	<b>\$ 2</b>	<b>\$ 2</b>	<b>\$ 3,808</b>	<b>\$ 1,243</b>	<b>\$ 2,505</b>	<b>\$ 7,568</b>	<b>\$ 0</b>	<b>\$ 1,272</b>	<b>\$ 502</b>	<b>\$ 1,774</b>	<b>\$ 9,342</b>
<b>G. Estimated Total Normal Cost Contribution in Dollars (A x F)<sup>(2)</sup></b>	<b>\$ 2</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 672</b>	<b>\$ 137</b>	<b>\$ 463</b>	<b>\$ 1,275</b>	<b>\$ -</b>	<b>\$ 383</b>	<b>\$ 148</b>	<b>\$ 532</b>	<b>\$ 1,807</b>

1. Estimated Payroll based upon annualized salary rate as of June 30, 2022 increased by 3.25% wage inflation. Dollar figures in millions.  
 2. The timing of the Normal Cost shown in this exhibit is spread over the entire year and corresponds to payroll timing.

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

	General							Safety				All Plans
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	
<b>A. Net Employer Normal Cost</b>												
1. Basic Benefits	12.89%	8.99%	6.22%	7.77%	9.13%	7.48%	7.90%	21.48%	14.85%	11.49%	13.90%	9.02%
2. Cost-of-Living Benefits	3.37%	2.08%	1.51%	1.67%	1.89%	1.76%	1.72%	5.98%	3.75%	3.27%	3.62%	2.10%
3. Total 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%
B. UAAL Contribution Rate	14.72%	14.72%	14.72%	14.72%	14.72%	14.72%	14.72%	14.72%	14.72%	14.72%	14.72%	14.72%
<b>C. Total June 30, 2022 Contribution Rate (A) + (B)</b>	<b>30.98%</b>	<b>25.79%</b>	<b>22.45%</b>	<b>24.16%</b>	<b>25.74%</b>	<b>23.96%</b>	<b>24.34%</b>	<b>42.18%</b>	<b>33.32%</b>	<b>29.48%</b>	<b>32.24%</b>	<b>25.84%</b>
D. Total June 30, 2021 Contribution Rate	30.59%	24.13%	21.23%	22.75%	24.30%	22.66%	22.99%	39.93%	31.80%	27.91%	30.79%	24.46%
E. Estimated Payroll for fiscal year beginning July 1, 2023 <sup>(1)</sup>	\$ 7	\$ 2	\$ 2	\$ 3,808	\$ 1,243	\$ 2,505	\$ 7,568	\$ 0	\$ 1,272	\$ 502	\$ 1,774	\$ 9,342
<b>F. Estimated Annual Contribution (C x E)</b>	<b>\$ 2</b>	<b>\$ 1</b>	<b>\$ -</b>	<b>\$ 920</b>	<b>\$ 320</b>	<b>\$ 600</b>	<b>\$ 1,842</b>	<b>\$ -</b>	<b>\$ 424</b>	<b>\$ 148</b>	<b>\$ 572</b>	<b>\$ 2,414</b>
G. Last Year's Estimated Annual Contribution	\$ 3	\$ 1	\$ 1	\$ 887	\$ 326	\$ 531	\$ 1,746	\$ -	\$ 418	\$ 129	\$ 547	\$ 2,293
H. Increase / (Decrease) in Annual Contribution	\$ (1)	\$ -	\$ (1)	\$ 33	\$ (6)	\$ 69	\$ 96	\$ -	\$ 6	\$ 19	\$ 25	\$ 121

1. Estimated Payroll based upon annualized salary rate as of June 30, 2022 increased by 3.25% wage inflation. Dollar figures in millions.

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

(Dollars in Millions)

Unfunded Actuarial Accrued Liability - Amortization Detail							
Date Established	Description	Balance as of June 30, 2022	Interest on Balance	Amort. Payment on June 30, 2023 <sup>(1)</sup>	Balance as of June 30, 2023 <sup>(2)</sup>	Remaining Period as of June 30, 2023 <sup>(5)</sup>	July 1, 2023 Amortization Payment
June 30, 2009	Initial UAAL	\$ 5,516.1	\$ 386.1	\$ 454.9	\$ 5,447.3	16 Years	\$ 447.5
June 30, 2010	(Gain) / Loss <sup>(3)</sup>	3,029.0	212.0	239.7	3,001.3	17 Years	235.8
June 30, 2011	(Gain) / Loss <sup>(3)</sup>	1,509.4	105.7	115.0	1,500.1	18 Years	113.1
June 30, 2012	(Gain) / Loss <sup>(3)</sup>	2,479.7	173.6	182.3	2,471.0	19 Years	179.3
June 30, 2013	(Gain) / Loss <sup>(3)</sup>	1,402.0	98.1	103.1	1,397.0	19 Years	101.4
June 30, 2014	(Gain) / Loss	(2,596.1)	(181.7)	(190.9)	(2,586.9)	19 Years	(187.8)
June 30, 2015	(Gain) / Loss	(2,028.2)	(142.0)	(149.1)	(2,021.1)	19 Years	(146.7)
June 30, 2016	(Gain) / Loss <sup>(3)</sup>	3,897.0	272.8	286.5	3,883.3	19 Years	281.9
June 30, 2017	(Gain) / Loss	(21.1)	(1.5)	(1.6)	(21.1)	19 Years	(1.5)
June 30, 2018	(Gain) / Loss	61.0	4.3	4.5	60.8	19 Years	4.4
June 30, 2019	(Gain) / Loss <sup>(3)</sup>	3,911.5	273.8	309.6	3,875.7	17 Years	304.5
June 30, 2020	(Gain) / Loss	1,456.6	102.0	111.0	1,447.7	18 Years	109.2
June 30, 2021	(Gain) / Loss	(1,749.8)	(122.5)	(128.6)	(1,743.7)	19 Years	(126.6)
June 30, 2022	(Gain) / Loss <sup>(3)</sup>	741.0	51.9	(69.5) <sup>(4)</sup>	862.3	20 Years	60.4
Total Amortization Payment July 1, 2023:							\$ 1,375.0
Projected Payroll July 1, 2023:							\$ 9,342.3
<b>UAAL as of June 30, 2022:</b>		<b>\$ 17,608.0</b>	<b>UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2023:</b>				<b>14.72%</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, 2022, whereas, the contribution rates are not effective until July 1, 2023. Therefore, the UAAL is projected to June 30, 2023 based on the actual contribution rate for the period, with the projected UAAL as of June 30, 2023 equaling \$17,574 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, 2023; therefore, the UAAL amount is adjusted by one year to reflect the actual July 1, 2022 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: Solvency Test
- Exhibit 16: Actuarial Analysis of Financial Experience
- Exhibit 17: Retirants and Beneficiaries added to / removed from Retiree Payroll

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

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

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

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

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

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

(Dollars in Thousands)

Actuarial Valuation Date	(a) Actuarial Value of Valuation Assets	(b) Actuarial Accrued Liabilities	(b-a) Unfunded Actuarial Accrued Liabilities (UAAL)	(a/b) Funded Ratio	(c) Covered Payroll <sup>(1)</sup>	[(b-a)/c] UAAL as a Percentage of Covered Payroll
June 30, 2013 <sup>(2)</sup>	\$ 39,932,416	\$ 53,247,776	\$ 13,315,360	75.0%	\$ 6,595,902	201.9%
June 30, 2014	43,654,462	54,942,453	11,287,991	79.5%	6,672,228	169.2%
June 30, 2015	47,328,270	56,819,215	9,490,945	83.3%	6,948,738	136.6%
June 30, 2016 <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%

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, 2013	\$ 1,172,014	\$ 723,195	\$ 448,819	\$ 1,172,014	100%
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%

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  
Solvency Test**

(Dollars in Millions)

Actuarial Valuation Date	Actuarial Value of Valuation Assets	Actuarial Accrued Liabilities for			Portion of Actuarial Accrued Liabilities Covered by Assets		
		Active Member Contributions (A)	Retirees and Beneficiaries <sup>(1)</sup> (B)	Active Members (Employer Financed Portion) (C)	(A)	(B)	(C)
June 30, 2013	\$ 39,932	\$ 7,837	\$ 30,980	\$ 14,430	100%	100%	8%
June 30, 2014	43,654	8,354	31,882	14,706	100%	100%	23%
June 30, 2015	47,328	8,805	32,734	15,280	100%	100%	38%
June 30, 2016	49,358	8,767	35,316	18,116	100%	100%	29%
June 30, 2017	52,166	9,482	37,077	18,752	100%	100%	30%
June 30, 2018	55,233	9,882	39,192	19,453	100%	100%	32%
June 30, 2019	57,617	10,210	42,235	22,190	100%	100%	23%
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%

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						
	2016	2017	2018	2019	2020	2021	2022
Unfunded Actuarial Accrued Liability	\$9,491	\$12,841	\$13,145	\$13,294	\$17,018	\$18,512	\$16,989
Expected Increase/(Decrease) from Prior Valuation	(102)	320	146	25	306	171	(76)
Salary Increases Greater/(Less) than Expected	162	277	223	486	388	484	(21)
CPI Greater/(Less) than Expected	(191)	(139)	45	44	43	(73)	355
Change in Assumptions / Methods	2,922	-	-	2,528	-	-	1,364
Asset Return Less/(Greater) than Expected	496	(421)	(411)	477	701	(2,039)	(996)
All Other Experience	63	267	146	164	56	(66)	(7)
<b>Ending Unfunded Actuarial Accrued Liability</b>	<b>\$12,841</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>

**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)</sup>	Member Count	Annual Allowance <sup>(1)</sup>	Member Count	Annual Allowance <sup>(1)</sup>		
June 30, 2013	3,373	\$ 205,659 <sup>(2)</sup>	(2,057)	\$ (69,494)	58,086 <sup>(3)</sup>	\$ 2,611,067	5.50%	\$ 45.0
June 30, 2014	3,128	172,743 <sup>(2)</sup>	(1,985)	(71,730)	59,229 <sup>(3)</sup>	2,712,080	3.87%	45.8
June 30, 2015	3,501	180,549 <sup>(2)</sup>	(2,124)	(80,028)	60,606 <sup>(3)</sup>	2,812,601	3.71%	46.4
June 30, 2016	3,479	220,632 <sup>(2)</sup>	(2,171)	(80,881)	61,914 <sup>(3)</sup>	2,952,352	4.97%	47.7
June 30, 2017	3,721	245,915 <sup>(2)</sup>	(2,311)	(89,624)	63,324 <sup>(3)</sup>	3,108,643	5.29%	49.1
June 30, 2018	3,826	276,118 <sup>(2)</sup>	(2,270)	(89,033)	64,880 <sup>(3)</sup>	3,295,728	6.02%	50.8
June 30, 2019	3,978	302,022 <sup>(2)</sup>	(2,351)	(97,840)	66,507 <sup>(3)</sup>	3,499,910	6.20%	52.6
June 30, 2020	3,930	311,206 <sup>(2)</sup>	(2,425)	(104,914)	68,012 <sup>(3)</sup>	3,706,202	5.89%	54.5
June 30, 2021	4,350	327,745 <sup>(2)</sup>	(2,865)	(132,185)	69,497 <sup>(3)</sup>	3,901,762	5.28%	56.1
June 30, 2022	4,796	378,343 <sup>(2)</sup>	(2,722)	(130,089)	71,571 <sup>(3)</sup>	4,150,016	6.36%	58.0

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, 2022.

## 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 24.46% for the first year and 25.84% 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, 2022 of 8.21% of payroll. Expenses are based on the expenses for the year ended June 30, 2022, 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**

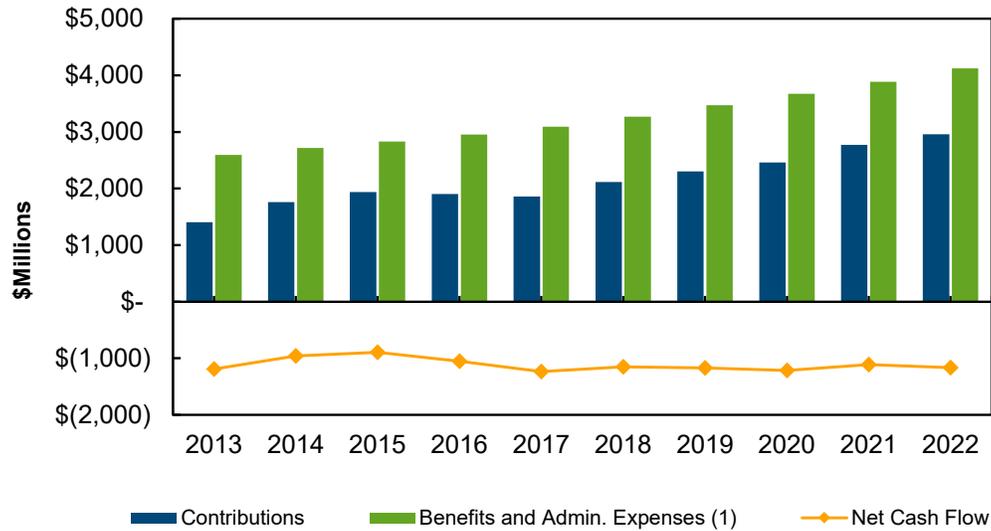
<b>Cash Flow History</b>				
Plan Year Ending	Total Contributions	Benefits & Administrative Expenses <sup>(1)</sup>	Net Cash Flow	Net Cash Flow as a Percent of Market Assets
2013	\$ 1,403	\$ 2,593	\$ (1,190)	-3.1%
2014	1,759	2,719	(960)	-2.3%
2015	1,936	2,829	(893)	-1.9%
2016	1,902	2,954	(1,052)	-2.2%
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%

<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 Market Assets
2023	\$ 2,972	\$ 4,555	\$ (1,583)	-2.3%
2024	3,232	4,652	(1,419)	-1.9%
2025	3,328	4,880	(1,553)	-2.0%
2026	3,424	5,114	(1,690)	-2.1%
2027	3,523	5,356	(1,832)	-2.1%
2028	3,634	5,602	(1,968)	-2.2%
2029	3,746	5,854	(2,108)	-2.2%
2030	3,863	6,110	(2,246)	-2.3%
2031	3,984	6,370	(2,386)	-2.3%
2032	4,109	6,633	(2,525)	-2.3%

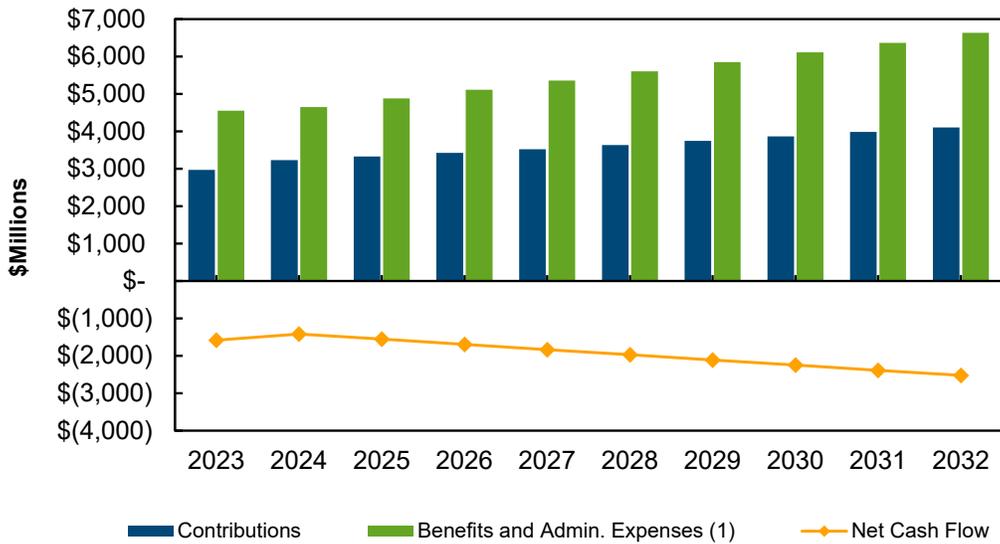
1. Investment expenses are assumed to be covered by investment return.
2. Future contributions reflect the expected impact of asset gains and losses currently being deferred.

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

**Cash Flow History**



**Cash Flow Projections<sup>(2)</sup>**



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 23, 2022 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:

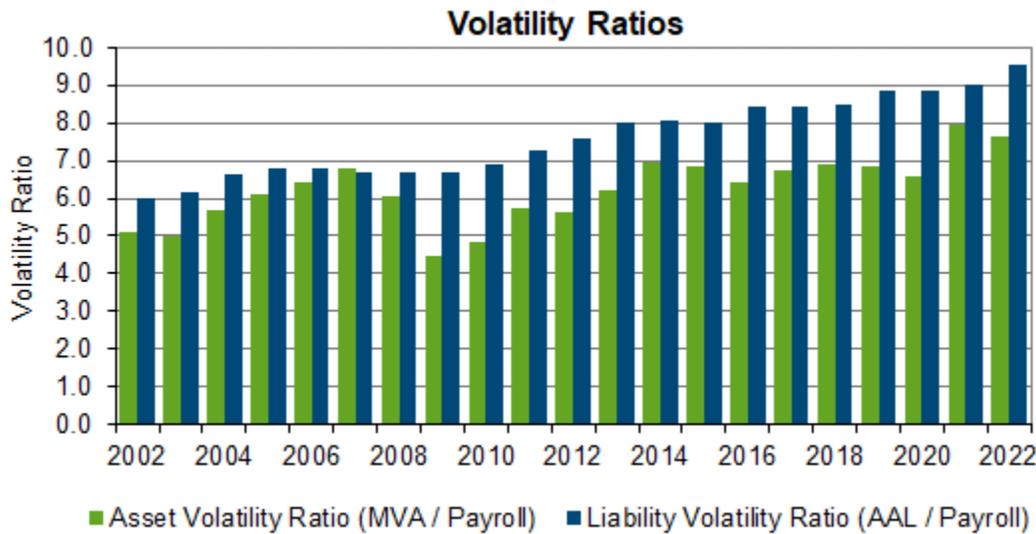
Disclosure Element	Description	Value
Gross Normal Cost \$ <sup>1</sup>	Normal Cost allocated to valuation year, paid at mid-year.	\$ 1,777.2
Statutory Contribution \$ <sup>1</sup>	Expected Employer Contribution paid at mid-year.	\$ 2,248.9
Asset Smoothing Ratio	Actuarial Value of Assets divided by Market Value of Assets	99.6%
Asset Volatility Ratio	Market 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.

**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. Specifically, due to the liabilities growing significantly faster than payroll in the fiscal year ended June 30, 2022, the Liability Volatility Ratio has increased from 9.0 to 9.5. This means that the ECR is more sensitive to changes in the level of liabilities and payroll now than it was just one year ago.

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 5.1% of pay for LACERA.

## Factors Affecting Future Results

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

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

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

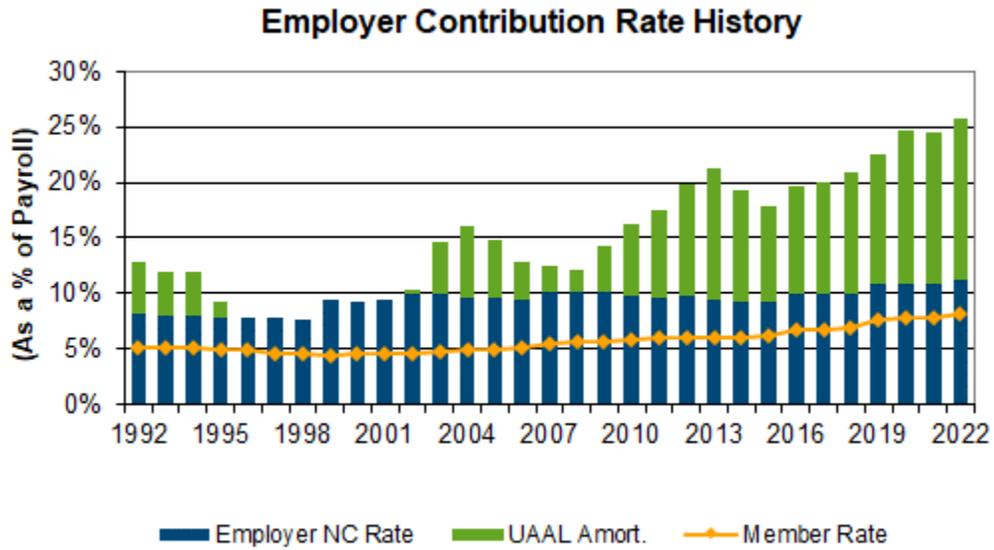
## Discussion of Investment Return Risk

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

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

### Historical Variation in Employer Contribution Rate

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



## Appendix A Actuarial Procedures and Assumptions

The actuarial procedures and assumptions used in this valuation are described in this section. The assumptions were reviewed and changed for the June 30, 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 market value and the actual market value of the assets as of the valuation date. The expected market value is the prior year's market value increased with the net increase in the cash flow of funds, all increased with interest during the past fiscal year at the expected investment return rate assumption. 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 2022 is \$161,969 (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, 2022**

- 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, 2022 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 2022 is 6.9918% calculated as follows:

$$\begin{aligned} \text{Age 85 probability in 2022} &= \text{Age 85 probability in 2010 with 12 years improvement} \\ &= 7.7648\% \times (100.0\% - 0.87\%)^{12} = 6.9918\% \end{aligned}$$

**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

**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>						Years of Service	Other Terminations	Retirement Rate Loading <sup>(2)</sup>
	Plan D	Plan G	Service Disability	Ordinary Disability	Service Death	Ordinary Death			
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>						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	0.00200	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.

### MEMBERSHIP

Permanent employees of Los Angeles County (County) and participating districts who work  $\frac{3}{4}$  time or more are eligible for membership in LACERA.

### Government Code Section

(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:** (31488)  
 Average of the member’s highest monthly pensionable earnings during any three 12-consecutive month periods.
- General Plan G and Safety Plan C** (7522.32)  
 Average of the member’s highest monthly pensionable earnings during any 36-consecutive month period.
- The amount of compensation that is taken into account in computing benefits payable to any person who first becomes a member on or after July 1, 1996, shall not exceed the dollar limitations in Section 401(a)(17) of Title 26 of the US Code. (31671)
- The amount of compensation taken into account for General Plan G and Safety Plan C members is limited to \$161,969 for 2022. 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 may be granted to members who are entitled to retirement benefits from two or more retirement plans established under the CERL or from a County retirement plan and the California Public Employees' Retirement System (CalPERS). Reciprocity also applies to the members of the State Teachers' Retirement System Defined Benefit Plan.	(31830, 31840.4, 31840.8)
	Final Compensation may be based on service with CalPERS or another County retirement plan, if greater.	(31835)
	Vested former members are eligible for disability and death benefits from LACERA, if disabled while a member of CalPERS or another County retirement plan, but combined benefits are limited.	(31837, 31838, 31838.5, 31839)

**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, 2022 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 2022 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, 2022 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, 2022**

	<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	22	-	22	\$ 3,272,148	76.1	\$ 12,395	44.0
	F	34	-	34	3,348,252	71.5	8,207	42.3
Plan B	M	4	-	4	397,872	70.8	8,289	32.7
	F	11	-	11	1,437,096	68.6	10,887	39.3
Plan C	M	3	-	3	219,984	70.0	6,111	43.5
	F	14	-	14	1,704,060	70.1	10,143	42.2
Plan D	M	11,527	52	11,579	1,231,354,560	52.2	8,862	20.4
	F	24,077	104	24,181	2,338,914,516	51.7	8,060	20.5
Plan E	M	4,310	60	4,370	425,544,924	55.9	8,115	23.7
	F	9,521	93	9,614	778,115,652	56.1	6,745	24.6
Plan G	M	5,177	6,127	11,304	911,853,228	40.2	6,722	4.7
	F	10,170	12,383	22,553	1,638,677,292	39.3	6,055	4.6
<b>Total</b>		<b>64,870</b>	<b>18,819</b>	<b>83,689</b>	<b>\$ 7,334,839,584</b>	<b>47.6</b>	<b>\$ 7,304</b>	<b>14.7</b>
<b>Safety Members</b>								
Plan A	M	1	-	1	\$ 178,488	65.0	\$ 14,874	27.3
	F	-	-	-	-	N/A	N/A	N/A
Plan B	M	6,785	92	6,877	975,441,792	47.2	11,820	20.3
	F	1,209	6	1,215	163,570,788	45.2	11,219	18.7
Plan C	M	1,636	2,412	4,048	415,169,508	32.8	8,547	4.4
	F	289	420	709	72,548,580	31.8	8,527	4.4
<b>Total</b>		<b>9,920</b>	<b>2,930</b>	<b>12,850</b>	<b>\$ 1,626,909,156</b>	<b>41.6</b>	<b>\$ 10,551</b>	<b>14.3</b>
<b>Grand Total</b>		<b>74,790</b>	<b>21,749</b>	<b>96,539</b>	<b>\$ 8,961,748,740</b>	<b>46.8</b>	<b>\$ 7,736</b>	<b>14.7</b>

**Exhibit C-2**  
**Retired LACERA Membership – Retired Members and Beneficiaries as of June 30, 2022**

	<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	6,341	\$ 479,856,346	81.3	\$ 6,306
	F	11,716	646,267,502	80.9	4,597
Plan B	M	206	15,117,046	76.1	6,115
	F	505	28,440,714	75.9	4,693
Plan C	M	143	8,669,030	75.1	5,052
	F	342	17,015,911	75.5	4,146
Plan D	M	7,499	373,149,368	69.2	4,147
	F	14,276	634,236,318	69.1	3,702
Plan E	M	5,252	185,413,445	72.9	2,942
	F	11,125	324,202,688	72.7	2,428
Plan G	M	87	1,638,707	65.2	1,570
	F	114	1,527,062	64.3	1,116
Total		57,606	\$ 2,715,534,137	74.0	\$ 3,928
<b>Safety Members</b>					
Plan A	M	4,135	\$ 467,104,513	78.2	\$ 9,414
	F	2,017	160,797,548	79.4	6,643
Plan B	M	6,380	692,813,087	61.7	9,049
	F	1,412	112,664,601	59.2	6,649
Plan C	M	14	844,892	55.7	5,029
	F	7	256,841	42.4	3,058
Total		13,965	\$ 1,434,481,482	68.9	\$ 8,560
<b>Grand Total</b>		71,571	\$ 4,150,015,619	73.0	\$ 4,832

**Exhibit C-2**  
**Former LACERA Membership – Vested Former Members as of June 30, 2022<sup>(1)</sup>**  
**Subtotaled by Plan and Retirement Type**

	Sex	Number	Average Age
<b>General Members</b>			
Plan A	M	14	75.7
	F	33	74.5
Plan B	M	2	74.5
	F	6	72.3
Plan C	M	5	69.0
	F	8	67.9
Plan D	M	2,565	50.4
	F	5,379	49.9
Plan E	M	933	57.3
	F	2,068	57.6
Plan G	M	2,014	38.6
	F	4,731	38.0
Total		17,758	46.9
<b>Safety Members</b>			
Plan A	M	4	70.0
	F	-	-
Plan B	M	675	45.5
	F	123	46.0
Plan C	M	424	32.2
	F	63	32.5
Total		1,289	40.6
<b>Grand Total</b>		19,047	46.5

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, 2022**  
**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	12,712	\$ 903,205	\$ 5,921
	Disabled	1,213	54,671	3,756
	Beneficiaries	4,132	168,248	3,393
	Total	<u>18,057</u>	<u>\$ 1,126,124</u>	<u>\$ 5,197</u>
<b>Plan B</b>				
	Healthy	590	\$ 38,747	\$ 5,473
	Disabled	52	2,026	3,247
	Beneficiaries	69	2,785	3,363
	Total	<u>711</u>	<u>\$ 43,558</u>	<u>\$ 5,105</u>
<b>Plan C</b>				
	Healthy	371	\$ 22,016	\$ 4,945
	Disabled	49	1,765	3,002
	Beneficiaries	65	1,903	2,440
	Total	<u>485</u>	<u>\$ 25,684</u>	<u>\$ 4,413</u>
<b>Plan D</b>				
	Healthy	17,606	\$ 872,120	\$ 4,128
	Disabled	2,339	88,479	3,152
	Beneficiaries	1,830	46,787	2,131
	Total	<u>21,775</u>	<u>\$ 1,007,386</u>	<u>\$ 3,855</u>
<b>Plan E</b>				
	Healthy	14,860	\$ 485,306	\$ 2,722
	Disabled	N/A	N/A	N/A
	Beneficiaries	1,517	24,310	1,335
	Total	<u>16,377</u>	<u>\$ 509,616</u>	<u>\$ 2,593</u>
<b>Plan G</b>				
	Healthy	167	\$ 2,372	\$ 1,183
	Disabled	20	590	2,458
	Beneficiaries	14	204	1,214
	Total	<u>201</u>	<u>\$ 3,166</u>	<u>\$ 1,313</u>
<b>Safety Plans:</b>				
<b>Plan A</b>				
	Healthy	1,931	\$ 228,295	\$ 9,852
	Disabled	2,583	273,304	8,817
	Beneficiaries	1,638	126,303	6,426
	Total	<u>6,152</u>	<u>\$ 627,902</u>	<u>\$ 8,505</u>
<b>Plan B</b>				
	Healthy	3,223	\$ 354,562	\$ 9,167
	Disabled	4,185	424,411	8,451
	Beneficiaries	384	26,505	5,752
	Total	<u>7,792</u>	<u>\$ 805,478</u>	<u>\$ 8,614</u>
<b>Plan C</b>				
	Healthy	11	\$ 697	\$ 5,277
	Disabled	8	333	3,473
	Beneficiaries	2	72	2,990
	Total	<u>21</u>	<u>\$ 1,102</u>	<u>\$ 4,372</u>
<b>Grand Totals</b>		71,571	4,150,016	4,832

**Exhibit C-2b**  
**LACERA Membership – Retired Members and Beneficiaries as of June 30, 2022**  
**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	12,712	\$ 903,205	\$ 5,921
	General B	590	38,747	5,473
	General C	371	22,016	4,945
	General D	17,606	872,120	4,128
	General E	14,860	485,306	2,722
	General G	167	2,372	1,183
	Safety A	1,931	228,295	9,852
	Safety B	3,223	354,562	9,167
	Safety C	11	697	5,277
	Total	51,471	\$ 2,907,320	\$ 4,707
<b>Disabled Retirees</b>				
	General A	1,213	\$ 54,671	\$ 3,756
	General B	52	2,026	3,247
	General C	49	1,765	3,002
	General D	2,339	88,479	3,152
	General E	N/A	N/A	N/A
	General G	20	590	2,458
	Safety A	2,583	273,304	8,817
	Safety B	4,185	424,411	8,451
	Safety C	8	333	3,473
	Total	10,449	\$ 845,579	\$ 6,744
<b>Beneficiaries</b>				
	General A	4,132	\$ 168,248	\$ 3,393
	General B	69	2,785	3,363
	General C	65	1,903	2,440
	General D	1,830	46,787	2,131
	General E	1,517	24,310	1,335
	General G	14	204	1,214
	Safety A	1,638	126,303	6,426
	Safety B	384	26,505	5,752
	Safety C	2	72	2,990
	Total	9,651	\$ 397,117	\$ 3,429
<b>Grand Totals</b>		71,571	\$ 4,150,016	\$ 4,832

**Exhibit C-3  
 Age Distribution of Active Members as of June 30, 2022**

	Age Groups						Total
	0-29	30-39	40-49	50-59	60-69	70+	
<b>General Plans:</b>							
Plan A							
Male	-	-	-	-	4	18	22
Female	-	-	-	-	12	22	34
Plan B							
Male	-	-	-	-	1	3	4
Female	-	-	-	-	9	2	11
Plan C							
Male	-	-	-	-	1	2	3
Female	-	-	-	-	6	8	14
Plan D							
Male	1	907	3,658	4,517	2,228	268	11,579
Female	1	1,872	8,201	9,369	4,245	493	24,181
Plan E							
Male	-	201	902	1,626	1,372	269	4,370
Female	-	343	1,835	3,766	3,197	473	9,614
Plan G							
Male	1,218	5,068	2,932	1,446	593	47	11,304
Female	2,713	10,847	5,315	2,705	892	81	22,553
<b>Safety Plans:</b>							
Plan A							
Male	-	-	-	-	1	-	1
Female	-	-	-	-	-	-	-
Plan B							
Male	5	1,177	2,821	2,671	201	2	6,877
Female	1	284	577	338	15	-	1,215
Plan C							
Male	1,340	2,211	403	73	21	-	4,048
Female	273	375	55	5	1	-	709
<b>Grand Totals:</b>	<u>5,552</u>	<u>23,285</u>	<u>26,699</u>	<u>26,516</u>	<u>12,799</u>	<u>1,688</u>	<u>96,539</u>

**Exhibit C-4**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2022**  
**All Plans**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>												<b>Total Count</b>
	<b>0-1</b>	<b>1-2</b>	<b>2-3</b>	<b>3-4</b>	<b>4-5</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>	<b>35&amp;Over</b>	
Under 25	288	86	114	48	18	2	-	-	-	-	-	-	556
25-29	1,153	905	1,051	731	541	613	2	-	-	-	-	-	4,996
30-34	1,091	949	1,288	1,250	1,344	4,321	415	8	1	-	-	-	10,667
35-39	732	614	830	899	977	4,834	2,599	1,084	49	-	-	-	12,618
40-44	430	380	537	543	685	3,094	2,890	3,418	1,202	67	1	-	13,247
45-49	290	260	358	404	436	1,958	2,050	3,045	3,781	808	61	1	13,452
50-54	209	179	256	269	301	1,449	1,461	2,269	3,785	2,247	1,652	114	14,191
55-59	150	129	159	177	227	1,048	999	1,634	2,544	1,718	2,523	1,017	12,325
60-64	62	41	105	110	120	722	805	1,240	1,840	908	1,513	1,497	8,963
65 & Over	22	14	32	52	58	399	565	881	1,393	593	629	886	5,524
<b>Total Count</b>	<b>4,427</b>	<b>3,557</b>	<b>4,730</b>	<b>4,483</b>	<b>4,707</b>	<b>18,440</b>	<b>11,786</b>	<b>13,579</b>	<b>14,595</b>	<b>6,341</b>	<b>6,379</b>	<b>3,515</b>	<b>96,539</b>

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>												<b>Average Comp.</b>
	<b>0-1</b>	<b>1-2</b>	<b>2-3</b>	<b>3-4</b>	<b>4-5</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>	<b>35&amp;Over</b>	
Under 25	49,995	68,539	74,453	63,715	73,909	88,734	-	-	-	-	-	-	59,976
25-29	56,752	63,666	72,677	74,439	79,695	81,392	72,762	-	-	-	-	-	69,456
30-34	65,914	68,656	73,068	75,118	76,285	82,631	90,217	60,257	72,564	-	-	-	77,121
35-39	74,754	80,210	78,249	82,635	81,662	86,889	98,989	97,232	111,783	-	-	-	88,061
40-44	75,522	75,649	73,933	84,545	83,438	92,548	102,093	99,021	103,371	112,500	206,556	-	94,801
45-49	64,631	69,519	72,434	81,569	80,828	88,877	102,300	100,560	106,672	121,932	127,373	146,232	98,918
50-54	65,606	73,502	72,349	77,118	83,046	87,856	97,475	99,378	106,260	120,857	121,804	123,290	103,965
55-59	67,156	77,884	68,802	73,736	79,203	84,934	92,683	90,485	96,990	112,634	112,461	108,970	99,501
60-64	72,638	76,024	64,639	85,429	73,330	83,915	89,322	85,050	90,091	108,509	107,599	108,672	95,987
65 & Over	98,668	104,778	77,253	83,143	83,155	91,471	88,427	84,386	82,621	95,108	99,298	100,518	90,345
<b>Avg. Annual Compensation</b>	<b>\$ 65,087</b>	<b>\$ 70,994</b>	<b>\$ 73,633</b>	<b>\$ 78,527</b>	<b>\$ 79,828</b>	<b>\$ 86,817</b>	<b>\$ 98,124</b>	<b>\$ 96,008</b>	<b>\$ 100,235</b>	<b>\$ 114,502</b>	<b>\$ 112,587</b>	<b>\$ 107,187</b>	<b>\$ 92,830</b>

**Exhibit C-4a  
 Age and Service Distribution of Active Members by Count  
 and Average Compensation as of June 30, 2022  
 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	-	-	-	-	-	-	-	3	3	4	5	41	56
<b>Total Count</b>	-	-	-	-	-	-	-	3	3	4	5	41	56

<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	-	-	-	-	-	-	-	59,816	86,936	123,294	96,053	126,993	118,221
<b>Avg. Annual Compensation</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 59,816	\$ 86,936	\$ 123,294	\$ 96,053	\$ 126,993	\$ 118,221

**Exhibit C-4b  
 Age and Service Distribution of Active Members by Count  
 and Average Compensation as of June 30, 2022  
 General Plan B**

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

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	<b>0-1</b>	<b>1-2</b>	<b>2-3</b>	<b>3-4</b>	<b>4-5</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>		<b>35&amp;Over</b>
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	-	-	-	-	-
65 & Over	-	-	-	-	-	-	-	-	143,592	134,040	141,264	113,844	122,331
<b>Avg. Annual Compensation</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 143,592	\$ 134,040	\$ 141,264	\$ 113,844	\$ 122,331

**Exhibit C-4c  
 Age and Service Distribution of Active Members by Count  
 and Average Compensation as of June 30, 2022  
 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	-	-	-	-	-	-	-	-	-	-	-	6	6
65 & Over	-	-	-	-	-	-	-	-	-	-	-	11	11
<b>Total Count</b>	-	-	-	-	-	-	-	-	-	-	-	17	17

<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	-	-	-	-	-	-	-	-	-	-	-	95,858	95,858
65 & Over	-	-	-	-	-	-	-	-	-	-	-	122,627	122,627
<b>Avg. Annual Compensation</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 113,179	\$ 113,179

**Exhibit C-4d**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2022**  
**General Plan D**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>												<b>Total Count</b>
	<b>0-1</b>	<b>1-2</b>	<b>2-3</b>	<b>3-4</b>	<b>4-5</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>	<b>35&amp;Over</b>	
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	1	1	-	-	-	-	-	2
30-34	1	-	-	7	3	87	180	6	1	-	-	-	285
35-39	1	5	5	13	12	306	1,560	553	39	-	-	-	2,494
40-44	1	3	4	13	15	286	1,980	2,243	684	51	-	-	5,280
45-49	-	1	9	10	9	200	1,435	2,057	2,325	490	42	1	6,579
50-54	1	1	4	10	10	159	1,038	1,568	2,357	1,214	759	86	7,207
55-59	1	3	4	1	4	102	737	1,148	1,663	1,085	1,343	588	6,679
60-64	-	-	2	3	2	58	565	842	1,188	586	773	622	4,641
65 & Over	-	-	2	2	1	36	372	575	775	345	273	212	2,593
<b>Total Count</b>	<b>5</b>	<b>13</b>	<b>30</b>	<b>59</b>	<b>56</b>	<b>1,235</b>	<b>7,868</b>	<b>8,992</b>	<b>9,032</b>	<b>3,771</b>	<b>3,190</b>	<b>1,509</b>	<b>35,760</b>

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>												<b>Average Comp.</b>
	<b>0-1</b>	<b>1-2</b>	<b>2-3</b>	<b>3-4</b>	<b>4-5</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>	<b>35&amp;Over</b>	
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	79,092	40,644	-	-	-	-	-	59,868
30-34	93,096	-	-	94,380	89,896	86,858	73,717	58,924	72,564	-	-	-	78,159
35-39	133,272	95,657	114,564	99,500	86,017	93,768	91,942	82,874	106,752	-	-	-	90,467
40-44	190,188	112,692	90,489	108,397	74,625	110,021	98,185	93,922	95,543	104,592	-	-	96,713
45-49	-	48,792	82,037	132,355	102,041	105,090	100,737	98,958	100,731	109,205	117,111	146,232	101,069
50-54	102,804	90,588	189,531	153,966	140,148	103,904	95,787	99,091	104,600	112,789	104,470	120,625	103,837
55-59	336,840	192,096	78,138	67,908	195,147	99,262	92,732	92,019	97,909	111,796	108,412	117,784	102,584
60-64	-	-	162,750	162,016	110,412	101,851	90,091	88,426	94,559	114,071	111,199	116,729	101,280
65 & Over	-	-	124,374	46,356	91,032	109,665	86,826	87,766	86,404	98,366	108,631	119,917	93,761
<b>Avg. Annual Compensation</b>	<b>\$ 171,240</b>	<b>\$ 117,848</b>	<b>\$ 110,601</b>	<b>\$ 116,495</b>	<b>\$ 104,171</b>	<b>\$ 101,468</b>	<b>\$ 94,900</b>	<b>\$ 94,121</b>	<b>\$ 98,810</b>	<b>\$ 110,807</b>	<b>\$ 108,283</b>	<b>\$ 117,829</b>	<b>\$ 99,840</b>

**Exhibit C-4e**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2022**  
**General Plan E**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Total Count</b>	
	<b>0-1</b>	<b>1-2</b>	<b>2-3</b>	<b>3-4</b>	<b>4-5</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>		<b>35&amp;Over</b>
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	1	6	48	2	-	-	-	-	57
35-39	-	-	-	-	-	35	305	146	1	-	-	-	487
40-44	-	-	-	-	-	26	374	484	201	5	-	-	1,090
45-49	-	-	-	-	-	30	325	554	669	64	5	-	1,647
50-54	-	-	-	-	-	14	268	465	821	431	373	13	2,385
55-59	-	-	-	-	-	22	222	387	670	445	877	384	3,007
60-64	-	-	-	-	-	22	209	375	604	293	700	833	3,036
65 & Over	-	-	-	-	-	9	178	297	606	237	343	605	2,275
<b>Total Count</b>	-	-	-	-	1	164	1,929	2,710	3,572	1,475	2,298	1,835	13,984

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	<b>0-1</b>	<b>1-2</b>	<b>2-3</b>	<b>3-4</b>	<b>4-5</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>		<b>35&amp;Over</b>
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	64,944	77,638	67,538	64,254	-	-	-	-	68,440
35-39	-	-	-	-	-	82,287	78,519	70,043	89,748	-	-	-	76,272
40-44	-	-	-	-	-	84,426	85,489	78,256	75,699	127,459	-	-	80,639
45-49	-	-	-	-	-	83,940	86,752	82,886	83,395	84,523	75,857	-	83,917
50-54	-	-	-	-	-	109,017	91,254	82,043	82,627	92,831	86,240	88,965	86,081
55-59	-	-	-	-	-	85,633	84,926	74,608	80,496	97,325	97,233	86,283	88,214
60-64	-	-	-	-	-	92,091	81,214	74,567	77,507	93,070	100,179	98,881	90,099
65 & Over	-	-	-	-	-	67,119	87,311	77,600	76,799	88,275	90,757	90,286	84,574
<b>Avg. Annual Compensation</b>	\$ -	\$ -	\$ -	\$ -	\$ 64,944	\$ 85,972	\$ 84,594	\$ 78,296	\$ 80,129	\$ 93,259	\$ 95,333	\$ 93,341	\$ 86,074

**Exhibit C-4f  
 Age and Service Distribution of Active Members by Count  
 and Average Compensation as of June 30, 2022  
 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	222	44	51	32	10	-	-	-	-	-	-	-	359
25-29	996	692	705	484	333	362	-	-	-	-	-	-	3,572
30-34	983	795	1,071	1,066	1,107	3,344	31	-	-	-	-	-	8,397
35-39	689	536	736	811	864	3,822	60	-	-	-	-	-	7,518
40-44	406	351	495	499	623	2,504	30	2	-	-	-	-	4,910
45-49	284	249	326	385	412	1,646	30	4	1	-	-	-	3,337
50-54	202	168	245	255	281	1,240	29	2	1	1	-	-	2,424
55-59	146	110	149	176	219	907	16	4	-	-	-	-	1,727
60-64	60	37	101	106	118	628	18	4	2	-	-	-	1,074
65 & Over	21	14	30	50	57	352	12	3	-	-	-	-	539
<b>Total Count</b>	<b>4,009</b>	<b>2,996</b>	<b>3,909</b>	<b>3,864</b>	<b>4,024</b>	<b>14,805</b>	<b>226</b>	<b>19</b>	<b>4</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>33,857</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	46,401	49,774	48,300	49,151	58,634	-	-	-	-	-	-	-	47,670
25-29	54,971	55,675	59,818	60,236	64,898	63,038	-	-	-	-	-	-	58,521
30-34	64,756	64,741	67,671	70,622	70,018	74,505	73,015	-	-	-	-	-	70,478
35-39	74,316	78,780	75,350	80,529	78,641	81,279	92,662	-	-	-	-	-	79,589
40-44	74,987	73,585	71,895	82,653	81,863	88,117	156,346	102,546	-	-	-	-	83,431
45-49	64,303	68,141	70,244	79,694	79,280	85,589	137,668	74,775	44,352	-	-	-	79,960
50-54	64,199	69,147	69,521	73,477	79,370	84,708	111,242	368,850	191,304	44,136	-	-	79,164
55-59	64,435	63,620	66,573	73,769	75,943	82,435	133,834	176,127	-	-	-	-	77,333
60-64	71,795	62,559	63,019	83,048	72,702	80,642	126,612	103,107	121,776	-	-	-	78,163
65 & Over	99,292	104,778	74,112	84,614	83,017	89,916	139,372	100,240	-	-	-	-	89,725
<b>Avg. Annual Compensation</b>	<b>\$ 64,202</b>	<b>\$ 66,624</b>	<b>\$ 68,200</b>	<b>\$ 74,534</b>	<b>\$ 75,438</b>	<b>\$ 81,475</b>	<b>\$ 114,878</b>	<b>\$ 139,976</b>	<b>\$ 119,802</b>	<b>\$ 44,136</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 75,332</b>

**Exhibit C-4g**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2022**  
**Safety Plan A**

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

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	<b>0-1</b>	<b>1-2</b>	<b>2-3</b>	<b>3-4</b>	<b>4-5</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>		<b>35&amp;Over</b>
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	-	-	-	-	-
65 & Over	-	-	-	-	-	-	-	-	-	178,488	-	-	178,488
<b>Avg. Annual Compensation</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 178,488	\$ -	\$ -	\$ 178,488

**Exhibit C-4h  
 Age and Service Distribution of Active Members by Count  
 and Average Compensation as of June 30, 2022  
 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	-	-	-	-	-	5	1	-	-	-	-	-	6
30-34	-	1	3	-	2	93	149	-	-	-	-	-	248
35-39	-	3	8	5	5	147	651	385	9	-	-	-	1,213
40-44	-	12	7	3	5	86	494	687	316	11	1	-	1,622
45-49	-	3	4	3	2	27	257	427	785	254	14	-	1,776
50-54	-	9	1	-	4	12	125	232	605	601	520	15	2,124
55-59	-	13	1	-	1	5	24	94	211	188	303	45	885
60-64	-	3	-	-	-	1	13	19	46	29	40	36	187
65 & Over	-	-	-	-	-	1	3	2	7	4	7	7	31
<b>Total Count</b>	-	44	24	11	19	377	1,717	1,846	1,979	1,087	885	103	8,092

<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	-	-	-	-	-	114,996	104,880	-	-	-	-	-	113,310
30-34	-	84,528	111,884	-	123,924	118,299	119,436	-	-	-	-	-	118,814
35-39	-	94,144	104,820	122,390	113,227	121,811	125,160	128,167	136,032	-	-	-	125,517
40-44	-	109,748	108,031	132,276	102,634	118,654	126,659	130,175	137,912	142,365	206,556	-	129,803
45-49	-	141,228	108,648	123,712	110,520	121,591	126,510	131,449	144,186	155,911	176,560	-	139,997
50-54	-	143,616	104,784	-	166,251	113,426	121,538	133,767	144,633	157,380	172,615	168,316	152,553
55-59	-	160,014	149,736	-	141,228	121,536	135,485	132,837	142,124	153,707	174,480	187,392	156,951
60-64	-	168,004	-	-	-	121,704	134,618	138,529	138,581	152,110	167,870	198,138	158,511
65 & Over	-	-	-	-	-	147,156	149,484	133,044	148,584	150,423	150,201	188,453	157,227
<b>Avg. Annual Compensation</b>	\$ -	\$ 136,008	\$ 109,148	\$ 125,447	\$ 123,917	\$ 119,915	\$ 125,280	\$ 130,727	\$ 142,949	\$ 156,083	\$ 172,962	\$ 188,442	\$ 140,758

**Exhibit C-4i**  
**Age and Service Distribution of Active Members by Count**  
**and Average Compensation as of June 30, 2022**  
**Safety Plan C**

<b>Count</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Total Count</b>	
	<b>0-1</b>	<b>1-2</b>	<b>2-3</b>	<b>3-4</b>	<b>4-5</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>		<b>35&amp;Over</b>
Under 25	66	42	63	16	8	2	-	-	-	-	-	-	197
25-29	157	213	346	247	208	245	-	-	-	-	-	-	1,416
30-34	107	153	214	177	231	791	7	-	-	-	-	-	1,680
35-39	42	70	81	70	96	524	23	-	-	-	-	-	906
40-44	23	14	31	28	42	192	12	2	1	-	-	-	345
45-49	6	7	19	6	13	55	3	3	1	-	-	-	113
50-54	6	1	6	4	6	24	1	2	1	-	-	-	51
55-59	3	3	5	-	3	12	-	1	-	-	-	-	27
60-64	2	1	2	1	-	13	-	-	-	-	-	-	19
65 & Over	1	-	-	-	-	1	-	1	-	-	-	-	3
<b>Total Count</b>	<b>413</b>	<b>504</b>	<b>767</b>	<b>549</b>	<b>607</b>	<b>1,859</b>	<b>46</b>	<b>9</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4,757</b>

<b>Compensation</b>													
<b>Age</b>	<b>Years of Service</b>											<b>Average Comp.</b>	
	<b>0-1</b>	<b>1-2</b>	<b>2-3</b>	<b>3-4</b>	<b>4-5</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>		<b>35&amp;Over</b>
Under 25	62,084	88,198	95,625	92,843	93,002	88,734	-	-	-	-	-	-	82,402
25-29	68,045	89,626	98,878	102,269	103,385	107,834	-	-	-	-	-	-	96,871
30-34	76,296	88,892	99,536	101,436	105,778	112,362	124,243	-	-	-	-	-	104,287
35-39	80,555	89,461	99,725	101,058	106,659	114,305	124,095	-	-	-	-	-	107,933
40-44	79,986	90,230	96,651	102,069	107,657	113,706	117,516	138,432	104,388	-	-	-	107,541
45-49	80,158	90,735	97,840	96,158	110,646	114,926	106,548	100,832	106,548	-	-	-	106,549
50-54	106,794	157,104	104,298	117,072	104,604	119,087	109,236	96,054	120,024	-	-	-	113,706
55-59	109,668	130,788	111,554	-	141,948	135,488	-	149,604	-	-	-	-	128,905
60-64	97,908	298,260	48,342	108,072	-	145,301	-	-	-	-	-	-	136,197
65 & Over	85,560	-	-	-	-	147,156	-	85,560	-	-	-	-	106,092
<b>Avg. Annual Compensation</b>	<b>\$ 72,396</b>	<b>\$ 90,086</b>	<b>\$ 98,761</b>	<b>\$ 101,613</b>	<b>\$ 105,330</b>	<b>\$ 112,987</b>	<b>\$ 120,934</b>	<b>\$ 111,848</b>	<b>\$ 110,320</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 102,526</b>

**Exhibit C-5**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2022**  
**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	-	-	-	-	-	1	7	5	13	69	44	139	\$ 1,084
35-39	-	-	-	-	-	-	2	4	7	66	42	121	2,481
40-44	-	-	-	-	-	1	1	13	38	100	74	227	2,935
45-49	-	-	-	-	-	2	14	39	76	147	115	393	3,471
50-54	-	-	-	1	5	31	91	91	152	363	544	1,278	3,742
55-59	-	-	-	1	50	112	154	149	323	1,467	1,922	4,178	6,010
60-64	-	-	4	30	99	152	169	245	1,133	3,100	2,282	7,214	5,648
65-69	-	6	36	65	105	152	287	1,050	2,765	4,437	3,266	12,169	4,949
70-74	4	49	100	118	157	321	1,136	2,900	4,038	4,243	1,386	14,452	4,719
75-79	10	118	199	179	369	1,215	2,850	2,961	2,895	1,600	638	13,034	4,931
80-84	39	114	139	260	918	1,701	2,074	1,520	1,005	704	397	8,871	4,698
85-89	60	93	174	522	1,132	1,052	866	530	420	414	253	5,516	4,219
90-94	52	90	301	439	630	375	225	209	215	216	113	2,865	3,907
95-99	23	89	159	168	145	70	53	71	68	65	27	938	3,580
100 & Over	15	24	34	20	21	16	12	7	16	9	2	176	3,009
<b>Total Count</b>	203	583	1,146	1,803	3,631	5,201	7,941	9,794	13,164	17,000	11,105	<b>71,571</b>	
<b>Avg Monthly Benefit</b>	\$ 2,487	\$ 3,107	\$ 3,147	\$ 3,668	\$ 4,631	\$ 4,697	\$ 5,429	\$ 4,727	\$ 4,744	\$ 4,867	\$ 5,174		<b>\$ 4,832</b>

**Exhibit C-5a**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2022**  
**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	-	2	3	1	7	\$ 791
35-39	-	-	-	-	-	-	-	2	1	3	2	8	1,240
40-44	-	-	-	-	-	-	1	4	2	1	3	11	1,952
45-49	-	-	-	-	-	-	2	4	4	-	-	10	2,636
50-54	-	-	-	1	-	3	2	3	4	3	6	22	2,526
55-59	-	-	-	-	1	1	2	5	3	7	7	26	3,644
60-64	-	-	1	1	2	4	7	14	9	16	6	60	3,167
65-69	-	3	8	10	8	17	54	125	342	187	42	796	5,478
70-74	2	23	32	31	36	140	412	996	897	206	109	2,884	5,928
75-79	5	59	71	59	200	607	1,292	1,174	422	238	151	4,278	5,892
80-84	22	62	66	157	621	899	1,200	393	225	223	156	4,024	5,409
85-89	35	57	112	406	793	703	355	169	173	188	136	3,127	4,586
90-94	29	68	245	328	509	207	96	109	127	131	66	1,915	3,981
95-99	22	71	138	151	113	47	31	50	46	44	23	736	3,511
100 & Over	13	23	33	19	13	14	11	6	12	7	2	153	3,031
<b>Total Count</b>	128	366	706	1,163	2,296	2,642	3,466	3,054	2,269	1,257	710	<b>18,057</b>	
<b>Avg Monthly Benefit</b>	\$ 1,908	\$ 2,490	\$ 2,531	\$ 3,157	\$ 4,438	\$ 4,684	\$ 6,340	\$ 6,436	\$ 6,245	\$ 4,778	\$ 4,029		<b>\$ 5,197</b>

**Exhibit C-5b**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2022**  
**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	-	-	-	-	-	-	-	-	-	1	-	1	2,848	
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-	
55-59	-	-	-	-	-	-	-	-	-	-	1	1	3,253	
60-64	-	-	-	-	-	-	-	3	1	6	8	18	5,387	
65-69	-	-	-	-	1	1	4	17	47	67	5	142	5,732	
70-74	-	-	1	4	4	4	13	48	92	31	7	204	6,252	
75-79	-	-	1	3	4	15	37	42	30	9	4	145	4,755	
80-84	-	-	1	2	4	9	31	17	12	5	2	83	4,386	
85-89	-	-	1	2	6	19	14	13	6	2	1	64	3,901	
90-94	-	-	2	4	13	15	2	4	-	3	-	43	2,412	
95-99	-	-	-	2	2	1	3	1	-	-	-	9	2,635	
100 & Over	-	-	-	-	1	-	-	-	-	-	-	1	6,945	
<b>Total Count</b>	-	-	6	17	35	64	104	145	188	124	28	<b>711</b>		
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ 1,495	\$ 1,524	\$ 2,109	\$ 2,556	\$ 3,797	\$ 4,909	\$ 6,596	\$ 6,962	\$ 5,265		<b>\$ 5,105</b>	

**Exhibit C-5c**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2022**  
**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	\$ 5,205
35-39	-	-	-	-	-	-	-	-	-	1	-	1	5,205
40-44	-	-	-	-	-	-	-	-	1	-	-	1	1,689
45-49	-	-	-	-	-	-	-	-	1	-	-	1	1,380
50-54	-	-	-	-	-	-	-	-	1	-	-	1	1,689
55-59	-	-	-	-	-	-	-	-	-	1	1	2	1,248
60-64	-	-	-	-	-	-	1	1	3	13	5	23	4,487
65-69	-	1	1	4	-	3	3	5	22	38	16	93	5,882
70-74	-	-	2	2	2	2	17	20	51	32	5	133	5,669
75-79	-	-	2	2	6	9	9	29	23	8	1	89	4,112
80-84	-	-	-	6	8	8	17	12	7	3	1	62	2,681
85-89	-	-	-	3	5	7	14	5	3	1	1	39	2,894
90-94	-	-	-	2	8	9	2	3	1	3	-	28	1,868
95-99	-	-	-	1	4	1	1	1	1	1	-	10	2,042
100 & Over	-	-	-	-	1	-	-	-	-	-	-	1	716
<b>Total Count</b>	-	1	5	20	34	39	64	76	114	102	30	<b>485</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ 1,918	\$ 1,575	\$ 1,139	\$ 1,454	\$ 2,190	\$ 3,010	\$ 3,443	\$ 6,051	\$ 6,260	\$ 6,341		<b>\$ 4,413</b>

**Exhibit C-5d**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2022**  
**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	-	-	-	-	-	-	3	2	9	35	17	66	\$ 774
35-39	-	-	-	-	-	-	1	-	1	24	18	44	1,685
40-44	-	-	-	-	-	-	-	5	14	38	33	90	2,121
45-49	-	-	-	-	-	2	3	7	33	53	35	133	2,427
50-54	-	-	-	-	1	4	20	23	58	199	320	625	2,356
55-59	-	-	-	-	8	13	39	52	182	660	694	1,648	3,081
60-64	-	-	-	4	15	37	49	125	487	1,250	1,457	3,424	4,207
65-69	-	-	3	5	22	48	119	411	870	2,243	1,643	5,364	4,558
70-74	-	1	2	15	27	66	231	517	1,375	1,938	638	4,810	4,040
75-79	-	-	2	10	32	137	278	666	1,051	628	183	2,987	3,687
80-84	-	-	3	13	42	127	306	469	358	201	77	1,596	3,100
85-89	-	-	2	11	30	108	212	152	88	63	33	699	2,604
90-94	-	-	2	4	22	60	60	44	23	20	9	244	2,518
95-99	-	-	-	3	10	11	2	6	4	4	1	41	1,876
100 & Over	-	-	-	1	2	-	-	-	-	1	-	4	880
<b>Total Count</b>	-	1	14	66	211	613	1,323	2,479	4,553	7,357	5,158	<b>21,775</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ 2,987	\$ 1,864	\$ 1,599	\$ 1,865	\$ 2,106	\$ 2,448	\$ 2,893	\$ 3,695	\$ 4,165	\$ 4,703		<b>\$ 3,855</b>

**Exhibit C-5e**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2022**  
**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	-	-	-	-	-	1	-	2	-	16	11	30	\$ 729
35-39	-	-	-	-	-	-	1	2	3	10	6	22	923
40-44	-	-	-	-	-	1	-	2	6	11	6	26	1,084
45-49	-	-	-	-	-	-	-	-	8	21	13	42	1,552
50-54	-	-	-	-	-	-	2	4	11	25	24	66	961
55-59	-	-	-	-	-	-	1	7	19	141	241	409	1,114
60-64	-	-	-	-	-	-	2	2	152	497	509	1,162	1,947
65-69	-	-	-	-	-	-	4	161	573	1,519	1,417	3,674	3,177
70-74	-	-	-	-	-	6	136	631	1,377	1,898	538	4,586	2,946
75-79	-	-	-	-	-	83	378	826	1,287	618	222	3,414	2,567
80-84	-	-	-	-	25	188	363	595	339	178	102	1,790	2,124
85-89	-	-	-	8	64	143	244	144	100	96	40	839	1,663
90-94	-	-	-	13	45	79	45	24	23	24	10	263	1,389
95-99	-	-	1	4	15	6	4	4	8	2	1	45	846
100 & Over	-	-	-	-	2	2	1	1	2	1	-	9	456
<b>Total Count</b>	-	-	1	25	151	509	1,181	2,405	3,908	5,057	3,140	<b>16,377</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ 81	\$ 266	\$ 547	\$ 808	\$ 1,261	\$ 1,704	\$ 2,633	\$ 3,058	\$ 3,383		<b>\$ 2,593</b>

**Exhibit C-5f**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2022**  
**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	1	3	\$ 2,331
35-39	-	-	-	-	-	-	-	-	-	-	1	1	1,180
40-44	-	-	-	-	-	-	-	-	-	2	-	2	1,899
45-49	-	-	-	-	-	-	-	-	-	2	3	5	1,691
50-54	-	-	-	-	-	-	-	-	-	2	6	8	1,515
55-59	-	-	-	-	-	-	-	-	-	3	21	24	688
60-64	-	-	-	-	-	-	-	-	1	6	31	38	897
65-69	-	-	-	-	-	-	-	-	-	15	55	70	1,117
70-74	-	-	-	-	-	-	-	-	-	13	22	35	1,483
75-79	-	-	-	-	-	-	-	1	-	4	4	9	4,053
80-84	-	-	-	-	-	-	-	-	-	4	2	6	2,355
85-89	-	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	-	-	-	-	-	-	-	1	1	53	146	<b>201</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,047	\$ 987	\$ 1,680	\$ 1,176		<b>\$ 1,313</b>

**Exhibit C-5g**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2022**  
**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	3	1	6	\$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	1	2	-	3	6,486
50-54	-	-	-	-	1	-	2	-	1	-	-	4	6,412
55-59	-	-	-	-	-	1	1	-	2	3	2	9	5,401
60-64	-	-	-	-	3	1	4	-	18	10	4	40	8,071
65-69	-	2	11	16	9	17	19	97	150	34	36	391	10,098
70-74	2	25	58	46	60	80	273	476	94	81	56	1,251	9,391
75-79	5	59	119	101	117	343	811	175	60	81	72	1,943	8,875
80-84	17	52	69	82	217	469	151	31	61	88	55	1,292	8,156
85-89	25	36	59	92	232	70	27	47	49	64	42	743	7,188
90-94	23	22	51	87	32	5	19	24	40	34	28	365	6,636
95-99	1	18	20	7	1	4	12	9	9	14	2	97	6,342
100 & Over	2	1	1	-	2	-	-	-	2	-	-	8	6,304
<b>Total Count</b>	75	215	388	431	674	990	1,319	859	489	414	298	<b>6,152</b>	
<b>Avg Monthly Benefit</b>	\$ 3,475	\$ 4,164	\$ 4,411	\$ 5,944	\$ 7,699	\$ 8,822	\$ 10,382	\$ 10,792	\$ 9,560	\$ 7,535	\$ 7,432		<b>\$ 8,505</b>

**Exhibit C-5h**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2022**  
**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	-	8	11	23	\$ 2,218
35-39	-	-	-	-	-	-	-	-	2	27	12	41	4,299
40-44	-	-	-	-	-	-	-	2	15	48	32	97	4,333
45-49	-	-	-	-	-	-	9	28	29	67	63	196	4,647
50-54	-	-	-	-	3	24	65	61	77	134	188	552	5,708
55-59	-	-	-	1	41	97	111	85	117	652	953	2,057	9,434
60-64	-	-	3	25	79	110	106	100	462	1,299	258	2,442	9,549
65-69	-	-	13	30	65	66	84	234	761	334	51	1,638	8,762
70-74	-	-	5	20	28	23	54	212	152	43	11	548	7,845
75-79	-	-	4	4	10	21	45	48	21	14	1	168	5,548
80-84	-	-	-	-	1	1	6	3	3	2	2	18	4,670
85-89	-	-	-	-	2	2	-	-	1	-	-	5	2,793
90-94	-	-	1	1	1	-	1	1	1	1	-	7	1,516
95-99	-	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	-	-	26	81	230	344	484	775	1,641	2,629	1,582	<b>7,792</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ 2,500	\$ 2,720	\$ 3,642	\$ 3,984	\$ 4,392	\$ 6,617	\$ 8,863	\$ 9,842	\$ 10,718		<b>\$ 8,614</b>

**Exhibit C-5i**  
**Distribution of Retired Members and Beneficiaries by Age and Retirement Year**  
**as of June 30, 2022**  
**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	2	3	\$ 2,984
35-39	-	-	-	-	-	-	-	-	-	1	3	4	3,289
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	1	1	2	3,326
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	2	2	3,069
60-64	-	-	-	-	-	-	-	-	-	3	4	7	1,503
65-69	-	-	-	-	-	-	-	-	-	-	1	1	2,168
70-74	-	-	-	-	-	-	-	-	-	1	-	1	24,861
75-79	-	-	-	-	-	-	-	-	1	-	-	1	19,364
80-84	-	-	-	-	-	-	-	-	-	-	-	-	-
85-89	-	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	-	-	-	-	-	-	-	-	1	7	13	<b>21</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 19,364	\$ 5,414	\$ 2,658		<b>\$ 4,372</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%	7.48%	4.47%	8.94%	11.49%
17	2.84%	5.68%	4.86%	4.86%	7.48%	4.47%	8.94%	11.49%
18	2.90%	5.79%	4.96%	4.96%	7.48%	4.47%	8.94%	11.49%
19	2.95%	5.91%	5.06%	5.06%	7.48%	4.55%	9.09%	11.49%
20	3.01%	6.03%	5.16%	5.16%	7.48%	4.58%	9.16%	11.49%
21	3.07%	6.15%	5.27%	5.27%	7.48%	4.61%	9.22%	11.49%
22	3.13%	6.27%	5.37%	5.37%	7.48%	4.69%	9.38%	11.49%
23	3.20%	6.39%	5.48%	5.48%	7.48%	4.77%	9.54%	11.49%
24	3.26%	6.52%	5.59%	5.59%	7.48%	4.85%	9.70%	11.49%
25	3.33%	6.65%	5.70%	5.70%	7.48%	4.89%	9.77%	11.49%
26	3.39%	6.79%	5.82%	5.82%	7.48%	4.92%	9.84%	11.49%
27	3.46%	6.92%	5.93%	5.93%	7.48%	5.00%	10.01%	11.49%
28	3.53%	7.06%	6.05%	6.05%	7.48%	5.09%	10.18%	11.49%
29	3.60%	7.21%	6.17%	6.17%	7.48%	5.18%	10.36%	11.49%
30	3.68%	7.35%	6.30%	6.30%	7.48%	5.23%	10.47%	11.49%
31	3.75%	7.50%	6.42%	6.42%	7.48%	5.29%	10.58%	11.49%
32	3.83%	7.66%	6.55%	6.55%	7.48%	5.38%	10.77%	11.49%
33	3.91%	7.81%	6.69%	6.69%	7.48%	5.48%	10.96%	11.49%
34	3.98%	7.96%	6.82%	6.82%	7.48%	5.58%	11.16%	11.49%
35	4.06%	8.12%	6.96%	6.96%	7.48%	5.69%	11.37%	11.49%
36	4.14%	8.28%	7.10%	7.10%	7.48%	5.79%	11.59%	11.49%
37	4.22%	8.43%	7.25%	7.25%	7.48%	5.90%	11.80%	11.49%
38	4.30%	8.59%	7.39%	7.39%	7.48%	6.01%	12.02%	11.49%
39	4.38%	8.75%	7.54%	7.54%	7.48%	6.12%	12.24%	11.49%
40	4.46%	8.91%	7.69%	7.69%	7.48%	6.23%	12.47%	11.49%
41	4.54%	9.08%	7.83%	7.83%	7.48%	6.35%	12.69%	11.49%
42	4.62%	9.24%	7.98%	7.98%	7.48%	6.45%	12.90%	11.49%
43	4.70%	9.41%	8.13%	8.13%	7.48%	6.55%	13.10%	11.49%
44	4.78%	9.57%	8.28%	8.28%	7.48%	6.64%	13.28%	11.49%
45	4.86%	9.73%	8.44%	8.44%	7.48%	6.70%	13.40%	11.49%
46	4.94%	9.88%	8.59%	8.59%	7.48%	6.70%	13.41%	11.49%
47	5.01%	10.03%	8.75%	8.75%	7.48%	6.70%	13.41%	11.49%
48	5.07%	10.15%	8.91%	8.91%	7.48%	6.70%	13.41%	11.49%
49	5.12%	10.24%	9.06%	9.06%	7.48%	6.70%	13.41%	11.49%
50	5.15%	10.29%	9.21%	9.21%	7.48%	6.70%	13.41%	11.49%
51	5.16%	10.32%	9.36%	9.36%	7.48%	6.70%	13.41%	11.49%
52	5.16%	10.32%	9.49%	9.49%	7.48%	6.70%	13.41%	11.49%
53	5.16%	10.32%	9.61%	9.61%	7.48%	6.70%	13.41%	11.49%
54	5.16%	10.32%	9.69%	9.69%	7.48%	6.70%	13.41%	11.49%
55	5.16%	10.32%	9.74%	9.74%	7.48%	6.70%	13.41%	11.49%
56	5.16%	10.32%	9.76%	9.76%	7.48%	6.70%	13.41%	11.49%
57	5.16%	10.32%	9.76%	9.76%	7.48%	6.70%	13.41%	11.49%
58	5.16%	10.32%	9.76%	9.76%	7.48%	6.70%	13.41%	11.49%
59	5.16%	10.32%	9.76%	9.76%	7.48%	6.70%	13.41%	11.49%
60	5.16%	10.32%	9.76%	9.76%	7.48%	6.70%	13.41%	11.49%

**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%	9.24%	8.37%	11.93%	14.76%
17	5.17%	7.16%	6.13%	6.15%	9.24%	8.37%	11.93%	14.76%
18	5.28%	7.30%	6.26%	6.28%	9.24%	8.37%	11.93%	14.76%
19	5.37%	7.45%	6.39%	6.41%	9.24%	8.52%	12.13%	14.76%
20	5.48%	7.60%	6.51%	6.53%	9.24%	8.57%	12.22%	14.76%
21	5.59%	7.76%	6.65%	6.67%	9.24%	8.63%	12.30%	14.76%
22	5.70%	7.91%	6.78%	6.80%	9.24%	8.78%	12.52%	14.76%
23	5.83%	8.06%	6.92%	6.94%	9.24%	8.93%	12.73%	14.76%
24	5.94%	8.22%	7.05%	7.08%	9.24%	9.08%	12.94%	14.76%
25	6.06%	8.39%	7.19%	7.22%	9.24%	9.15%	13.04%	14.76%
26	6.17%	8.56%	7.34%	7.37%	9.24%	9.21%	13.13%	14.76%
27	6.30%	8.73%	7.48%	7.51%	9.24%	9.36%	13.36%	14.76%
28	6.43%	8.90%	7.63%	7.66%	9.24%	9.53%	13.58%	14.76%
29	6.55%	9.09%	7.79%	7.81%	9.24%	9.69%	13.82%	14.76%
30	6.70%	9.27%	7.95%	7.98%	9.24%	9.79%	13.97%	14.76%
31	6.83%	9.46%	8.10%	8.13%	9.24%	9.90%	14.12%	14.76%
32	6.97%	9.66%	8.27%	8.29%	9.24%	10.07%	14.37%	14.76%
33	7.12%	9.85%	8.44%	8.47%	9.24%	10.26%	14.62%	14.76%
34	7.25%	10.04%	8.61%	8.63%	9.24%	10.44%	14.89%	14.76%
35	7.39%	10.24%	8.78%	8.81%	9.24%	10.65%	15.17%	14.76%
36	7.54%	10.44%	8.96%	8.99%	9.24%	10.84%	15.46%	14.76%
37	7.68%	10.63%	9.15%	9.18%	9.24%	11.04%	15.74%	14.76%
38	7.83%	10.83%	9.33%	9.36%	9.24%	11.25%	16.04%	14.76%
39	7.98%	11.03%	9.51%	9.54%	9.24%	11.45%	16.33%	14.76%
40	8.12%	11.24%	9.70%	9.73%	9.24%	11.66%	16.64%	14.76%
41	8.27%	11.45%	9.88%	9.91%	9.24%	11.88%	16.93%	14.76%
42	8.41%	11.65%	10.07%	10.10%	9.24%	12.07%	17.21%	14.76%
43	8.56%	11.87%	10.26%	10.29%	9.24%	12.26%	17.48%	14.76%
44	8.70%	12.07%	10.45%	10.48%	9.24%	12.43%	17.72%	14.76%
45	8.85%	12.27%	10.65%	10.68%	9.24%	12.54%	17.88%	14.76%
46	8.99%	12.46%	10.84%	10.87%	9.24%	12.54%	17.89%	14.76%
47	9.12%	12.65%	11.04%	11.08%	9.24%	12.54%	17.89%	14.76%
48	9.23%	12.80%	11.24%	11.28%	9.24%	12.54%	17.89%	14.76%
49	9.32%	12.91%	11.43%	11.47%	9.24%	12.54%	17.89%	14.76%
50	9.38%	12.98%	11.62%	11.66%	9.24%	12.54%	17.89%	14.76%
51	9.40%	13.01%	11.81%	11.85%	9.24%	12.54%	17.89%	14.76%
52	9.40%	13.01%	11.98%	12.01%	9.24%	12.54%	17.89%	14.76%
53	9.40%	13.01%	12.13%	12.17%	9.24%	12.54%	17.89%	14.76%
54	9.40%	13.01%	12.23%	12.27%	9.24%	12.54%	17.89%	14.76%
55	9.40%	13.01%	12.29%	12.33%	9.24%	12.54%	17.89%	14.76%
56	9.40%	13.01%	12.32%	12.36%	9.24%	12.54%	17.89%	14.76%
57	9.40%	13.01%	12.32%	12.36%	9.24%	12.54%	17.89%	14.76%
58	9.40%	13.01%	12.32%	12.36%	9.24%	12.54%	17.89%	14.76%
59	9.40%	13.01%	12.32%	12.36%	9.24%	12.54%	17.89%	14.76%
60	9.40%	13.01%	12.32%	12.36%	9.24%	12.54%	17.89%	14.76%

## 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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	

**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

Exhibit E-3  
Contribution Rates

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

**Exhibit E-4  
Funded Status History**

Dollars in Millions

Valuation Year	Actuarial Accrued Liability (AAL)	Market Value Basis			Actuarial Value Basis			Annual Total Payroll	Asset Smoothing Ratio (AVA / MVA)	Asset Volatility Ratio (MVA / Payroll)	Liability Volatility Ratio (AAL / Payroll)
		Market Value of Assets (MVA) <sup>1</sup>	Unfunded AAL (UAAL)/Surplus MVA Basis	Funded Ratio MVA 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

1. Asset values exclude non-valuation reserves

2. Only rounded values are available.

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

*Dollars in Millions*

<b>Valuation Year</b>	<b>2012</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>
Prior Year UAAL	9,405	11,770	13,315	11,288	9,491	12,841	13,145	13,294	17,018	18,512	16,989
Normal Cost	1,237	1,430	1,163	1,068	1,118	1,246	1,243	1,352	1,553	1,634	1,681
Contributions	(1,646)	(1,455)	(1,824)	(1,936)	(1,902)	(1,880)	(2,116)	(2,303)	(2,459)	(2,774)	(2,959)
Interest	724	895	999	814	682	954	968	976	1,212	1,311	1,202
Changes in Assumptions/Methodology	457	511	-	-	2,922	-	-	2,528	-	-	1,364
Changes in Benefit Provisions	-	-	-	-	-	-	-	-	-	-	-
Expected Current Year UAAL	10,177	13,151	13,653	11,234	12,311	13,161	13,240	15,847	17,324	18,683	18,277
Actual Current Year UAAL	11,770	13,315	11,288	9,491	12,841	13,145	13,294	17,018	18,512	16,989	17,608
Total (Gain)/Loss on UAAL	1,593	164	(2,365)	(1,743)	530	(16)	54	1,171	1,188	(1,694)	(669)
Asset (Gains)/Losses	2,337	893	(1,664)	(1,263)	496	(421)	(411)	477	701	(2,039)	(996)
Salary Increases	(629)	(563)	(291)	79	162	277	223	486	388	484	(21)
All Other Actuarial (Gains)/Losses	(115)	(166)	(410)	(559)	(128)	128	242	208	99	(139)	348

**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%

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 market value of total assets.

### **County Contribution Credit Reserve**

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

### **Employer Reserve**

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

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

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

### **Funded Ratio**

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

### **Funding Goal**

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

### **Layered Amortization Period**

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

### **Member Reserve**

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

### **Non-Valuation Reserves**

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

### **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