



Los Angeles County Employees Retirement Association

Actuarial Valuation of Retirement Benefits

June 30, 2020

Prepared by:

Mark C. Olleman, FSA, EA, MAAA
Consulting Actuary

Nick J. Collier, ASA, EA, MAAA
Consulting Actuary

Craig Glyde, ASA, EA, MAAA
Consulting Actuary

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



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

Tel +1 206 624 7940

milliman.com

November 25, 2020

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

Re: Los Angeles County Employees Retirement Association

Dear Members of the Board:

As requested, we have performed an actuarial valuation of retirement benefits for the Los Angeles County Employees Retirement Association (LACERA) as of June 30, 2020 to be used in determining the contribution rates effective July 1, 2021. 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, 2020, and LACERA's Funding Policy that was adopted in December of 2009 and amended as of February 2013. It should be noted that under the amended Funded Policy, the reserve value for STAR benefits is included in the Valuation Assets for 2014 and future valuations; however, the liability for any potential STAR benefits that may be granted in the future is not included in this valuation.

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

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

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, with a modification to reflect the three-year phase-in of the employer contribution rate change due to the new assumptions. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. Milliman will provide LACERA financial reporting results relevant to GASB Statements No. 67 and 68 in separate reports.

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 or accounting counsel.

The signing actuaries are independent of the plan sponsors. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

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

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

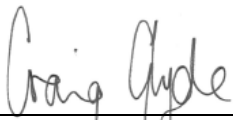
Sincerely,



Mark Olleman, FSA, EA, MAAA
Consulting Actuary



Nick Collier, ASA, EA, MAAA
Consulting Actuary



Craig Glyde, ASA, EA, MAAA
Consulting Actuary

Table of Contents

1. Summary of Findings	1
Exhibit 1 Summary of Significant Valuation Results.....	10
2. Scope of the Report	11
3. Assets	12
Exhibit 2 Statement of Fiduciary Net Position As of June 30, 2020 and June 30, 2019	15
Exhibit 3 Statement of Changes in Fiduciary Net Position For the Fiscal Years Ended June 30, 2020 and 2019	16
Exhibit 4 Allocation of Assets by Accounting Reserve Amounts	17
Exhibit 5 Five-Year Smoothing of Gains and Losses on Market Value	18
Exhibit 6 Allocation of Valuation and Non-Valuation Assets	19
4. Actuarial Liabilities	20
Exhibit 7 Actuarial Balance Sheet – June 30, 2020	21
Exhibit 8a Analysis of Change in Unfunded Actuarial Accrued Liability	25
Exhibit 8b History of Changes in Unfunded Actuarial Accrued Liability	26
5. Member Contributions	27
Exhibit 9 Sample Member Contribution Rates.....	30
6. Employer Contributions	31
Exhibit 10 Calculated Normal Cost Contribution Rates – June 30, 2020	32
Exhibit 11 Total Employer Contributions	33
Exhibit 12 Unfunded Actuarial Accrued Liability Detail.....	34
7. Supplemental Information.....	35
Exhibit 13 Schedule of Funding Progress	36
Exhibit 14 Schedule of Contributions from the Employer	37
Exhibit 15 Solvency Test	38
Exhibit 16 Actuarial Analysis of Financial Experience	39
Exhibit 17 Retirants and Beneficiaries added to and removed from Retiree Payroll	40
8. Cash Flow History and Projections.....	41
Exhibit 18a Cash Flow History and Projections – Dollars	42
Exhibit 18b Cash Flow History and Projections – Graphs.....	43
9. Risk Discussion	44

Appendices

Appendix A	Actuarial Procedures and Assumptions	47
Appendix B	Summary of Plan Provisions	68
Appendix C	Valuation Data and Schedules	80
Appendix D	Member Contribution Rates.....	107
Appendix E	Historical Information.....	110
Appendix F	Glossary.....	120

1. Summary of Findings

2020 Valuation Results

	Fiscal Year Beginning	
	July 1, 2021	July 1, 2020
Employer Contribution Rate with phase-in	24.64% ⁽¹⁾	22.59% ⁽²⁾
Funded Ratio	76.3%	77.2%

1. The FYB 2021 employer contribution rate was calculated in the June 30, 2020 valuation. The FYB 2021 employer contribution rate without phase-in is 25.74%.
2. The FYB 2020 employer contribution rate was calculated in the June 30, 2019 valuation.

This report presents the results of the June 30, 2020 actuarial valuation. This valuation determines the member and employer contribution rates payable starting July 1, 2021. Several key points are summarized below:

Funding: The Funded Ratio decreased from 77.2% to 76.3% primarily due to the recognition of current and prior year asset losses which caused a 0.9% decrease, and salary increases greater than assumed which caused a 0.4% decrease. Contributions to amortize the Unfunded Actuarial Accrued Liability (UAAL) partially offset these decreases and caused the Funded Ratio to decrease by 0.5% less than it otherwise would have. On a market-value basis, the Funded Ratio decreased from 77.3% to 74.0%.

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

Investment Returns: For the fiscal year ending in 2020, the fund returned 1.8% on a market-value basis (net of investment expenses). In total, there was an \$2.7 billion loss on market assets relative to the assumed rate of return of 7.00%. Under the actuarial asset method, which recognizes investment gains and losses over a five-year period, the return on actuarial assets was 5.8%, equivalent to a loss of \$701 million relative to the assumed return of 7.00%.

COVID-19 Impact: The ongoing pandemic had a negative impact on investment markets in the first half of 2020. The below-assumption return for the fiscal year is reflected in the valuation results, as discussed in this report. We did not observe any other material impact on the valuation results related to COVID-19, although it is possible this may appear in future valuations. In particular, we did not see any significant deviation from the assumptions in the other areas that we believe are most likely to be affected by the pandemic: mortality rates, salary increases, and payroll increases.

Employer Contribution Rates: The total calculated employer contribution rate increased from the prior valuation by 2.05% (from 22.59% to 24.64%) of payroll. The increase in the employer contribution rate is primarily due to the phase-in recognition of assumption and amortization method changes effective June 30, 2019 and the recognition of current and prior year investment losses.

At the January 2020 Board of Investments (BOI) meeting, the BOI adopted a three-year phase-in of the increase in the employer contribution rate due to the new assumptions and amortization method. Without the phase-in of the increase, the total employer contribution rate would be 25.74% effective July 1, 2021. The remaining 1.10% increase due to the new assumptions and amortization method change (25.74% minus 24.64%) will be phased-in with the employer contributions effective July 1, 2022.

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

Member Contribution Rates: New member contribution rates are recommended for General Plan G and Safety Plan C effective July 1, 2021. General Plan G and Safety Plan C member rates are required to be equal to 50% of the Gross Normal Cost of the respective plan. The recommended member contribution rates are slightly lower for General Plan G and Safety Plan C. Member contribution rates are discussed in detail in Section 5 of this report.

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. Since no new assumptions were adopted effective with this valuation, there are no recommended changes to member contribution rates for those plans.

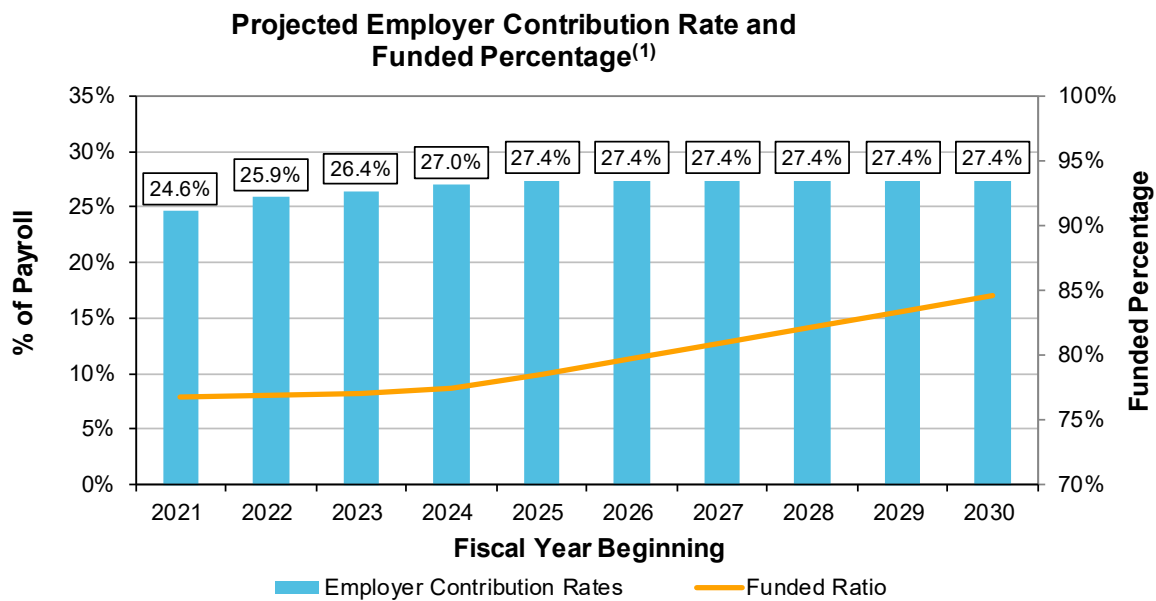
Amortization of the UAAL

LACERA employs a “layered” amortization method to pay off the UAAL. Under this method, the UAAL amount as June 30, 2009 was amortized over a closed 30-year period. Subsequent changes in the UAAL were amortized over new closed 30-year periods. Effective with the June 30, 2019 valuation, all existing layers with more than 22 years remaining were re-amortized over closed 22-year periods. All new UAAL layers are amortized over a 20-year period, beginning with the date the contribution is first expected to be made. Exhibit 12 of this report illustrates in detail the calculation of the total UAAL rate for the fiscal year beginning in 2021.

Projected Future Employer Contribution Rates

The employer contribution rate beginning July 1, 2021 is 24.64% of payroll, which is a weighted average for all LACERA plans. The actual percent of payroll to be contributed by the employers varies by plan as shown in Exhibit 11.

The new calculated employer contribution rate is effective for the fiscal year beginning July 1, 2021. Additional increases are projected in the fiscal year beginning July 1, 2022 as the increase due to assumption and method changes is phased in. Even if all actuarial assumptions are met over the next few years, we project additional changes in the employer contribution rate as deferred asset gains and losses are recognized. To illustrate these impacts, we have performed a 10-year projection of the employer contribution rate and funded ratio that assumes all actuarial assumptions are met, and reflects the phase-in and the projected recognition of the remaining deferred asset gains and losses as of June 30, 2020. This projection is shown in the graph below.



1. Projections assume that all actuarial assumptions are met after June 30, 2020, and reflect the scheduled recognition of asset gains and losses currently being deferred. Actual results will vary.

Analysis of Change

The following table shows an analysis of the primary causes of the change in the employer contribution rate and the Funded Ratio over the last year. The recognition of the 2019 assumption changes was the most significant factor affecting the employer contribution rate, although this was somewhat mitigated by the three-year phase-in of this increase.

Sources of Change	Employer Contribution Rate	Funded Ratio
June 30, 2019 Actuarial Valuation	22.59%	77.2%
Expected Year-to-Year Change ⁽¹⁾	0.16%	0.5%
Assumption and Method Changes	0.00%	0.0%
<u>Recognized Asset Gain/Loss</u>		
From Current Year	0.44%	-0.7%
From Prior Years	0.14%	-0.2%
Combined Asset Gain/Loss	<u>0.58%</u>	<u>-0.9%</u>
Contributions > Assumed	-0.07%	0.1%
Payroll Increase > Assumed	-0.21%	0.0%
<u>Liability Gain / Loss</u>		
Salary Increase > Assumed	0.32%	-0.4%
Retiree COLAs > Assumed	0.04%	0.0%
Other	0.14%	-0.2%
Combined Liability Gain/Loss	<u>0.50%</u>	<u>-0.6%</u>
Recognition of 2019 Assumption Changes	1.09%	0.0%
Total Change	<u>2.05%</u>	<u>-0.9%</u>
June 30, 2020 Actuarial Valuation	24.64%	76.3%

1. Expected increase in employer contribution rate reflects the impact of the phase-in of 2019 assumption changes.

Based on the 2019 valuation, the expected UAAL as of June 30, 2020 was \$17.3 billion. The actual UAAL as of June 30, 2020 is \$18.5 billion. The additional UAAL is primarily due to the recognition of actuarial asset losses from the current and prior years, and salary increases greater than assumed in the prior fiscal year. An analysis of the difference between expected and actual UAAL is shown in Exhibit 8a.

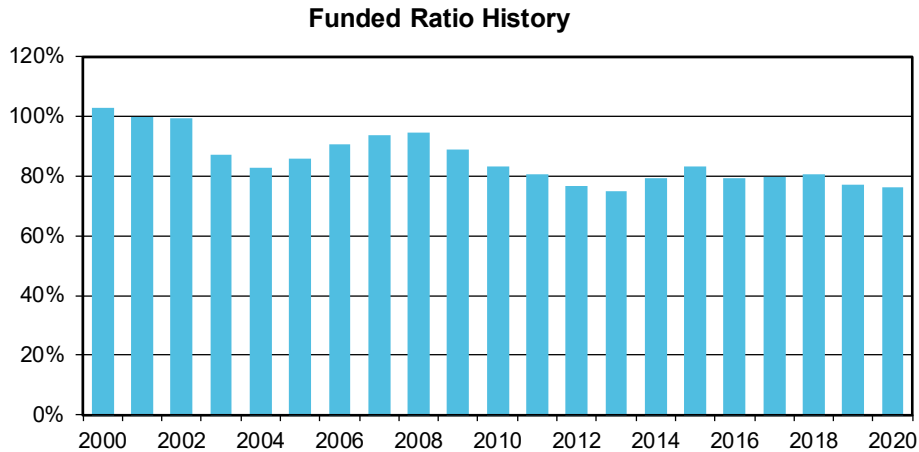
Funding Progress

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

As shown in the graph that follows, the Funded Ratio was 94.5% as of June 30, 2008, but decreased steadily over the five-year period following the economic downturn to a low of 75.0% as of June 30, 2013 as asset losses were gradually recognized. The Funded Ratio has increased slightly since that time, although this increase has

been slow as the Board has strengthened the actuarial assumptions over the period, thereby increasing the AAL and offsetting some of the increase in the Funded Ratio from other sources.

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



Assets

On June 30, 2020, the market value of the fund (including non-valuation reserves) was \$58.5 billion. The actuarial value of assets was \$60.3 billion, split between \$0.6 billion of Non-Valuation Assets and \$59.8 billion of Valuation Assets (values do not sum due to rounding). The actuarial value of assets is approximately 103% of the market value of assets.

On a market-value basis, for the fiscal year ended June 30, 2020, LACERA earned 1.8% net of investment expenses, as reported by LACERA in the June 30, 2020 CAFR. The market value of assets is used in calculating the actuarial value of assets. Under the actuarial asset method, investment gains and losses are recognized (or smoothed in) over a five-year period. Due to the recognition of current and deferred net asset losses, the return on the actuarial valuation of assets is 5.8% net of investment and administrative expenses, and is less than the assumed return for the prior year of 7.00%.

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 \$59.8 billion are equal to 76.3% of the \$78.3 billion AAL.

The non-valuation reserves are set aside for obligations or contingencies. They are not used to fund the retirement benefits unless explicitly stated. As of June 30, 2020, the non-valuation reserves include only the Contingency Reserve, which is equal to 1% of the market value of assets, or \$585 million. Note that the Contingency Reserve affects the assets used in the actuarial valuation and is not part of the accounting process used in creating the financial statements.

Under LACERA’s Funding Policy, the reserve value for STAR benefits is included in the Valuation Assets; however, the liability for any STAR benefits that may be granted in the future is not included in the valuation. Note that if the STAR reserve of \$614 million was excluded from the Valuation Assets, the UAAL would increase by this amount. Under this hypothetical scenario, the calculated employer contribution rate for the fiscal year beginning July 1, 2021 would increase by 0.51% of payroll, and the Funded Ratio would decrease by 0.7% to 75.6%.

Future Impact of Recognition of Deferred Gains/Losses

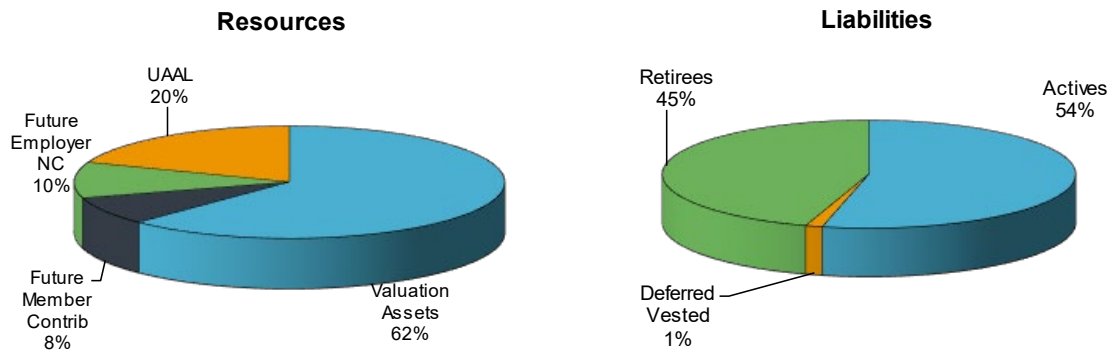
The smoothing method is currently deferring \$1.8 billion in net asset losses. As the currently deferred gains and losses are recognized over upcoming valuations, it is projected there will be fluctuations in the calculated employer contribution rate.

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

Actuarial Balance Sheet

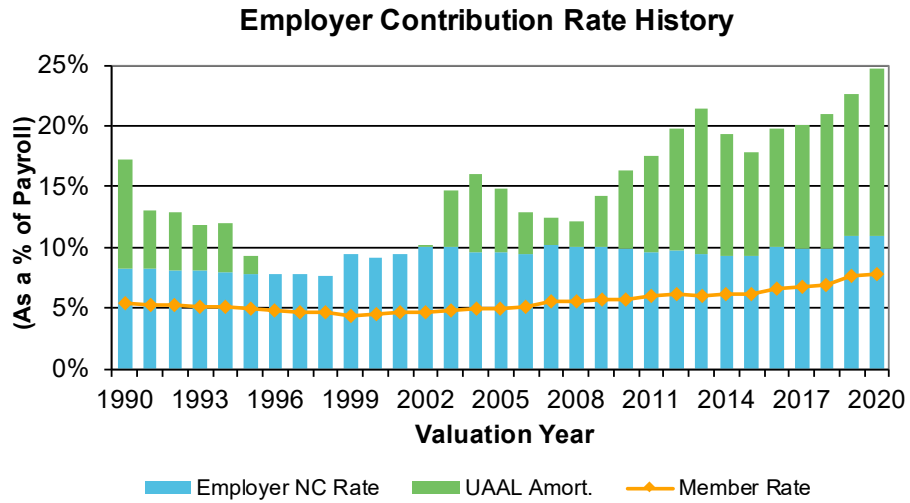
The first step in the valuation process is to compare the total actuarial assets of LACERA with its total liabilities for all plans. In this analysis, assets are those currently on hand at the actuarial value and also include expected future contributions by both the employers and members. Liabilities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

The 2020 actuarial valuation indicates that LACERA’s Valuation Assets are less than its AAL. The difference between these two values is the UAAL. It is discussed, along with the effect of the experience gains and losses, in detail in Section 4, Actuarial Liabilities.



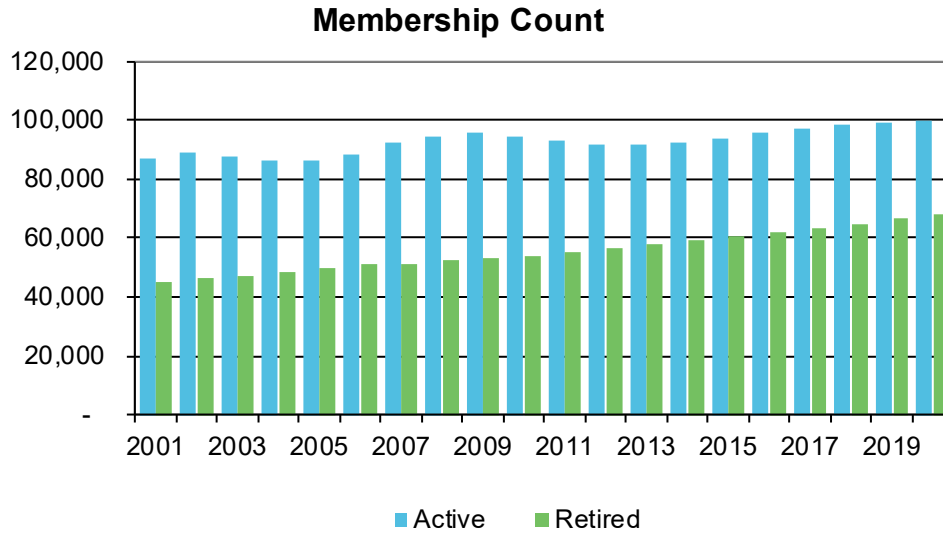
Employer Contribution Rate History

Based on the results of the valuation, the calculated employer contribution rate should increase for the fiscal year beginning in 2021 to a rate of 24.64% of pay. A historical perspective of the employer contribution rates is shown in the following graph.

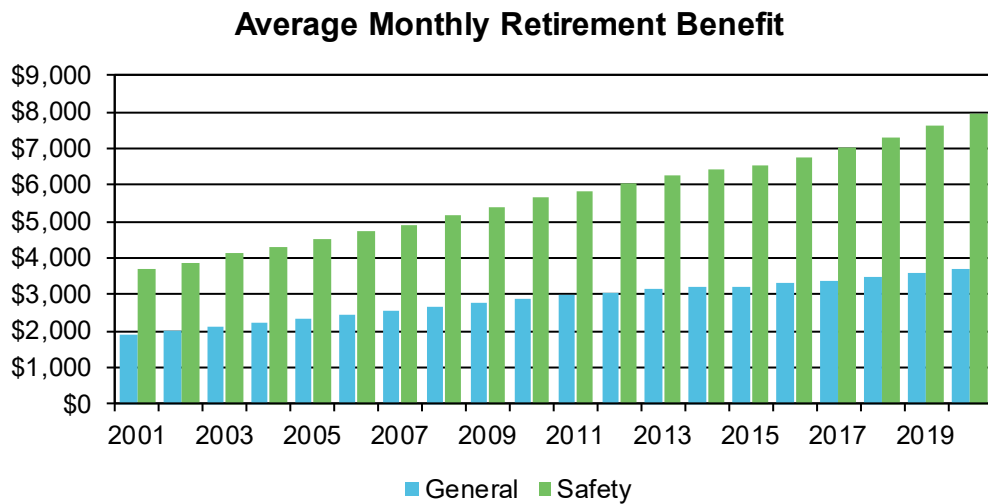


Member Information

Active membership and payroll have each increased since 2019. As of June 30, 2020, the annualized payroll is \$8.8 billion for 100,108 active members. This reflects a 3.7% increase in average member pay and a 0.9% increase in the number of active members.



Retired member counts and average retirement benefit amounts continue to increase steadily. For 2020, there were 68,012 retired members and beneficiaries with an average benefit of \$4,541 per month. This represents a 2.3% increase in count and a 3.6% increase in the average monthly benefit.



Analysis of Change in Member Population

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

	Active Members	Inactive Members	Service Retired Members	Disabled Retired Members	Beneficiaries in Pay	Total
As of June 30, 2019	99,186	15,567	47,517	9,891	9,099	181,260
New Members	5,450	128	18		752	6,348
Status Change:						
to Active	136	(136)				-
to Inactive	(1,392)	1,392				-
to Service Retirement	(2,518)	(405)	2,923			-
to Disabled Retirement	(228)	(9)	(244)	481		-
Refunds	(283)	(367)				(650)
Terminated non-vested	(33)					(33)
Benefits Expired			(11)		(17)	(28)
Deaths	(210)	(2)	(1,575)	(267)	(555)	(2,609)
As of June 30, 2020	100,108	16,168	48,628	10,105	9,279	184,288

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

Sensitivity to Investment Return

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

	Investment Return Assumption		
	Current 7.00%	+0.5% 7.50%	-0.5% 6.50%
Employer Contribution Rate	24.64%	20.00%	29.53%
Change		-4.64%	4.89%
Funded Ratio	76.3%	81.2%	71.7%
Change		4.9%	-4.6%

Summary Valuation Results

Exhibit 1 on the following page presents a summary of key valuation elements as of June 30, 2020 and June 30, 2019, 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, 2020	June 30, 2019	Percentage Change
Total Membership			
A. Active Members	100,108	99,186	0.9%
B. Retired Members & Beneficiaries	68,012	66,507	2.3%
C. Vested Former Members ⁽¹⁾	16,168	15,567	3.9%
D. Total	<u>184,288</u>	<u>181,260</u>	1.7%
Pay Rate as of valuation date			
A. Annual Total (\$millions)	\$ 8,819	\$ 8,423	4.7%
B. Monthly Average per Active Member	7,341	7,076	3.7%
Average Monthly Benefit Paid to Current Retirees and Beneficiaries			
A. Service Retirement	4,469	4,334	3.1%
B. Disability Retirement	6,141	5,856	4.9%
C. Surviving Spouse and Dependents	3,176	3,052	4.1%
D. Total	<u>4,541</u>	<u>4,385</u>	3.6%
Actuarial Accrued Liability (\$millions)			
A. Active Members	33,775	32,400	4.2%
B. Retired Members	43,239	41,021	5.4%
C. Vested Former Members	1,261	1,214	3.9%
D. Total	<u>78,275</u>	<u>74,635</u>	4.9%
Assets			
A. Market Value of Fund (\$millions)	58,510	58,295	0.4%
B. Actuarial Value (\$millions)			
1. Valuation Reserves	59,763	57,617	3.7%
2. Non-valuation Reserves	585	583	0.4%
C. Annual Investment Return			
1. Market Basis (Net Return)	1.8%	6.4%	n/a
2. Valuation (Actuarial) Basis	5.8%	6.5%	n/a
Unfunded Actuarial Accrued Liability (\$ millions)	\$ 18,512	\$ 17,018	8.8%
Employer contribution rate for all plans combined as a percent of total payroll			
A. Gross Normal Cost	18.69%	18.54%	0.8%
B. Member Contributions ⁽²⁾	<u>(7.80)%</u>	<u>(7.68)%</u>	1.6%
C. Employer Normal Cost	10.89%	10.86%	0.3%
D. UAAL Amortization	<u>14.85%</u>	<u>13.92%</u>	6.7%
E. Calculated Contribution Rate	25.74%	24.78%	3.9%
F. Deferred Recognition of new assumptions	<u>(1.10)%</u>	<u>(2.19)%</u>	n/a
G. Employer Contribution Rate with phase-in	24.64%	22.59%	9.1%
Funded Ratio	76.3%	77.2%	(1.2)%
Results Based on Market Value (Informational Purposes Only)			
Calculated Contribution Rate	26.15%	22.51%	16.2%
Funded Ratio (excluding non-valuation reserves)	74.0%	77.3%	(4.3)%

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

2. Scope of the Report

This report presents the actuarial valuation of the Los Angeles County Employees Retirement Association as of June 30, 2020. This valuation was requested by the Board of Investments. Section 31453 of the County Employees Retirement Law of 1937 (the '37 Act) requires an actuarial valuation to be performed at least every three years for the purpose of setting contribution rates. The 2020 valuation meets this requirement. Under LACERA's Funding Policy, annual valuations determine the employer contribution rates each year. Member contribution rates for all plans except General Plan G and Safety Plan C are set in years in which relevant actuarial assumptions are altered, such as 2020. 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, 2020. Exhibit 6 develops the Valuation Assets used for funding benefits.

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

Section 5 discusses the member contribution rates.

Section 6 discusses the employer contributions rates.

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

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

This report includes several appendices:

- Appendix A A summary of the actuarial procedures and assumptions used to estimate liabilities and contributions.
- Appendix B A summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2020.
- 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, 2020. 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 (%) ⁽¹⁾
2011	\$ 39.5	\$ 0.9	\$ 39.2	20.2
2012	38.3	0.9	39.0	0.0
2013	41.8	0.4	39.9	11.9
2014	47.7	0.5	43.7	16.5
2015	48.8	0.5	47.3	4.1
2016	47.8	0.5	49.4	0.8
2017	52.7	0.5	52.2	12.7
2018	56.3	0.6	55.2	9.0
2019	58.3	0.6	57.6	6.4
2020	58.5	0.6	59.8	1.8

1. As reported in the Investment Section of LACERA's CAFR for the fiscal year ended June 30, 2020. All returns are shown net of investment expenses and calculated on a time-weighted basis.

On June 30, 2020, the total market value of the fund, less current liabilities, was \$58.5 billion. The actuarial value of the fund was determined to be \$60.3 billion, including the non-valuation reserves. The average total fund return for the last 10 years is 8.1% net of fees, as reported by LACERA.

Financial Exhibits

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

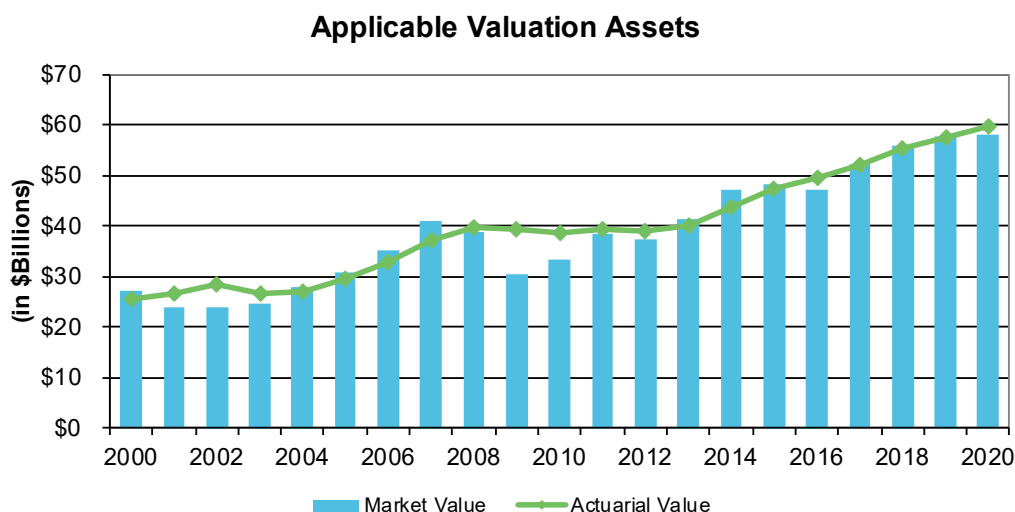
Exhibits 2-4 are taken directly from data furnished to us by LACERA in its annual financial report. We have accepted these tables for use in this report without audit, but we have reviewed them both for the prior year and the current year for reasonableness and consistency with previous reports.

Actuarial Asset Method

The actuarial asset method computes the expected market value of assets based on the prior year’s market value of assets, the actual cash flow of contributions and benefit payments, and the assumed investment rate of return. For the previous year, the assumed rate of return was 7.00%, net of all expenses. The difference between the actual market value and the expected market value is recognized evenly (also referred to as “smoothing”) over a five-year period.

Actuarial Value of Assets

The development of the June 30, 2020 actuarial value of assets is shown in Exhibit 5. Note the smoothing process is deferring past investment gains and losses, and is currently in a net actuarial loss position. The result is an actuarial value of assets that is more than the June 30, 2020 market value by \$1.8 billion. The following graph shows a historical comparison of the actuarial and market assets used for valuation purposes.



Funding Policy

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

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

- Priority 1: Allocate to the Member Reserve so the Actuarial Asset allocation to that Reserve equals the accounting value for that Reserve on the Valuation Date.
- Priority 2: Allocate to the Advanced Employer Contributions Reserve so the Actuarial Asset allocation to that Reserve equals the accounting value for that Reserve on the Valuation Date.

- Priority 3: Allocate to the Employer Reserve so the Actuarial Asset allocation to that reserve equals the accounting value for that Reserve on the Valuation Date.
- Priority 4: Allocate to the County Contribution Credit Reserve so the Actuarial Asset allocation to that reserve equals the accounting value for that Reserve on the Valuation Date. Note: This Reserve is not a Valuation Reserve.
- Priority 5: Allocate to the Employer Reserve so the total amounts allocated equal one-year's interest at the assumed interest rate used in the actuarial valuation as of the preceding Valuation Date to the extent there are positive recognized earnings to allocate.
- Priority 6: Allocate to the Contingency Reserve an amount equal to 1% of the Market Value of Assets as of the Valuation Date to the extent there are positive recognized earnings to allocate.
- Priority 7: Allocate to the Employer Reserve an amount, if necessary, when combined with other Valuation Reserves, to provide 100% funding of the AAL as of the Valuation Date to reach the Funding Goal. In the event there are negative recognized earnings, allocate the entire amount.
- Priority 8: The Board may consider additional actions as permitted under the County Employee Retirement Law (CERL) using funds in excess of the amount needed to meet the Funding Goal for funding discretionary benefits. "Excess Earnings" as defined in the County Employees Retirement Law (CERL) may be appropriated upon reaching the Funding Goal; however, the Board may consider adjustment to the employer's contributions only upon satisfying California Government Code Section 7522.52(b).

Valuation Assets

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

The Funding Policy allows the STAR Reserve to be allocated to the Valuation Assets (subject to periodic review), if needed. The June 30, 2020 STAR Reserve accounting value of \$614 million was included in Valuation Assets and used to determine the employer contribution rates for the fiscal year beginning July 1, 2021. Although the STAR Reserve is included in the 2020 Valuation Assets, there is no liability included in this valuation for STAR benefits that may be granted in the future.

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

Exhibit 2
Statement of Fiduciary Net Position
As of June 30, 2020 and June 30, 2019

	2020	2019
Assets		
Cash and Short-Term Investments	\$ 2,668,514,883	\$ 1,310,026,598
Cash Collateral on Loaned Securities	1,177,374,278	814,829,353
Receivables		
Contributions Receivable	101,730,406	96,481,733
Accounts Receivable - Sale of Investments	697,420,087	1,046,945,184
Accrued Interest and Dividends	133,935,398	102,714,643
Accounts Receivable - Other	7,586,880	8,334,664
Total Receivables	<u>940,672,771</u>	<u>1,254,476,224</u>
Investments at Fair Value		
Equity	23,332,239,318	25,836,066,007
Fixed Income	18,778,182,107	18,028,747,241
Private Equity	7,141,780,830	6,028,264,809
Real Estate	5,128,770,609	6,192,619,038
Hedge Funds	2,193,437,377	1,890,739,586
Total Investments	<u>56,574,410,240</u>	<u>57,976,436,681</u>
Total Assets	<u>61,360,972,171</u>	<u>61,355,768,857</u>
Liabilities		
Accounts Payable - Purchase of Investments	1,598,943,189	2,162,819,244
Retiree Payroll and Other Payables	1,176,761	921,886
Accrued Expenses	34,887,345	44,518,045
Tax Withholding Payable	38,002,636	35,504,456
Obligations under Securities Lending Program	1,177,374,278	814,829,353
Accounts Payable - Other	180,051	2,339,307
Total Liabilities	<u>2,850,564,261</u>	<u>3,060,932,291</u>
Fiduciary Net Position Restricted For Pension Benefits	<u>\$ 58,510,407,911</u>	<u>\$ 58,294,836,565</u>

Exhibit 3
Statement of Changes in Fiduciary Net Position
For the Fiscal Years Ended June 30, 2020 and 2019

	2020	2019
Additions		
Contributions		
Employer	\$ 1,800,137,447	\$ 1,708,121,851
Member ⁽¹⁾	659,295,961	595,444,371
Total Contributions	<u>2,459,433,409</u>	<u>2,303,566,222</u>
Investment Income		
From Investing Activities:		
Net Appreciation/(Depreciation) in Fair Value of Investments	(4,256,243,407)	1,215,624,890
Investment Income/(Loss)	5,906,599,371	2,188,735,905
Total Investing Activity Income	<u>1,650,355,964</u>	<u>3,404,360,796</u>
Less Expenses From Investing Activities	<u>(209,320,451)</u>	<u>(233,125,624)</u>
Net Investing Activity Income	1,441,035,513	3,171,235,172
From Securities Lending Activities:		
Securities Lending Income	15,987,146	26,146,035
Less Expenses From Securities Lending Activities:		
Borrower Rebates	(10,030,889)	(20,545,040)
Management Fees	(1,115,182)	(1,112,831)
Total Expenses from Securities Lending Activities	<u>(11,146,071)</u>	<u>(21,657,871)</u>
Net Securities Lending Income	4,841,076	4,488,164
Total Net Investment Income	<u>1,445,876,588</u>	<u>3,175,723,336</u>
Miscellaneous	<u>2,382,427</u>	<u>5,958,105</u>
Total Additions	<u>3,907,692,424</u>	<u>5,485,247,662</u>
Deductions		
Retiree Payroll	3,578,878,907	3,375,752,179
Administrative Expenses	72,054,032	70,800,052
Investment Expenses	13,329,577	12,105,588
Refunds	25,231,451	28,691,156
Lump Sum Death Benefits	2,230,036	2,711,348
Miscellaneous	397,076	332,945
Total Deductions	<u>3,692,121,078</u>	<u>3,490,393,268</u>
Net Increase/(Decrease)	215,571,346	1,994,854,395
Fiduciary Net Position Restricted For Pension Benefits		
Beginning of Year	58,294,836,565	56,299,982,171
End of Year	<u>\$ 58,510,407,911</u>	<u>\$ 58,294,836,565</u>

1. 2020 member contributions includes employer pick-up contributions.

Exhibit 4
Allocation of Assets by Accounting Reserve Amounts

(Dollars in Thousands)

	June 30, 2020	June 30, 2019
1. Member Reserves		
a. Active Members	\$ 23,481,576	\$ 22,363,377
b. Unclaimed Deposits	-	-
c. Total Member Reserves	<u>23,481,576</u>	<u>22,363,377</u>
2. Employer Reserves		
a. Actual Employer Contributions	25,818,509	22,464,894
b. Advanced Employer Contributions	-	-
c. Total Employer Contributions	<u>25,818,509</u>	<u>22,464,894</u>
3. County Contribution Credit Reserve	-	-
4. STAR Reserve	614,011	614,011
5. Contingency Reserve	-	-
6. Total Reserves at Book Value	<u>49,914,096</u>	<u>45,442,282</u>
7. Unrealized Investment Portfolio Appreciation	<u>8,596,312</u>	<u>12,852,555</u>
8. Total Reserves at Fair Value	<u>\$ 58,510,408</u>	<u>\$ 58,294,837</u>

Note: These amounts were determined by LACERA for accounting purposes and are reported in the CAFR for the fiscal year ended June 30, 2020.

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

(Dollars in Thousands)

June 30, 2020 Valuation					
Plan Year Ending	Contributions	Benefit Payments	Expected Market Value	Actual Market Value	Phase-Out of Gain / (Loss)
06/30/2020	\$ 2,459,433	\$ 3,606,340	\$ 61,189,106	\$ 58,510,408	80.00% x \$ (2,678,698) = \$ (2,142,958)
06/30/2019	2,303,566	3,407,155	59,238,837	58,294,837	60.00% x (944,000) = (566,400)
06/30/2018	2,116,085	3,203,375	55,441,551	56,299,982	40.00% x 858,431 = 343,372
06/30/2017	1,857,938	3,029,633	50,102,154	52,743,651	20.00% x 2,641,497 = 528,299
06/30/2016	1,901,795	2,889,186	51,455,977	47,846,694	0.00% x (3,609,283) = <u>0</u>
					(a) Total Phase-Out of Gain / (Loss) = \$ (1,837,687)
					(b) Total Market Value of Assets = \$ 58,510,408
					(c) Total Actuarial Value of Assets [(b) - (a)] = \$ 60,348,095

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

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

	2021 Val	2022 Val	2023 Val	2024 Val	Total
Amount to be Recognized	\$ (24,554)	\$ (552,853)	\$ (724,540)	\$ (535,740)	\$ (1,837,687)

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

(Dollars in Thousands)

	June 30, 2020	June 30, 2019
1. Total Market Value of Assets	\$ 61,360,972	\$ 61,355,769
2. Current Liabilities	2,850,564	3,060,932
3. Net Assets Held in Trust for Pension Benefits	<u>58,510,408</u>	<u>58,294,837</u>
4. Market Stabilization Reserve ⁽¹⁾	<u>(1,837,687)</u>	<u>94,601</u>
5. Actuarial Value of Fund Assets	60,348,095	58,200,236
6. Non-Valuation Reserves ⁽²⁾		
a. Unclaimed Deposits	-	-
b. Contingency Reserve	585,104	582,948
c. Advanced Employer Contributions	-	-
d. County Contribution Credit Reserve	-	-
e. Reserve for STAR Program	-	-
f. Total	<u>585,104</u>	<u>582,948</u>
7. Valuation Assets ⁽²⁾		
a. Member Reserves	23,481,576	22,363,377
b. Employer Reserves for Funding Purposes	<u>36,281,415</u>	<u>35,253,911</u>
c. Total	59,762,991	57,617,288

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

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

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, 2020. In this section, the discussion will focus on the commitments of LACERA for retirement benefits, which are referred to as its actuarial liabilities.

Actuarial Balance Sheet – Liabilities

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

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

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

The actuarial assumptions used to determine the liabilities are based on the results of the 2019 Investigation of Experience Report. New assumptions were adopted by the Board effective with the June 30, 2020 actuarial valuation. See Appendix A of this report for details.

All liabilities reflect the benefits effective through June 30, 2020. This includes permanent STAR COLAs that have been adopted through the valuation date, but does not include the value of any STAR benefits that may be granted in the future.

Exhibit 7
Actuarial Balance Sheet – June 30, 2020

(Dollars in Millions)

	General						Safety			All Plans
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Plan A	Plan B	Plan C	
LIABILITIES										
Present Value of Benefits - Inactives										
- Retirees and Beneficiaries	\$ 11,223	\$ 480	\$ 282	\$ 9,688	\$ 4,420	\$ 14	\$ 7,197	\$ 9,926	\$ 9	\$ 43,239
- Vested Former	7	1	1	622	448	42	0	136	4	1,261
- Inactive Total	11,230	481	283	10,310	4,868	56	7,197	10,062	13	44,500
Present Value of Benefits - Actives										
- Service Retirement	97	24	30	21,545	6,325	5,882	4	8,812	1,349	44,068
- Transfer Service (prior LACERA plan)	0	0	0	241	439	7	0	13	0	700
- Disability Retirement	1	0	0	919	N/A	434	0	3,260	737	5,351
- Death	1	0	0	376	N/A	135	0	76	24	612
- Termination	0	0	0	181	79	342	0	42	71	715
- Active Total	99	24	30	23,262	6,843	6,800	4	12,203	2,181	51,446
Total Actuarial Liabilities	\$ 11,329	\$ 505	\$ 313	\$ 33,572	\$ 11,711	\$ 6,856	\$ 7,201	\$ 22,265	\$ 2,194	\$ 95,946
ASSETS										
Valuation Assets	(3,462)	365	280	29,658	13,853	2,449	(1,937)	18,064	493	59,763
PV Future Member Contributions	1	1	0	2,897	N/A	2,865	0	1,069	977	7,810
PV Future Employer Normal Cost Contributions	3	0	1	3,320	1,124	2,589	0	1,922	902	9,861
UAAL or (Surplus Funding)	14,787	139	32	(2,303)	(3,266)	(1,047)	9,138	1,210	(178)	18,512
Total Current and Future Assets	\$ 11,329	\$ 505	\$ 313	\$ 33,572	\$ 11,711	\$ 6,856	\$ 7,201	\$ 22,265	\$ 2,194	\$ 95,946

Actuarial Balance Sheet – Assets

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

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

Actuarial Cost Method

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

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

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

Normal Cost

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

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

Actuarial Accrued Liability

The difference between the present value of all future obligations and the present value of the future Normal Cost contributions is referred to as the Actuarial Accrued Liability (AAL). The AAL is 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)	2020	2019	Percent Change
A. Actuarial present value of all future benefits for contributing members, former contributing members, and their survivors	\$ 95,946	\$ 91,283	5.1%
B. Actuarial present value of total future normal costs for current members	17,671	16,648	6.1%
C. Actuarial accrued liability [A-B]	78,275	74,635	4.9%
D. Valuation Assets	59,763	57,617	3.7%
E. UAAL or (Surplus Funding) [C-D]	18,512	17,018	8.8%
F. Funded Ratio [D/C]	76.3%	77.2%	-1.2%

Unfunded Actuarial Accrued Liability

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

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

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

Funding Adequacy

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

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 also will the emerging costs differ from the estimated costs.

The 2020 actuarial valuation reflects an increase 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 1.4% (net of investment expenses) compared to the assumed return of 7.00%. This, combined with recognitions of gains and losses from prior periods, resulted in an actuarial asset loss of \$701 million.
- Active Member Experience (non salary): This includes gains and losses from termination, service retirement, disability retirement, and death different than assumed. This resulted in an actuarial loss of \$91 million.
- Salary Increases: Individual salaries for continuing active members increased at a rate greater than the valuation assumption. This resulted in an actuarial loss of \$388 million.
- Actual CPI versus Assumption: The actual CPI increase was greater than assumed for members of Plan A. This resulted in COLA increases more than the assumption, which generated an actuarial loss of \$43 million.
- Mortality Experience: An actuarial loss due to mortality generally indicates that retired members are living longer than the current assumption predicts. This year, there was an actuarial loss of \$1 million due to mortality.
- 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 \$36 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**

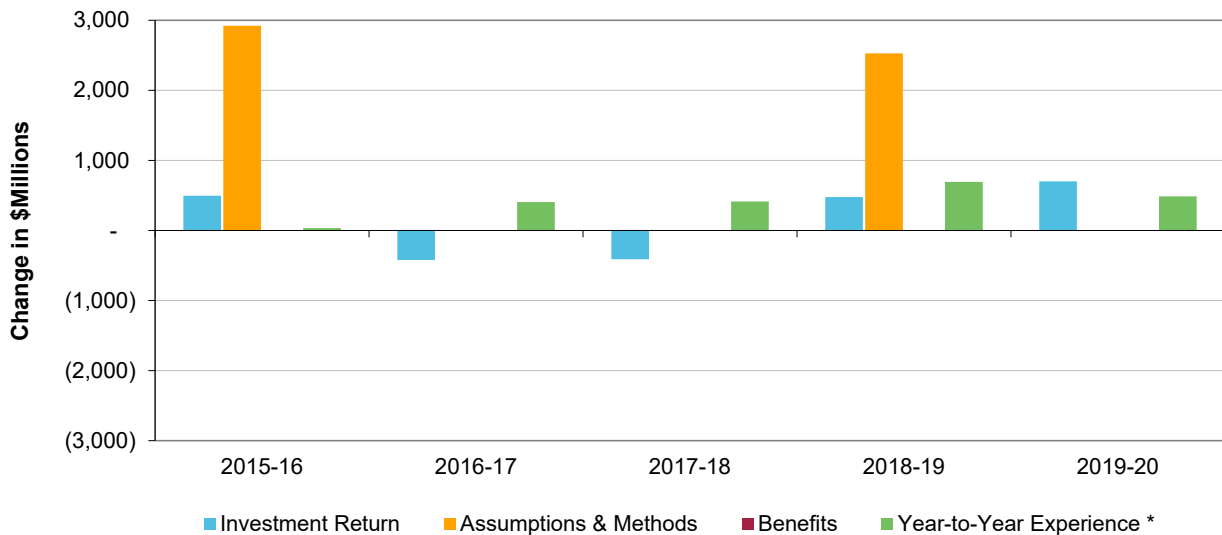
(Dollars in Millions)

	Amount	As a Percent of June 30, 2020 Actuarial Accrued Liability
Unfunded Actuarial Accrued Liability - June 30, 2019	\$ 17,018	21.74%
Interest Accrued	1,212	1.55%
Benefits Accrued (Normal Cost)	1,553	1.98%
<u>Contributions</u>		
Employer - Cash	\$ (1,800)	-2.30%
Employer - Contribution Credit	-	0.00%
Member	(659)	-0.84%
Total	<u>(2,459)</u>	-3.14%
Expected Unfunded Actuarial Accrued Liability - June 30, 2020	\$ 17,324	22.13%
Sources of Change:		
Increase in UAAL due to New Assumptions	-	0.00%
<u>Asset (Gains) and Losses</u>		
(Gain) / Loss due to Investment Income	701	0.90%
<u>Liability (Gains) and Losses</u>		
Active Member Experience (non salary)	\$ 91	0.12%
Salary Increases Greater than Expected	388	0.50%
CPI Greater than Expected	43	0.05%
Mortality Experience	1	0.00%
All Other Experience	(36)	-0.05%
Total	<u>487</u>	0.62%
Total Changes	\$ 1,188	1.52%
Unfunded Actuarial Accrued Liability - June 30, 2020	\$ 18,512	23.65%

Exhibit 8b
History of Changes in Unfunded Actuarial Accrued Liability

(Dollars in Millions)

	2015-16	2016-17	2017-18	2018-19	2019-20	2015-20
Prior Valuation UAAL	\$ 9,491	\$ 12,841	\$ 13,145	\$ 13,294	\$ 17,018	\$ 9,491
Increase in UAAL due to:						
Expected Increase / (Decrease)	(102)	320	146	25	306	695
■ Asset (Gains) and Losses	496	(421)	(411)	477	701	842
■ Changes in Benefits	-	-	-	-	-	-
■ Changes in Assumptions	2,922	-	-	2,528	-	5,450
■ Changes in Methods	-	-	-	-	-	-
■ Salary Increases	162	277	223	486	388	1,536
■ CPI Increases	(191)	(139)	45	44	43	(198)
■ Mortality Experience	(4)	(51)	(20)	(6)	1	(80)
■ All Other Experience	67	318	166	170	55	776
Total Increase / (Decrease)	3,350	304	149	3,724	1,494	9,021
Valuation UAAL	\$ 12,841	\$ 13,145	\$ 13,294	\$ 17,018	\$ 18,512	\$ 18,512
Funded Ratio	79.4%	79.9%	80.6%	77.2%	76.3%	76.3%



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

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

Note: FAC = Final Average Compensation

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

1. Expected rate of return on assets.
2. Individual salary increase rate (wage growth + merit).
3. Mortality for members on service retirement.

Since new assumptions were not adopted for the 2020 valuation, we are not 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 non-PEPRA Plans

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

Since new assumptions were not adopted for the 2020 valuation we are not 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	COLA %
General A	84.46%
General B	25.90%
General C	26.81%
General D	25.94%
General E	0.00%
Safety A	87.15%
Safety B	33.03%

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

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

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

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

Members of the two plans developed in compliance with the California Public Employees’ Pension Reform Act of 2013 (PEPRA) contribute a flat rate (i.e., does not vary by entry age) based on whether they are in the General or Safety plan. This rate is set equal to one-half of the total Normal Cost rate. We are recommending changes to the member contribution rates for these plans, as shown below, to reflect the Plan’s Normal Cost rates for the 2020 valuation.

	General Plan G	Safety Plan C
All Ages: Recommended	9.10%	14.42%
All Ages: Current	9.11%	14.54%
Ratio (Recommended / Current)	99.9%	99.2%

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

Average Member Rates

The average member contribution rate for only those members in contributory plans at June 30, 2020 is 9.17% of covered payroll. This number compares to 7.80% of covered payroll, which is the average member contribution rate among all members. The 7.80% offsets the gross normal cost to yield the employer normal cost rate. Note that covered payroll does not include pay for PEPRA plan members that is above the PEPRA compensation limit.

**Exhibit 9
 Sample Member Contribution Rates**

Recommended Rates (Based on 2020 Valuation)						
	Entry Age	Normal	Cost of Living	Total as a % of Pay	Current Rate (Total)	Ratio (New / Current)
General Members						
Plan A	25	3.24%	2.74%	5.98%	5.98%	100.0%
	35	3.99%	3.37%	7.36%	7.36%	100.0%
	45	4.83%	4.08%	8.91%	8.91%	100.0%
	55	5.13%	4.33%	9.46%	9.46%	100.0%
Plan B	25	6.47%	1.68%	8.15%	8.15%	100.0%
	35	7.98%	2.07%	10.05%	10.05%	100.0%
	45	9.66%	2.50%	12.16%	12.16%	100.0%
	55	10.25%	2.65%	12.90%	12.90%	100.0%
Plan C	25	5.52%	1.48%	7.00%	7.00%	100.0%
	35	6.80%	1.82%	8.62%	8.62%	100.0%
	45	8.33%	2.23%	10.56%	10.56%	100.0%
	55	9.68%	2.60%	12.28%	12.28%	100.0%
Plan D	25	5.52%	1.43%	6.95%	6.95%	100.0%
	35	6.80%	1.76%	8.56%	8.56%	100.0%
	45	8.33%	2.16%	10.49%	10.49%	100.0%
	55	9.68%	2.51%	12.19%	12.19%	100.0%
Plan G	All Ages	7.34%	1.76%	9.10%	9.11%	99.9%
Safety Members						
Plan A	25	4.74%	4.13%	8.87%	8.87%	100.0%
	35	5.63%	4.91%	10.54%	10.54%	100.0%
	45	6.70%	5.84%	12.54%	12.54%	100.0%
	55	6.70%	5.84%	12.54%	12.54%	100.0%
Plan B	25	9.48%	3.13%	12.61%	12.61%	100.0%
	35	11.27%	3.72%	14.99%	14.99%	100.0%
	45	13.40%	4.43%	17.83%	17.83%	100.0%
	55	13.40%	4.43%	17.83%	17.83%	100.0%
Plan C	All Ages	11.17%	3.25%	14.42%	14.54%	99.2%

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 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 2021, the total calculated employer contribution rate increases to 24.64% (after reflecting the phase in of the employer contribution rate). This is equal to the aggregate employer Normal Cost contribution rate of 10.89% based on the 2020 valuation, plus a layered amortization payment of the UAAL. The UAAL amortization layers are shown in Exhibit 12. Effective with the June 30, 2019 valuation, all new UAAL layers are amortized over a 20-year period, beginning with the date the contribution is first expected to be made.

(All values as a % of Payroll)

Employer Normal Cost Contribution Rate	10.89%
Layered Amortization of UAAL	<u>14.85%</u>
Calculated Employer Contribution Rate (before phase-in)	25.74%
Deferred Recognition of 2019 Assumption Changes	<u>(1.10)%</u>
Calculated Employer Contribution Rate (with phase-in)	24.64%

The 2.05% increase from last year in the calculated employer contribution rate is partially due to the deferred recognition of assumption and method changes adopted by the Board of Investments effective June 30, 2019. These changes resulted in an increase of 3.29% in the employer contribution rate, which are being phased-in over three fiscal years effective with the fiscal year beginning July 1, 2020. This phase-in resulted in an increase of 1.09% in the employer contribution rate effective July 1, 2021. Recognition of investment losses resulted in an increase of 0.67% in the employer contribution rate, and other sources, including salary increases greater than assumed, increased the employer contribution rate by about 0.29%.

Employer Contribution Rate with phase-in

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

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

Exhibit 10
Calculated Normal Cost Contribution Rates – June 30, 2020

	General							Safety				Grand Total
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	
A. Normal Cost Contribution Rate												
Service Retirement	21.05%	18.14%	13.41%	14.70%	10.13%	15.57%	14.12%	24.57%	18.60%	17.30%	18.31%	14.90%
Disability Retirement	1.08%	1.01%	0.70%	1.15%	0.00%	1.29%	0.98%	11.57%	9.21%	10.24%	9.44%	2.58%
Death	0.30%	0.28%	0.23%	0.38%	0.00%	0.35%	0.30%	0.41%	0.35%	0.32%	0.34%	0.31%
Termination	0.45%	0.41%	0.40%	0.98%	0.61%	0.99%	0.91%	0.82%	0.83%	0.98%	0.86%	0.90%
Total	22.88%	19.84%	14.74%	17.21%	10.74%	18.20%	16.31%	37.37%	28.99%	28.84%	28.95%	18.69%
B. Member Contributions	(5.75)%	(9.43)%	(7.10)%	(8.02)%	0.00%	(9.10)%	(6.86)%	(11.00)%	(11.14)%	(14.42)%	(11.88)%	(7.80)%
C. Net Employer Normal Cost as of June 30, 2020 (A) - (B)	17.13%	10.41%	7.64%	9.19%	10.74%	9.10%	9.45%	26.37%	17.85%	14.42%	17.07%	10.89%
D. Net Employer Normal Cost as of June 30, 2019	17.34%	9.40%	7.99%	9.21%	10.74%	9.11%	9.50%	26.37%	17.27%	14.54%	16.80%	10.86%
E. Increase (Decrease) as a Percentage of Payroll (C) - (D)	(0.21)%	1.01%	(0.35)%	(0.02)%	0.00%	(0.01)%	(0.05)%	0.00%	0.58%	(0.12)%	0.27%	0.03%
F. Estimated Payroll for fiscal year beginning July 1, 2021*	\$ 11	\$ 3	\$ 3	\$ 3,908	\$ 1,373	\$ 2,087	\$ 7,384	\$ 0	\$ 1,335	\$ 386	\$ 1,722	\$ 9,106
G. Estimated Total Normal Cost Contribution in Dollars (A x F)**	\$ 2	\$ -	\$ -	\$ 673	\$ 147	\$ 380	\$ 1,204	\$ -	\$ 387	\$ 111	\$ 498	\$ 1,702

* Estimated Payroll based upon annualized salary rate as of June 30, 2020 increased by 3.25% wage inflation. Dollar figures in millions.

** The timing of the Normal Cost shown in this exhibit is spread over the entire year and corresponds to payroll timing.

Exhibit 11
Total Employer Contributions

	General							Safety				All Plans
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	
A. Net Employer Normal Cost												
1. Basic Benefits	13.61%	8.38%	6.15%	7.55%	8.88%	7.34%	7.73%	20.51%	14.15%	11.17%	14.20%	8.82%
2. Cost-of-Living Benefits	3.52%	2.03%	1.49%	1.64%	1.86%	1.76%	1.72%	5.86%	3.70%	3.25%	2.87%	2.07%
3. Total June 30, 2020	17.13%	10.41%	7.64%	9.19%	10.74%	9.10%	9.45%	26.37%	17.85%	14.42%	17.07%	10.89%
B. UAAL Contribution Rate	14.85%	14.85%	14.85%	14.85%	14.85%	14.85%	14.85%	14.85%	14.85%	14.85%	14.85%	14.85%
C. Calculated June 30, 2020 Contribution Rate (A) + (B)	31.98%	25.26%	22.49%	24.04%	25.59%	23.95%	24.30%	41.22%	32.70%	29.27%	31.92%	25.74%
D. Deferred Recognition of new assumptions	(1.10)%	(1.10)%	(1.10)%	(1.10)%	(1.10)%	(1.10)%	(1.10)%	(1.10)%	(1.10)%	(1.10)%	(1.10)%	(1.10)%
E. Calculated June 30, 2020 Contribution Rate with phase-in (C) + (D)	30.88%	24.16%	21.39%	22.94%	24.49%	22.85%	23.20%	40.12%	31.60%	28.17%	30.82%	24.64%
F. Total June 30, 2019 Contribution Rate with phase-in	29.07%	21.13%	19.72%	20.94%	22.47%	20.84%	21.23%	38.10%	29.00%	26.27%	28.53%	22.59%
G. Estimated Payroll for fiscal year beginning July 1, 2021*	\$ 11	\$ 3	\$ 3	\$ 3,908	\$ 1,373	\$ 2,087	\$ 7,384	\$ 0	\$ 1,335	\$ 386	\$ 1,722	\$ 9,106
H. Estimated Annual Contribution (E x G)	\$ 3	\$ 1	\$ 1	\$ 897	\$ 336	\$ 477	\$ 1,713	\$ -	\$ 422	\$ 109	\$ 531	\$ 2,244
I. Last Year's Estimated Annual Contribution	\$ 3	\$ 1	\$ 1	\$ 819	\$ 313	\$ 363	\$ 1,500	\$ -	\$ 391	\$ 74	\$ 465	\$ 1,965
J. Increase / (Decrease) in Annual Contribution	\$ -	\$ -	\$ -	\$ 78	\$ 23	\$ 114	\$ 213	\$ -	\$ 31	\$ 35	\$ 66	\$ 279

* Estimated Payroll based upon annualized salary rate as of June 30, 2020 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, 2020	Interest on Balance	Amort. Payment on June 30, 2021 ⁽¹⁾	Balance as of June 30, 2021 ⁽²⁾	Remaining Period as of June 30, 2021 ⁽⁵⁾	July 1, 2021 Amortization Payment
June 30, 2009	Initial UAAL	\$ 5,601.6	\$ 392.1	\$ 426.7	\$ 5,567.0	18 Years	\$ 419.8
June 30, 2010	(Gain) / Loss ⁽³⁾	3,058.6	214.1	224.9	3,047.9	19 Years	221.2
June 30, 2011	(Gain) / Loss ⁽³⁾	1,516.4	106.2	107.9	1,514.8	20 Years	106.1
June 30, 2012	(Gain) / Loss ⁽³⁾	2,479.9	173.6	171.0	2,482.5	21 Years	168.2
June 30, 2013	(Gain) / Loss ⁽³⁾	1,402.1	98.1	96.7	1,403.5	21 Years	95.1
June 30, 2014	(Gain) / Loss	(2,596.3)	(181.7)	(179.0)	(2,599.0)	21 Years	(176.1)
June 30, 2015	(Gain) / Loss	(2,028.4)	(142.0)	(139.9)	(2,030.5)	21 Years	(137.6)
June 30, 2016	(Gain) / Loss ⁽³⁾	3,897.4	272.8	268.8	3,901.4	21 Years	264.4
June 30, 2017	(Gain) / Loss	(21.1)	(1.5)	(1.5)	(21.2)	21 Years	(1.4)
June 30, 2018	(Gain) / Loss	61.0	4.3	4.2	61.1	21 Years	4.1
June 30, 2019	(Gain) / Loss ⁽³⁾	3,949.6	276.5	290.4	3,935.8	19 Years	285.7
June 30, 2020	(Gain) / Loss	1,191.2	83.4	(187.2) ⁽⁴⁾	1,461.8	20 Years	102.4
Total Amortization Payment July 1, 2021:							\$ 1,351.9
Projected Payroll July 1, 2021:							\$ 9,105.8
UAAL as of June 30, 2020:		\$ 18,512.0		UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2021:			14.85%

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, 2020, whereas, the contribution rates are not effective until July 1, 2021. Therefore, the UAAL is adjusted to June 30, 2021 based on the actual contribution rate for the period.
- (Gain) / Loss layers include impact of assumption changes in these years.
- The amortization of UAAL does not begin until July 1, 2021; therefore, the UAAL amount is adjusted by one year to reflect the actual July 1, 2020 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 No. 67 sets out requirements for defined benefit pension plan reporting and disclosures. GASB Statement No. 68 sets out requirements for accounting by state and local government employers.

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

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

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

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

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

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

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

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

Exhibit 13
Schedule of Funding Progress

(Dollars in Thousands)

Actuarial Valuation Date	(a) Actuarial Value of Valuation Assets	(b) Actuarial Accrued Liabilities	(b-a) Unfunded Actuarial Accrued Liabilities (UAAL)	(a/b) Funded Ratio	(c) Covered Payroll ⁽¹⁾	[(b-a)/c] UAAL as a Percentage of Covered Payroll
June 30, 2011 ⁽²⁾	\$ 39,193,627	\$ 48,598,166	\$ 9,404,539	80.6%	\$ 6,650,674	141.4%
June 30, 2012 ⁽²⁾	39,039,364	50,809,425	11,770,061	76.8%	6,619,816	177.8%
June 30, 2013 ⁽²⁾	39,932,416	53,247,776	13,315,360	75.0%	6,595,902	201.9%
June 30, 2014	43,654,462	54,942,453	11,287,991	79.5%	6,672,228	169.2%
June 30, 2015	47,328,270	56,819,215	9,490,945	83.3%	6,948,738	136.6%
June 30, 2016 ⁽²⁾	49,357,847	62,199,214	12,841,367	79.4%	7,279,777	176.4%
June 30, 2017	52,166,307	65,310,803	13,144,496	79.9%	7,637,032	172.1%
June 30, 2018	55,233,108	68,527,354	13,294,246	80.6%	7,957,981	167.1%
June 30, 2019 ⁽²⁾	57,617,288	74,635,840	17,018,552	77.2%	8,370,050	203.3%
June 30, 2020	59,762,991	78,275,175	18,512,184	76.3%	8,724,151	212.2%

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

2. Assumption changes.

Exhibit 14
Schedule of Contributions from the Employer

(Dollars in Thousands)

Fiscal Year Ending	Actuarially Determined Employer Contribution	Actual Employer Contributions			Percentage of Actuarially Determined Contribution Contributed
		Cash Payment	Transfer from Reserve Accounts	Total	
06/30/2011	\$ 944,174	\$ 944,174	\$ -	\$ 944,174	100%
06/30/2012	1,078,929	1,078,929	-	1,078,929	100%
06/30/2013	1,172,014	723,195	448,819	1,172,014	100%
06/30/2014	1,320,442	1,320,442	-	1,320,442	100%
06/30/2015	1,494,975	1,494,975	-	1,494,975	100%
06/30/2016	1,443,130	1,443,130	-	1,443,130	100%
06/30/2017 ⁽¹⁾	1,392,813	1,370,922	21,891	1,392,813	100%
06/30/2018	1,564,284	1,564,284	-	1,564,284	100%
06/30/2019	1,708,122	1,708,122	-	1,708,122	100%
06/30/2020	1,800,137	1,800,137	-	1,800,137	100%

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

**Exhibit 15
 Solvency Test**

(Dollars in Millions)

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liabilities for			Portion of Actuarial Accrued Liabilities Covered by Assets		
		Active Member Contributions (A)	Retirees and Beneficiaries ⁽¹⁾ (B)	Active Members (Employer Financed Portion) (C)	(A)	(B)	(C)
June 30, 2011	\$ 39,194	\$ 6,529	\$ 27,559	\$ 14,511	100%	100%	35%
June 30, 2012	39,039	6,961	29,118	14,730	100%	100%	20%
June 30, 2013	39,932	7,837	30,980	14,430	100%	100%	8%
June 30, 2014	43,654	8,354	31,882	14,706	100%	100%	23%
June 30, 2015	47,328	8,805	32,734	15,280	100%	100%	38%
June 30, 2016	49,358	8,767	35,316	18,116	100%	100%	29%
June 30, 2017	52,166	9,482	37,077	18,752	100%	100%	30%
June 30, 2018	55,233	9,882	39,192	19,453	100%	100%	32%
June 30, 2019	57,617	10,210	42,235	22,190	100%	100%	23%
June 30, 2020	59,763	10,650	44,500	23,125	100%	100%	20%

1. Includes vested and non-vested former members.

Exhibit 16
Actuarial Analysis of Financial Experience

(Dollars in Millions)

	Valuation as of June 30						
	2014	2015	2016	2017	2018	2019	2020
Unfunded Actuarial Accrued Liability	\$13,315	\$11,288	\$9,491	\$12,841	\$13,145	\$13,294	\$17,018
Expected Increase/(Decrease) from Prior Valuation	338	(54)	(102)	320	146	25	306
Salary Increases Greater/(Less) than Expected	(291)	79	162	277	223	486	388
CPI Less than Expected	(427)	(570)	(191)	(139)	45	44	43
Change in Assumptions	-	-	2,922	-	-	2,528	-
Asset Return Less/(Greater) than Expected	(1,664)	(1,263)	496	(421)	(411)	477	701
All Other Experience	17	11	63	267	146	164	56
Ending Unfunded Actuarial Accrued Liability	\$11,288	\$9,491	\$12,841	\$13,145	\$13,294	\$17,018	\$18,512

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

(Dollars in Thousands)

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Retiree Allowance	Average Annual Allowance
	Member Count	Annual Allowance ⁽¹⁾	Member Count	Annual Allowance ⁽¹⁾	Member Count	Annual Allowance ⁽¹⁾		
June 30, 2011	3,134	\$ 185,204 ⁽²⁾	(1,959)	\$ (62,923)	55,371	\$ 2,342,625	5.51%	\$ 42.3
June 30, 2012	3,194	193,865 ⁽²⁾	(1,795)	(61,588)	56,770 ⁽³⁾	2,474,902	5.65%	43.6
June 30, 2013	3,373	205,659 ⁽²⁾	(2,057)	(69,494)	58,086 ⁽³⁾	2,611,067	5.50%	45.0
June 30, 2014	3,128	172,743 ⁽²⁾	(1,985)	(71,730)	59,229 ⁽³⁾	2,712,080	3.87%	45.8
June 30, 2015	3,501	180,549 ⁽²⁾	(2,124)	(80,028)	60,606 ⁽³⁾	2,812,601	3.71%	46.4
June 30, 2016	3,479	220,632 ⁽²⁾	(2,171)	(80,881)	61,914 ⁽³⁾	2,952,352	4.97%	47.7
June 30, 2017	3,721	245,915 ⁽²⁾	(2,311)	(89,624)	63,324 ⁽³⁾	3,108,643	5.29%	49.1
June 30, 2018	3,826	276,118 ⁽²⁾	(2,270)	(89,033)	64,880 ⁽³⁾	3,295,728	6.02%	50.8
June 30, 2019	3,978	302,022 ⁽²⁾	(2,351)	(97,840)	66,507 ⁽³⁾	3,499,910	6.20%	52.6
June 30, 2020	3,930	311,206 ⁽²⁾	(2,425)	(104,914)	68,012 ⁽³⁾	3,706,202	5.89%	54.5

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

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

3. For the actuarial valuation year, Member Count includes retirees who due to timing at year end, are not yet included in the total Retired Members count disclosed in Note A - Plan Description of LACERA's CAFR for the fiscal year ended June 30, 2020.

8. Cash Flow History and Projections

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

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

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

The projected cash flows include contributions, statutory benefits, and administrative expenses only. They are based on the actuarial assumptions as stated in Appendix A of this valuation report. The total employer contribution rate is assumed to be 22.59% for the first year and 24.64% for the second year; total employer contributions for the remainder of the period reflect the expected recognition of asset gains currently being deferred and the phase-in of the increase due to the assumption and method changes. The aggregate member rate is assumed to stay at the calculated rate for June 30, 2020 of 7.80% of payroll. Expenses are based on the expenses for the year ended June 30, 2020, increased annually with the actuarial inflation assumption of 2.75%.

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

- Projected STAR benefits that have not yet been granted. STAR benefits that were vested as of January 2020 are included.
- Projected benefits payable under certain insurance contracts for a group of retired members. These payments are netted against the total expected retiree benefits.

Exhibit 18a
Cash Flow History and Projections – Dollars

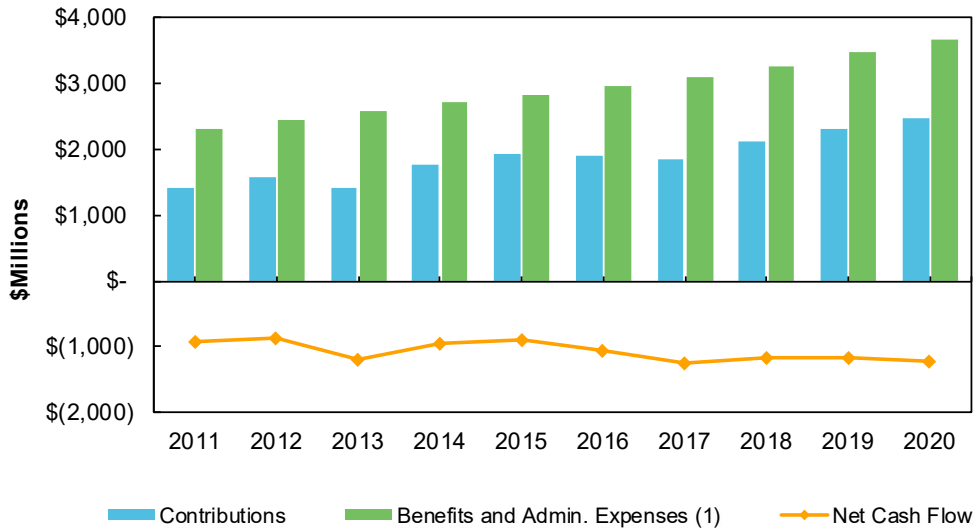
Plan Year Ending	Cash Flow History		
	Total Contributions	Benefits & Administrative Expenses ⁽¹⁾	Net Cash Flow
2011	\$ 1,408	\$ 2,318	\$ (910)
2012	1,586	2,439	(853)
2013	1,403	2,593	(1,190)
2014	1,759	2,719	(960)
2015	1,936	2,829	(893)
2016	1,902	2,954	(1,052)
2017	1,858	3,094	(1,236)
2018	2,116	3,268	(1,152)
2019	2,304	3,475	(1,171)
2020	2,459	3,676	(1,217)

Plan Year Ending	Cash Flow Projections ⁽²⁾		
	Total Contributions	Benefits & Administrative Expenses ⁽¹⁾	Net Cash Flow
2021	\$ 2,713	\$ 4,033	\$ (1,320)
2022	3,002	4,137	(1,135)
2023	3,216	4,335	(1,120)
2024	3,371	4,542	(1,171)
2025	3,542	4,759	(1,216)
2026	3,701	4,983	(1,282)
2027	3,821	5,214	(1,393)
2028	3,945	5,448	(1,504)
2029	4,073	5,687	(1,614)
2030	4,205	5,930	(1,725)

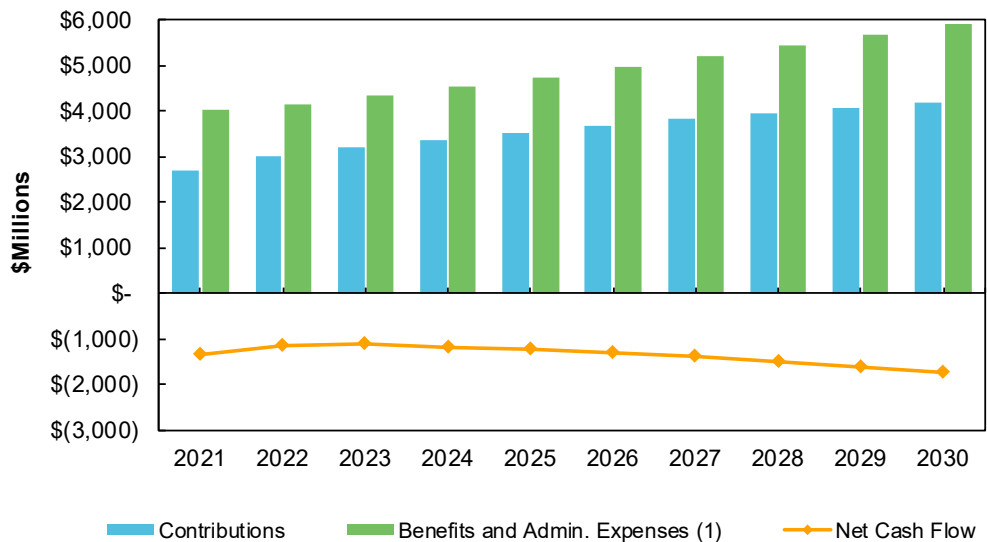
1. Investment expenses are assumed to be covered by investment return.
2. Future contributions reflect the expected impact of asset gains and losses currently being deferred.

Exhibit 18b
Cash Flow History and Projections – Graphs

Cash Flow History



Cash Flow Projections⁽²⁾



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

9. Risk Discussion

Please refer to the Risk Assessment report dated September 8, 2020 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 No. 51 (ASOP 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions) addresses these issues by providing actuaries with guidance for assessing and disclosing the risk associated with measuring pension liabilities and the determination of pension plan contributions. Specifically, it directs the actuary to:

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

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

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

Disclosure Element	Description	Value
Gross Normal Cost \$ ¹	Normal Cost allocated to valuation year, paid at mid-year.	\$ 1,674.9
Statutory Contribution \$ ¹	Expected Employer Contribution paid at mid-year.	\$ 2,024.4
Asset Smoothing Ratio	Actuarial Value of Assets divided by Market Value of Assets	103.1%
Asset Volatility Ratio	Market Value of Assets divided by Payroll	6.6
Liability Volatility Ratio	Actuarial Accrued Liability divided by Payroll	8.9

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. Historical Asset and Liability Volatility Ratios are shown in Exhibit E-4.

As shown above, in the current valuation LACERA has an Asset Volatility Ratio of 6.6 and a Liability Volatility Ratio of 8.9. As shown in Exhibit E-4, these ratios have increased over time as LACERA has matured.

Factors Affecting Future Results

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

- Investment returns

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

- Compensation increases

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

- Payroll variation

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

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

- Longevity and other demographic risks

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

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

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.

