

Los Angeles City Employees' Retirement System



Classic Values, Innovative Advice

BOARD Meeting: 04/28/20
Item VI – D
Attachment 1

Audit of the June 30, 2019 Actuarial Valuation and Review of the 2014-2017 Experience Study

April 28, 2020

Anne Harper, FSA, MAAA, EA
Graham Schmidt, ASA, FCA, MAAA, EA



- Audit Summary
- Cheiron Recommendations
- Actuarial Valuation Replication Results
- Review of Assumptions
- Review of Actuarial Methods
- Comments on Report Contents

Purpose of the Audit is to Confirm



- The Board can rely on Segal's results
- Actuarial methods and assumptions are in compliance with ASOPs
- The communications of the results are complete and reasonable



- **Valuation is materially accurate (i.e., within 5%) and was computed in accordance with generally accepted actuarial principles**
- **The assumptions recommended in the experience study are reasonable and in accordance with generally accepted actuarial principles**
- **We strongly support Segal's recommendations:**
 - To reduce the inflation assumption from 3.00% to 2.75% and the discount rate from 7.25% to 7.00%, and
 - To adopt generational mortality tables
 - However, we strongly recommend they use a benefit-weighted approach for the next experience study



- Include projections in future valuation reports
 - Already included in separate Risk Assessment report, but we strongly suggest including the projections in the AVR
 - Expand disclosures included in Risk Assessment
- Consider miscellaneous technical changes for Experience Study
 - Credibility adjustments for active member mortality assumptions
 - Use of generational mortality projections for optional form factors
 - Analysis of reciprocity rates using recent retirement data
 - Additional demographic assumption disclosures
 - “Risk adjustment” and active management expense methodologies
 - A longer grading period for the medical trends to reach the ultimate level

Valuation Replication Results



Retirement Plan Valuation Results as of June 30, 2019

	Segal	Cheiron	Ratio
Present Value of Future Benefits	\$ 23,735,641,420	\$ 23,733,525,494	100%
Actuarial Liability	\$ 20,793,421,143	\$ 20,779,001,429	100%
Valuation Value of Assets (VVA)	<u>14,818,564,427</u>	<u>14,818,564,427</u>	100%
Unfunded Actuarial Liability (UAL)	\$ 5,974,856,716	\$ 5,960,437,002	100%
Funded Ratio on VVA basis	71.3%	71.3%	100%
Contribution Rate by Component (BOY)			
Net Employer Normal Cost	6.23%	6.07%	97%
UAL Payment Rate	<u>18.33%</u>	<u>18.26%</u>	100%
Total Employer Contribution	24.56%	24.34%	99%

Valuation Replication Results



OPEB Plan Valuation Results as of June 30, 2019

	Segal	Cheiron	Ratio
Present Value of Future Benefits	\$ 3,981,517,502	\$ 3,988,484,334	100%
Actuarial Liability	\$ 3,334,298,549	\$ 3,342,852,146	100%
Valuation Value of Assets (VVA)	<u>2,812,661,894</u>	<u>2,812,661,894</u>	100%
Unfunded Actuarial Liability (UAL)	\$ 521,636,655	\$ 530,190,252	102%
Funded Ratio on VVA basis	84.4%	84.1%	100%
Contribution by Component			
<i><u>Dollar Amount (BOY)</u></i>			
Net Employer Normal Cost	\$ 76,422,769	\$ 77,742,638	102%
UAL Payment Rate	<u>23,236,922</u>	<u>23,236,922</u>	100%
Total Employer Contribution	\$ 99,659,691	\$ 100,979,560	101%
<i><u>Rate as % of Payroll (BOY)</u></i>			
Net Employer Normal Cost	3.43%	3.49%	102%
UAL Payment Rate	<u>1.04%</u>	<u>1.04%</u>	100%
Total Employer Contribution	4.47%	4.53%	101%

Valuation Replication Results



Retirement Plan Liabilities as of June 30, 2019 (\$ in millions)

	Tier 1			Tier 1 APO Enhanced Benefits		
	Segal	Cheiron	Ratio	Segal	Cheiron	Ratio
Present Value of Future Benefits						
Inactive members	\$ 12,061.5	\$ 12,054.9	100%	\$ 69.2	\$ 69.0	100%
Active members	<u>10,670.3</u>	<u>10,682.3</u>	100%	<u>321.4</u>	<u>322.7</u>	100%
Total	\$ 22,731.9	\$ 22,737.2	100%	\$ 390.6	\$ 391.7	100%
Actuarial Liability						
Inactive members	\$ 12,061.5	\$ 12,054.9	100%	\$ 69.2	\$ 69.0	100%
Active members	<u>8,338.5</u>	<u>8,343.9</u>	100%	<u>239.4</u>	<u>242.7</u>	101%
Total	\$ 20,400.0	\$ 20,398.8	100%	\$ 308.6	\$ 311.7	101%
Present Value of Future Normal Cost						
	\$ 2,331.9	\$ 2,338.4	100%	\$ 81.9	\$ 80.0	98%

Valuation Replication Results



Retirement Plan Liabilities as of June 30, 2019 (\$ in millions)

	Tier 3			Total Retirement Plan		
	Segal	Cheiron	Ratio	Segal	Cheiron	Ratio
Present Value of Future Benefits						
Inactive members	\$ 6.0	\$ 6.0	100%	\$ 12,136.7	\$ 12,129.9	100%
Active members	<u>607.2</u>	<u>598.6</u>	99%	<u>11,598.9</u>	<u>11,603.6</u>	100%
Total	\$ 613.2	\$ 604.6	99%	\$ 23,735.6	\$ 23,733.5	100%
Actuarial Liability						
Inactive members	\$ 6.0	\$ 6.0	100%	\$ 12,136.7	\$ 12,129.9	100%
Active members	<u>78.8</u>	<u>62.5</u>	79%	<u>8,656.7</u>	<u>8,649.1</u>	100%
Total	\$ 84.8	\$ 68.5	81%	\$ 20,793.4	\$ 20,779.0	100%
Present Value of Future Normal Cost						
	\$ 528.4	\$ 536.1	101%	\$ 2,942.2	\$ 2,954.5	100%

Valuation Replication Results



Retirement Plan Contribution Comparison as of June 30, 2019 (\$ in millions)

	Segal		Cheiron		Ratio	
	Amount	% of Payroll	Amount	% of Payroll	Amount	% of Payroll
Total Retirement Plan						
Total Normal Cost	\$ 375.0	16.85%	\$ 371.8	16.69%	99%	99%
Expected Employee Contributions	<u>236.3</u>	<u>10.62%</u>	<u>236.5</u>	<u>10.62%</u>	100%	100%
Employer Normal Cost	\$ 138.6	6.23%	\$ 135.2	6.07%	97%	97%
UAL Payment Rate	<u>407.9</u>	<u>18.33%</u>	<u>406.7</u>	<u>18.26%</u>	100%	100%
Total Employer Contribution	\$ 546.5	24.56%	\$ 542.0	24.34%	99%	99%
Tier 1						
Total Normal Cost	\$ 324.8	17.30%	\$ 320.6	17.07%	99%	99%
Expected Employee Contributions	<u>199.4</u>	<u>10.63%</u>	<u>199.6</u>	<u>10.62%</u>	100%	100%
Employer Normal Cost	\$ 125.4	6.67%	\$ 121.1	6.44%	97%	97%
UAL Payment Rate	<u>344.1</u>	<u>18.33%</u>	<u>343.2</u>	<u>18.26%</u>	100%	100%
Total Employer Contribution	\$ 469.5	25.00%	\$ 464.2	24.71%	99%	99%
Tier 3						
Total Normal Cost	\$ 50.2	14.42%	\$ 51.1	14.69%	102%	102%
Expected Employee Contributions	<u>36.9</u>	<u>10.62%</u>	<u>37.0</u>	<u>10.62%</u>	100%	100%
Employer Normal Cost	\$ 13.2	3.80%	\$ 14.2	4.07%	107%	107%
UAL Payment Rate	<u>63.8</u>	<u>18.33%</u>	<u>63.6</u>	<u>18.26%</u>	100%	100%
Total Employer Contribution	\$ 77.0	22.13%	\$ 77.8	22.34%	101%	101%

Valuation Replication Results



Retirement Plan Data Summary as of June 30, 2019

	Segal	Cheiron	Ratio
Active Members			
Total Number	26,632	26,632	100.0%
Average Age	47.0	47.0	100.0%
Average Service	13.2	13.2	100.3%
Projected Compensation	\$2,225,412,831	\$2,226,980,860	100.1%
Average Compensation	\$83,562	\$83,620	100.1%
Account Balances	\$2,266,740,475	\$2,268,676,978	100.1%
Service Retirees			
Total Number	15,165	15,168	100.0%
Average Age	71.9	71.8	99.9%
Average Monthly Benefit	\$4,489	\$4,493	100.1%
Disabled Retirees			
Total Number	888	888	100.0%
Average Age	67.1	67.0	99.9%
Average Monthly Benefit	\$1,762	\$1,762	100.0%
Beneficiaries			
Total Number	3,981	3,980	100.0%
Average Age	76.3	76.3	100.0%
Average Monthly Benefit	\$2,342	\$2,341	100.0%
Vested Terminated Members			
Total Number	8,588	8,647	100.7%
Average Age	44.5	44.5	100.0%

Valuation Replication Results



OPEB Inactive Data Summary as of June 30, 2019

	Segal	Cheiron	Ratio
Retirees			
Number of Non-Disabled	13,609	13,546	99.5%
Number of Disabled	334	330	98.8%
Total Number	<u>13,943</u>	<u>13,876</u>	99.5%
Average Age	71.9	71.9	100.0%
Beneficiaries			
Total Number	1,848	1,809	97.9%
Average Age	79.6	79.6	99.9%
Vested Terminated Members			
Total Number	1,474	1,528	103.7%
Average Age	50.9	50.9	100.1%

Demographic Assumption Review



- Mortality
- Retirement
 - Current active members
 - Current and future deferred vested members
- Rates of Reciprocity
- Other Demographic Assumption
 - Disability and termination rates
 - Merit and promotional pay increases
 - Miscellaneous assumptions
- OPEB Assumptions
 - Medical trend rates



- Investment Return
 - Reviewed and support Segal's recommended move from 7.25% to 7.0%
 - 7.25% rate adopted by Board also considered reasonable
 - Risk adjustment: geometric vs. arithmetic
 - Investment expenses
- Inflation
 - Reviewed and support Segal's recommended move from 3.0% to 2.75%
 - 3.00% rate adopted by Board also considered reasonable, but Board should continue to monitor



- The actuarial methods are reasonable and in compliance with the Actuarial Standards of Practice
 - **Actuarial Cost Method:** Individual Entry-Age Normal
 - **Asset Smoothing Method:** 7-year smoothing period for actuarial investment gains and losses, with 40% corridor around market value
 - **Amortization Policy:** 15-year closed periods for actuarial gains and losses and plan changes, 20-year period for assumption and method changes

Contents of Reports



		June 30, 2019	June 30, 2018
		% of Payroll	% of Payroll
Employer Contribution Rates:⁽¹⁾	<u>Tier 1</u>		
	• At the beginning of the year	25.00%	24.98%
	• On July 15	25.08%	25.06%
	• At the end of each pay period	25.90%	25.88%
	<u>Tier 3</u>		
	• At the beginning of the year	22.13%	22.05%
	• On July 15	22.20%	22.12%
	• At the end of each pay period	22.92%	22.85%
	<u>Combined</u>		
	• At the beginning of the year	24.56%	24.67%
	• On July 15	24.63%	24.75%
	• At the end of each pay period	25.43%	25.56%

⁽¹⁾ There is a 12-month delay until the rate is effective.

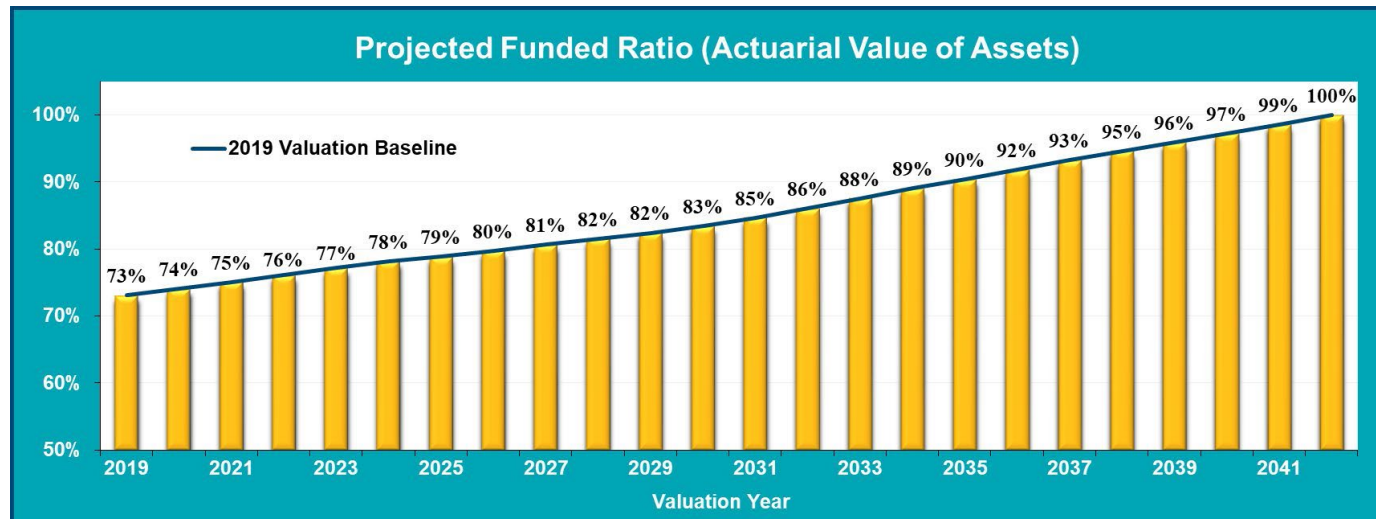
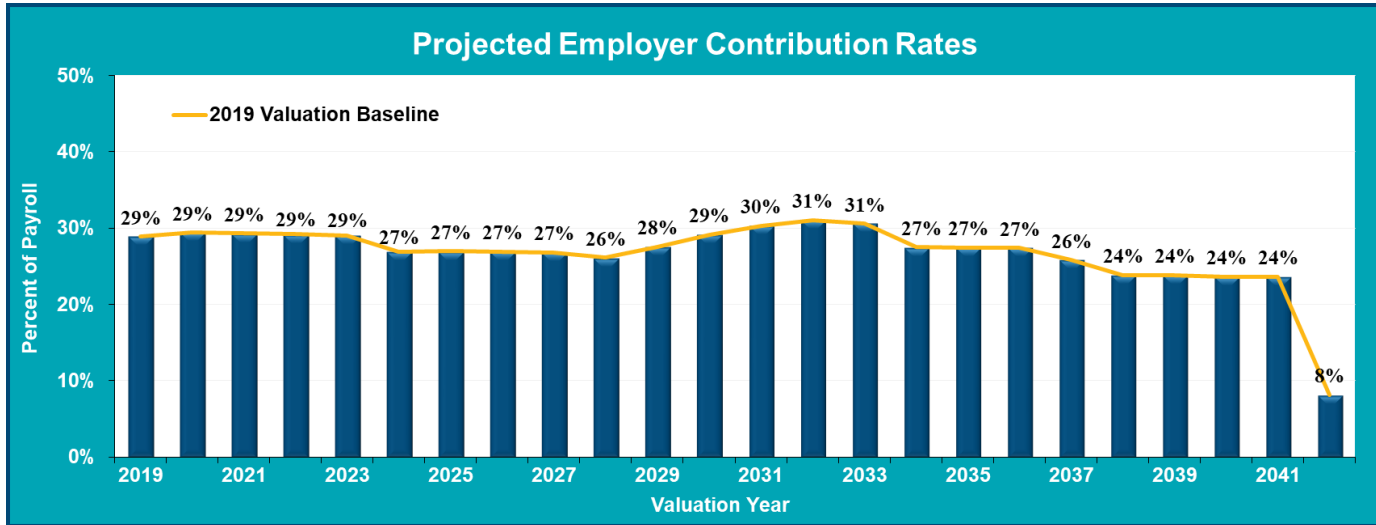
		June 30, 2019	June 30, 2018
Actuarial Accrued Liability:	• Retired members and beneficiaries	\$11,620,004,477	\$10,778,202,813
	• Inactive vested members	516,719,939	485,374,682
	• Active members	8,656,696,727	8,681,001,563
	• Total Actuarial Accrued Liability	20,793,421,143	19,944,579,058
	• Normal Cost for plan year beginning June 30	374,967,243	370,409,073
Assets:	• Market Value of Assets (MVA) ⁽¹⁾	\$17,707,909,933	\$16,989,616,344
	• Actuarial Value of Assets (AVA) ⁽¹⁾	17,711,461,636	16,687,907,767
	• AVA as a percentage of MVA	100.0%	98.2%
	• Valuation Value of Retirement Assets (VVA)	\$14,818,564,427	\$13,982,435,465
	• Market Value of Retirement Assets (MVA)	14,815,592,841	14,235,230,528
Funded status:	• Unfunded Actuarial Accrued Liability (UAAL) on VVA basis	\$5,974,856,716	\$5,962,143,593
	• Funded ratio on VVA basis for retirement (VVA/AAL)	71.27%	70.11%
	• UAAL on MVA basis	\$5,977,828,302	\$5,709,348,530
	• Funded ratio on MVA basis for retirement (MVA/AAL)	71.25%	71.37%
Key assumptions:	• Net investment return	7.25%	7.25%
	• Price Inflation	3.00%	3.00%
	• Payroll growth	3.50%	3.50%

⁽¹⁾ Includes assets for Retirement, Health, Family Death, and Larger Annuity Benefits.

Projection Samples



Investment results as assumed, 7.25% each year





The purpose of this presentation is to provide the results of our independent audit of the June 30, 2019 Actuarial Valuation of the Los Angeles City Employees' Retirement System.

In preparing this presentation, we relied on information, some oral and some written, supplied by the Los Angeles City Employees' Retirement System and Segal. This information includes, but is not limited to, the plan provisions, member data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

Future results may differ significantly from this presentation due to such factors as the following: plan experience differing from that anticipated by the assumptions; changes in assumptions; and changes in plan provisions or applicable law.

This presentation and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this presentation. This presentation does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Cheiron's presentation was prepared exclusively for the Los Angeles City Employees' Retirement System Audit Committee and Board of Administration for the purposes described herein. Other users of this presentation are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Graham Schmidt, ASA, FCA, MAAA, EA
Consulting Actuary

Anne Harper, FSA, MAAA, EA
Principal Consulting Actuary

BOARD Meeting: 04/28/20
Item VI – D
Attachment 2

Los Angeles City Employees’ Retirement System

**Audit of the June 30, 2019
Actuarial Valuation, and
Review of the Experience Study
(July 1, 2014 through June 30, 2017)**

Produced by Cheiron

April 2020

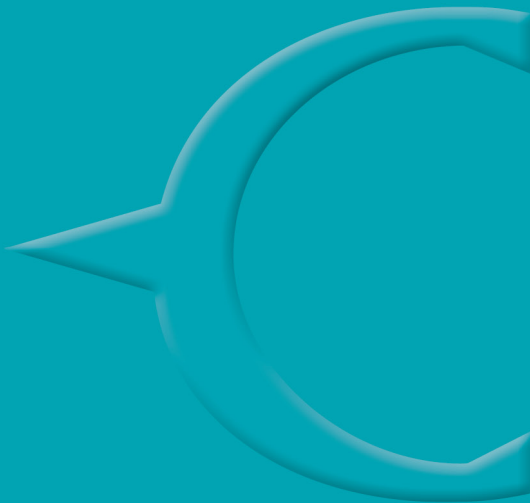


TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
	Letter of Transmittal	i
Section I	Executive Summary	1
Section II	Review of Retirement Valuation Results.....	4
Section III	Review of Health Valuation Results.....	9
Section IV	Review of Actuarial Assumptions	12
Section V	Review of Actuarial Methods	20
Section VI	Contents of Reports.....	22
 <u>Appendix</u>		
Appendix A	Glossary of Terms.....	25

Via Electronic Mail

April 8, 2020

The Audit Committee and the Board of Administration
Los Angeles City Employees' Retirement System
202 W. First Street, Suite 500
Los Angeles, CA 90012-4401

Members of the Committee and the Board:

Cheiron is pleased to present the results of our actuarial audit of the June 30, 2019 Actuarial Valuation and Review of the Los Angeles City Employees' Retirement System (LACERS) and the July 1, 2014 through June 30, 2017 Experience Study performed by Segal Consulting (Segal). We would like to thank Segal for providing us with information and explanations that facilitated the actuarial audit process and ensured that our findings are accurate and benefit LACERS.

We direct your attention to the executive summary section of our report that highlights the key findings of our review. The balance of the report provides details in support of these findings along with supplemental data, background information, and discussion of the process used in the evaluation of the work performed by Segal.

In preparing our report, we relied on information (some oral and some written) supplied by LACERS and Segal. This information includes, but is not limited to, actuarial assumptions and methods adopted by LACERS, the plan provisions, employee data, and financial information.

We performed an informal examination of the obvious characteristics of the data for reasonableness in accordance with Actuarial Standard of Practice No. 23. A detailed description of all information provided for this review is provided in the body of our report.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Members of the Board
Los Angeles City Employees' Retirement System
April 8, 2020
Page ii

This report was prepared exclusively for the Los Angeles City Employees' Retirement System for the purpose described herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other users.

Sincerely,
Cheiron



Anne D. Harper, FSA, MAAA, EA
Principal Consulting Actuary



Graham A. Schmidt, ASA, FCA, MAAA, EA
Consulting Actuary



James A. Summers, FSA, MAAA
Consulting Actuary

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION I – EXECUTIVE SUMMARY

Scope of Assignment

Cheiron performed a complete independent replication of the LACERS June 30, 2019 Actuarial Valuations for the Retirement Plan and the Other Postemployment Benefits. We reviewed the census data provided by LACERS staff, and compared it to the information used by Segal in their valuations. We then performed a full parallel valuation, including the calculation of the projected benefits, Actuarial Liability, and normal cost for all LACERS members, and compared the results to those shown in Segal's actuarial valuation report.

Additionally, Cheiron performed a review of the assumptions and actuarial methods recommended by Segal in the Actuarial Experience Study covering the period from July 1, 2014 to June 30, 2017.

The basic objectives of our review are to answer three questions:

1. Given the assumptions applied, are the valuation results (benefit flows, liabilities, and actuarial costs) accurate?
2. Are the valuation results based upon reasonable actuarial assumptions and methods, and are they in full compliance with Actuarial Standards of Practice (ASOPs)?
3. Is the actuarial information being provided to LACERS comprehensive? Does the LACERS Board have the information required to assess the present and future financial status of the Plans?

Our review included an analysis of each of the following:

- We collected both raw member data from LACERS and edited data from Segal. We performed an independent analysis on the raw data to confirm the member information used in the actuarial valuations.
- We reviewed and evaluated the actuarial methods and assumptions displayed in the valuation reports, and reviewed the results and recommendations made in the last experience study.
- We independently determined plan liabilities, assets and costs, and compared them to those presented in the valuation reports and in separate detailed results provided to us by Segal.
- In addition to the assets, liabilities, and costs shown in the valuation reports, we also reviewed the content of the reports for completeness and compliance with Actuarial Standards of Practice.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION I – EXECUTIVE SUMMARY

This audit provides LACERS confirmation that:

- The results reported by Segal can be relied upon,
- Segal's actuarial valuation report, assumptions and methods comply with Actuarial Standards of Practice (ASOP), and
- The communication of the actuarial valuation results is complete and reasonable.

Key Findings and Recommendations

The main findings of our review are as follows:

1. As a result of our efforts, we are able to confirm that the liabilities and costs computed in the valuations as of June 30, 2019 are materially accurate and were computed in accordance with generally accepted actuarial principles. For the scope of this audit, materiality means the results in the aggregate are within industry standards of plus or minus 5%.
2. We have reviewed the economic and demographic assumptions recommended in the most recent Actuarial Experience Study presented by Segal. We have found them to be reasonable and in accordance with generally accepted actuarial principles. In particular, we support Segal's recommendation to reduce the inflation assumption from 3.00% to 2.75% and the discount rate from 7.25% to 7.00%. We also support their recommendation of a change to use generational mortality assumptions. However, we strongly suggest Segal review the methodology used to analyze the mortality assumption for the base tables.

Our primary recommendations are related to the assumptions, and are summarized as follows:

- Cheiron determined the demographic assumptions proposed in Segal's Experience Study to be generally reasonable and in compliance with acceptable standards of actuarial practice. However, we have a few recommendations Segal should consider at the time of the next experience study:
 - We strongly suggest, similar to our recommendation in the June 30, 2012 actuarial audit, that Segal use a benefit-weighted approach to developing LACERS' mortality assumption.
 - Review the rates of vested terminated members retiring from reciprocal and non-reciprocal status when determining the likelihood of future terminating members establishing reciprocity and the newly terminated employees during the experience study period, rather than just basing the assumption on the percentage of all terminated members reporting reciprocity.
 - Disclose the number of exposures, actual and expected decrements, and the actual-to-expected ratios for each of the demographic assumptions. Providing this information will also allow better assessment of what credibility to give the observed experience versus the rates developed based on the historical experience.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION I – EXECUTIVE SUMMARY

- Overall, the economic assumptions proposed in Segal’s review represent a reasonable set of assumptions. However, we have two comments – explained in detail later in our report – related to the “risk adjustment” and active management expense methodologies that Segal employs in developing their recommendations for the assumed rate of return. We note that accounting for these two issues will tend to push the recommended rate in opposite directions, and will thus offset each other. Accordingly, we still consider the rate recommended by Segal (7.0%) to be a reasonable assumption.
- We commend Segal for including projections of the outstanding balance of the Unfunded Actuarial Liability (UAL) and UAL payment projections on pages 54-55 of the valuation report. However, we suggest that Segal also include projections of the employer contribution rate and funded status in their report to help the LACERS Board and stakeholders understand the dynamics of their actuarial funding policies and the impact of the new benefit tiers on the future costs of the system.
- We recommend a longer grading period for the medical trends to reach the ultimate level such as what can be developed using the Getzen Model of Long-Run Medical Cost Trends published by the Society of Actuaries. Additional details supporting this change in health trend setting methodology are provided in Section V, Review of Actuarial Methods.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION II – REVIEW OF RETIREMENT VALUATION RESULTS

Valuation Procedures

Overall, we find that the June 30, 2019 actuarial valuation procedures applied in the reporting of the funded status and the determination of the funding requirements based on the current funding policies and adopted assumptions are technically reasonable and conform to the ASOPs. Using the same actuarial assumptions and methods, census data, and plan provisions from the June 30, 2019 valuation report, we independently calculated the valuation results below:

- Present value for future benefits
- Actuarial Liability
- Unfunded Actuarial Liability
- Normal cost
- Contributions as a dollar amount and as a percentage of payroll

Valuation Results

Our independent replication of the June 30, 2019 actuarial valuation found no material difference in calculations of plan liabilities, normal costs, Actuarial Value of Assets, and overall contribution rates from the amounts calculated by Segal based on the adopted assumptions and methods. There is an industry standard when performing audits that results should be within 5.0% to allow for differences in valuation systems and differences in methodology approaches.

Our replication of the measures of retirement plan liabilities and costs is summarized in Table II-1 below. We note that all results are within 5% of Segal's calculation. Consequently, we conclude that the valuation prepared by Segal for LACERS as of June 30, 2019 is reasonable and can be relied on by the Board for its intended purpose.

Table II-1			
Retirement Plan Valuation Results as of June 30, 2019			
	Segal	Cheiron	Ratio
Present Value of Future Benefits	\$ 23,735,641,420	\$ 23,733,525,494	100%
Actuarial Liability	\$ 20,793,421,143	\$ 20,779,001,429	100%
Valuation Value of Assets (VVA)	<u>14,818,564,427</u>	<u>14,818,564,427</u>	100%
Unfunded Actuarial Liability (UAL)	\$ 5,974,856,716	\$ 5,960,437,002	100%
Funded Ratio on VVA basis	71.3%	71.3%	100%
Contribution Rate by Component (BOY)			
Net Employer Normal Cost	6.23%	6.07%	97%
UAL Payment Rate	<u>18.33%</u>	<u>18.26%</u>	100%
Total Employer Contribution	24.56%	24.34%	99%

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION II – REVIEW OF RETIREMENT VALUATION RESULTS

To confirm that the match is close across all Tiers, we show a comparison of the Retirement Plan liabilities for each Tier below in Tables II-2 and II-3. We note that all results are within the 5% threshold for the total Retirement Plan, Tier 1, and Tier 1 Enhanced Benefits for APO.

Table II-2						
Retirement Plan Liabilities as of June 30, 2019						
(\$ in millions)						
	Tier 1			Tier 1 APO Enhanced Benefits		
	Segal	Cheiron	Ratio	Segal	Cheiron	Ratio
Present Value of Future Benefits						
Inactive members	\$ 12,061.5	\$ 12,054.9	100%	\$ 69.2	\$ 69.0	100%
Active members	<u>10,670.3</u>	<u>10,682.3</u>	100%	<u>321.4</u>	<u>322.7</u>	100%
Total	\$ 22,731.9	\$ 22,737.2	100%	\$ 390.6	\$ 391.7	100%
Actuarial Liability						
Inactive members	\$ 12,061.5	\$ 12,054.9	100%	\$ 69.2	\$ 69.0	100%
Active members	<u>8,338.5</u>	<u>8,343.9</u>	100%	<u>239.4</u>	<u>242.7</u>	101%
Total	\$ 20,400.0	\$ 20,398.8	100%	\$ 308.6	\$ 311.7	101%
Present Value of Future Normal Cost	\$ 2,331.9	\$ 2,338.4	100%	\$ 81.9	\$ 80.0	98%

Table II-3						
Retirement Plan Liabilities as of June 30, 2019						
(\$ in millions)						
	Tier 3			Total Retirement Plan		
	Segal	Cheiron	Ratio	Segal	Cheiron	Ratio
Present Value of Future Benefits						
Inactive members	\$ 6.0	\$ 6.0	100%	\$ 12,136.7	\$ 12,129.9	100%
Active members	<u>607.2</u>	<u>598.6</u>	99%	<u>11,598.9</u>	<u>11,603.6</u>	100%
Total	\$ 613.2	\$ 604.6	99%	\$ 23,735.6	\$ 23,733.5	100%
Actuarial Liability						
Inactive members	\$ 6.0	\$ 6.0	100%	\$ 12,136.7	\$ 12,129.9	100%
Active members	<u>78.8</u>	<u>62.5</u>	79%	<u>8,656.7</u>	<u>8,649.1</u>	100%
Total	\$ 84.8	\$ 68.5	81%	\$ 20,793.4	\$ 20,779.0	100%
Present Value of Future Normal Cost	\$ 528.4	\$ 536.1	101%	\$ 2,942.2	\$ 2,954.5	100%

We note that the calculation of the Tier 3 Actuarial Liability for active members is 21% lower than Segal's calculation. It is not unusual for there to be differences in the allocation of the total present value of benefits into past and future amounts (the Actuarial Liability and present value of future normal costs, respectively) due to the different valuation systems and minor differences

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION II – REVIEW OF RETIREMENT VALUATION RESULTS

in programming, particularly for groups like Tier 3 where the members have low levels of service. We are not concerned with these differences if they offset each other (where Cheiron's present value of future normal cost for Tier 3 shown in Table II-3 above are higher than Segal's, but our Actuarial Liability for Tier 3 in Table II-3 are lower) and when the projected value of benefits match is so close (within 1%), as it is in our analysis.

Our replication of the employer contribution amounts and rates by Tier is shown below in Table II-4. All calculations are assuming contributions are payable at the beginning of the year. We note that the total employer rates by Tier are all within the 5% threshold.

Table II-4						
Retirement Plan Contribution Comparison as of June 30, 2019						
(\$ in millions)						
	Segal		Cheiron		Ratio	
	Amount	% of Payroll	Amount	% of Payroll	Amount	% of Payroll
Total Retirement Plan						
Total Normal Cost	\$ 375.0	16.85%	\$ 371.8	16.69%	99%	99%
Expected Employee Contributions	<u>236.3</u>	<u>10.62%</u>	<u>236.5</u>	<u>10.62%</u>	100%	100%
Employer Normal Cost	\$ 138.6	6.23%	\$ 135.2	6.07%	97%	97%
UAL Payment Rate	<u>407.9</u>	<u>18.33%</u>	<u>406.7</u>	<u>18.26%</u>	100%	100%
Total Employer Contribution	\$ 546.5	24.56%	\$ 542.0	24.34%	99%	99%
Tier 1						
Total Normal Cost	\$ 324.8	17.30%	\$ 320.6	17.07%	99%	99%
Expected Employee Contributions	<u>199.4</u>	<u>10.63%</u>	<u>199.6</u>	<u>10.62%</u>	100%	100%
Employer Normal Cost	\$ 125.4	6.67%	\$ 121.1	6.44%	97%	97%
UAL Payment Rate	<u>344.1</u>	<u>18.33%</u>	<u>343.2</u>	<u>18.26%</u>	100%	100%
Total Employer Contribution	\$ 469.5	25.00%	\$ 464.2	24.71%	99%	99%
Tier 3						
Total Normal Cost	\$ 50.2	14.42%	\$ 51.1	14.69%	102%	102%
Expected Employee Contributions	<u>36.9</u>	<u>10.62%</u>	<u>37.0</u>	<u>10.62%</u>	100%	100%
Employer Normal Cost	\$ 13.2	3.80%	\$ 14.2	4.07%	107%	107%
UAL Payment Rate	<u>63.8</u>	<u>18.33%</u>	<u>63.6</u>	<u>18.26%</u>	100%	100%
Total Employer Contribution	\$ 77.0	22.13%	\$ 77.8	22.34%	101%	101%

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION II – REVIEW OF RETIREMENT VALUATION RESULTS

Census Data

The LACERS Staff and Segal provided us with the data that was used in the June 30, 2019 actuarial valuation. We reviewed the information in both files and find that the data used in the valuation is valid, complete, and contains the necessary data elements for purposes of performing the actuarial valuation of LACERS.

We also find that the methods and requirements provided in the Actuarial Standard of Practice No. 23 *Data Quality* have been adhered to, to the extent applicable for the valuation of pension plan obligations.

In Table II-5 below and Table II-6 on the following page, we compare the raw June 30, 2019 data file provided by LACERS to Segal’s processed data file and found only very minor differences between the files.

Table II-5 Retirement Plan Active Member Data as of June 30, 2019			
	Segal	Cheiron	Ratio
Tier 1 Active Members			
Total Number	21,226	21,226	100.0%
Average Age	49.6	49.6	99.9%
Average Service	16.2	16.2	100.0%
Projected Compensation	\$1,877,504,719	\$1,878,856,066	100.1%
Average Compensation	\$88,453	\$88,517	100.1%
Tier 3 Active Members			
Total Number	5,406	5,406	100.0%
Average Age	37.0	37.0	100.1%
Average Service	1.6	1.6	101.3%
Projected Compensation	\$347,908,112	\$348,124,794	100.1%
Average Compensation	\$64,356	\$64,396	100.1%

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION II – REVIEW OF RETIREMENT VALUATION RESULTS

Table II-6 Retirement Plan Data Summary as of June 30, 2019			
	Segal	Cheiron	Ratio
Active Members			
Total Number	26,632	26,632	100.0%
Average Age	47.0	47.0	100.0%
Average Service	13.2	13.2	100.3%
Projected Compensation	\$2,225,412,831	\$2,226,980,860	100.1%
Average Compensation	\$83,562	\$83,620	100.1%
Account Balances	\$2,266,740,475	\$2,268,676,978	100.1%
Service Retirees			
Total Number	15,165	15,168	100.0%
Average Age	71.9	71.8	99.9%
Average Monthly Benefit	\$4,489	\$4,493	100.1%
Disabled Retirees			
Total Number	888	888	100.0%
Average Age	67.1	67.0	99.9%
Average Monthly Benefit	\$1,762	\$1,762	100.0%
Beneficiaries			
Total Number	3,981	3,980	100.0%
Average Age	76.3	76.3	100.0%
Average Monthly Benefit	\$2,342	\$2,341	100.0%
Vested Terminated Members			
Total Number	8,588	8,647	100.7%
Average Age	44.5	44.5	100.0%

Plan Provisions

We compared the summary of plan provisions shown in Section 4, Exhibit II of Segal's June 30, 2019 Valuation Report to the benefits in Division 4, Chapter 10 of the Los Angeles City Administrative Code. In general, the plan provisions shown in Segal's exhibit match what is in the Administrative Code, and based on our close match of the Segal liabilities as part of our parallel valuation, we conclude that Segal has appropriately reflected these provisions in the actuarial valuation.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION III – REVIEW OF HEALTH VALUATION RESULTS

Valuation Procedures

Overall, we find that the June 30, 2019 actuarial valuation procedures applied in the reporting of the funded status and the determination of the funding requirements based on the current funding policies and adopted assumptions are technically reasonable and conform to the ASOPs. This is based on our review of: the valuation report, the census data used in the valuation, and our parallel valuation using the information described above.

Valuation Results

Our independent replication of the June 30, 2019 actuarial valuation found no material difference in calculations of plan liabilities, normal costs, Actuarial Value of Assets, and overall contribution rates from the amounts calculated by Segal based on the adopted assumptions and methods. We note that all results are within 5% of Segal's calculation. See Table III-1 below. Consequently, we conclude that the valuation prepared by Segal for LACERS as of June 30, 2019 is reasonable and can be relied on by the Board for its intended purpose.

Table III-1			
OPEB Plan Valuation Results as of June 30, 2019			
	Segal	Cheiron	Ratio
Present Value of Future Benefits	\$ 3,981,517,502	\$ 3,988,484,334	100%
Actuarial Liability	\$ 3,334,298,549	\$ 3,342,852,146	100%
Valuation Value of Assets (VVA)	<u>2,812,661,894</u>	<u>2,812,661,894</u>	100%
Unfunded Actuarial Liability (UAL)	\$ 521,636,655	\$ 530,190,252	102%
Funded Ratio on VVA basis	84.4%	84.1%	100%
Contribution by Component			
<i>Dollar Amount (BOY)</i>			
Net Employer Normal Cost	\$ 76,422,769	\$ 77,742,638	102%
UAL Payment Rate	<u>23,236,922</u>	<u>23,236,922</u>	100%
Total Employer Contribution	\$ 99,659,691	\$ 100,979,560	101%
<i>Rate as % of Payroll (BOY)</i>			
Net Employer Normal Cost	3.43%	3.49%	102%
UAL Payment Rate	<u>1.04%</u>	<u>1.04%</u>	100%
Total Employer Contribution	4.47%	4.53%	101%

The OPEB plan benefits are the same for members in Tier 1 and Tier 3, and thus we have not shown the detail by Tier as was shown for the retirement plan benefits.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION III – REVIEW OF HEALTH VALUATION RESULTS

Census Data

The LACERS Staff and Segal provided us with the data that was used in the June 30, 2019 actuarial valuation. We reviewed the information in both files and find that the data used in the valuation is valid, complete, and contains the necessary data elements for purposes of performing the actuarial valuation of LACERS.

We also find that the methods and requirements provided in the Actuarial Standard of Practice No. 23 *Data Quality* have been adhered to, to the extent applicable for the valuation of other postemployment benefit obligations.

In Table III-5 below, we compare the raw June 30, 2019 inactive data file provided by LACERS to Segal’s processed data file and found only very minor differences between the files. The active member data is the same as the retirement plan data.

Table III-2 OPEB Inactive Data Summary as of June 30, 2019			
	Segal	Cheiron	Ratio
Retirees			
Number of Non-Disabled	13,609	13,546	99.5%
Number of Disabled	334	330	98.8%
Total Number	13,943	13,876	99.5%
Average Age	71.9	71.9	100.0%
Beneficiaries			
Total Number	1,848	1,809	97.9%
Average Age	79.6	79.6	99.9%
Vested Terminated Members			
Total Number	1,474	1,528	103.7%
Average Age	50.9	50.9	100.1%

Segal excludes 54 deferred disabled members from their inactive member count of 1,474 at June 30, 2019 on page 17 of the OPEB valuation report. Deferred disableds do not receive a retiree health subsidy until age 55. The 54 are identified when they reconcile to the pension data on page 20 of the report. Segal assured us that they include their deferred benefit in the valuation. We suggest Segal consider whether the counts on page 17 should be adjusted in future reports to reflect these deferred members if they are being included in the valuation liabilities.

Also on page 20 of the OPEB valuation report, there are members for each valuation status that are “eligible for future health benefits” that are subtracted from the pension valuation counts to arrive at the health valuation counts. We recommend that Segal make a similar consideration as to whether these members should be included in the status counts if a liability is valued for these members.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION III – REVIEW OF HEALTH VALUATION RESULTS

There are several footnotes in the OPEB and GASB 74 report documenting that “other losses include the recognition for the first time of the liability for about 250 retirees receiving a premium reimbursement for health plans not sponsored by LACERS. Data for those retirees are not included in the regular retiree membership data as members receiving a medical subsidy from LACERS, and were provided separately for the first time for this valuation.” We recommend Segal clarify whether this is specifically referring to the Medical Premium Reimbursement Program (MPRP), which does receive annual mention regarding Medicare Part B premium reimbursement. We also believe it would be helpful if Segal indicated how much of the Chart 2, row 8, \$38,443,686 in other losses is attributable to this first time update. Segal indicated the retiree counts in the current report included this group of about 250 members.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION IV – REVIEW OF ACTUARIAL ASSUMPTIONS

Demographic Assumptions

The June 30, 2019 actuarial valuation was based on the assumptions adopted by the LACERS Board, based on recommendations made by Segal in the actuarial experience study covering the three-year period ending June 30, 2017.

Mortality

Segal recommended that LACERS adopt a new approach for developing mortality assumptions based on the generational projection of mortality improvements, which is step #4 in the building blocks for developing mortality assumptions typically used by most actuaries.

1. Select a standard mortality table based on experience most closely matching the anticipated experience of the System.
2. Compare the actual experience of the System to that predicted by the selected standard table for the period of the experience study.
3. Adjust the standard table, either fully or partially, depending on the level of credibility for the System's experience. This adjusted table is called the base table.
4. Select an appropriate standard mortality improvement projection scale and apply it to the base table.

We strongly support the recommended change to the generational mortality approach. However, we have issues with the application of steps #1-3 in Segal's experience study.

Benefit vs. Headcount-Weighted

Our issues with steps #1 and #2 are related, and have to do with the fact that mortality studies in the U.S. have consistently shown that higher income individuals have longer life expectancies than lower income individuals. Because higher income individuals also typically have higher pension benefit amounts, it is important for a pension plan to use assumptions that are weighted to reflect the impact on liability. Otherwise, the mortality assumptions could accurately predict the number of deaths at each age, but still underestimate the liabilities, if the higher-benefit members are outliving the lower-benefit members.

Segal briefly mentioned the benefit-weighted approach in their experience study report and stated that the "RP-2014 benefit-weighted mortality tables were prepared without any data from public and multi-employer pension plans" as their justification for not using the standard RP-2014 Tables, which are benefit-weighted. However, the headcount-weighted RP-2014 Tables were also developed without any data from public and multi-employer pension plans.

The report published by the Retirement Plans Experience Committee (RPEC) that accompanied the release of the RP-2014 tables clearly states, "*For the measurement of most pension obligations, tables weighted by benefit amount generally produce the most appropriate results.*"

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION IV – REVIEW OF ACTUARIAL ASSUMPTIONS

The report also describes a number of applications in which headcount-weighted tables may produce more accurate results, including estimates of average age at death, projections of retirement populations, and the measurement of OPEB plan obligations; the list of exceptions did not include the measurement of liabilities in traditional pay-related defined benefit plans.

One reason that RPEC recommends the use of the benefit-weighted tables for pension applications is that the behavior of the two tables are quite different: the mortality rates for the headcount-weighted tables are considerably higher at earlier ages, but gradually converge with the benefit-weighted rates at the highest ages. Using a headcount-weighted table will tend to overstate mortality rates in the early years of retirement, and understate it in later years, assuming the overall actual-to-expected ratio is close to 100% based on the number of deaths. Unless Segal has sufficient evidence to indicate that the pattern of mortality for LACERS looks closer to the headcount-weighted tables (measured on a liability-weighted basis), we believe the default should be to use a benefit-weighted table when a choice between such tables is available. Furthermore, in our audit of Segal's 2011 Experience Study, we had made the recommendation to consider examining the mortality experience weighted by benefit amounts rather than just participant counts for future studies.

The impact of using the standard benefit-weighted RP-2014 Annuitant and Employee Mortality Tables projected generationally with the MP-2017 improvement scale on the retirement plan would increase the Actuarial Liability by about \$254 million, and the funded ratio would decrease from 71.3% to 70.5%. In addition, the employer contribution rate for the retirement plan would increase by approximately 1.0% of payroll.

We commend Segal for highlighting longevity risk as a primary risk in their new Risk Assessment section of their June 30, 2019 actuarial valuation report. They recognized that longevity risk “can be reduced by using tables appropriate for the Plan (public experience tables) that are weighted by benefit levels...” But subsequently, in their Risk Assessment report published in February 2020, they say that “it is premature to estimate the impact of applying these new mortality tables (SOA's Pub-2010) on employer contribution rates until we perform the next triennial experience study.” The new Actuarial Standard of Practice (ASOP) No. 51 specifically addresses sensitivity testing, a process for measuring the impact of a change in an actuarial assumption, as a method for assessing risk. We note that Segal themselves included a sensitivity test related to the use of benefit-weighted mortality tables in their experience study report.

We disagree that providing a cost estimate of the impact of the newly released Society of Actuaries' public retirement plan mortality tables (Pub-2010) requires a full experience analysis, especially within the context of ASOP No. 51 and Segal's stand-alone Risk Assessment report. The SOA developed separate mortality tables based on whether the members were classified as general, safety, or teachers and are income-dependent (median income levels for general males and females are \$21,239 and \$11,872, respectively) and gender-based. In our professional judgment, using the General Above-Median mortality tables as a proxy for sensitivity testing is reasonable, given the nature of the System's participants and the average annual pension benefit for healthy annuitants is \$48,500 (more than double the median for male retirees only).

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION IV – REVIEW OF ACTUARIAL ASSUMPTIONS

The impact of using Pub-2010 General Above-Median group of mortality tables, projected generationally with the MP-2019 improvement scale (the most recent projection scale, released in the fall of 2019) would increase the Actuarial Liability by approximately \$519 million, and the funded ratio would decrease from 71.3% to 69.6%. In addition, the employer contribution rate for the retirement plan would increase by approximately 2.0% of payroll from the June 30, 2019 valuation results.

Based on the results under these two different sets of mortality tables – one correlated to LACERS' current headcount-weighted tables, and one based on public sector pension plan data for General members with a similar income profile – it is reasonable to conclude that a 1.0% to 2.0% of pay increase in the LACERS' employer contribution rate could result from moving from headcount-weighted to benefit-weighted mortality tables. The actual impact on the retirement plan will depend on LACERS' own mortality experience during the next experience study period.

Credibility

Very few pension plans have sufficient experience to develop their own mortality tables. Most plans instead adjust a standard table (step #3) to provide a reasonable match their own experience. However, with approximately 1000 deaths necessary for full credibility (defined by a 90% probability that the observed rate is within 5% of the true rate) and actual mortality rates quite low at most ages, many plans lack sufficient data to perform even a full adjustment to a standard table (i.e., adjust the tables so the actual-to-expected ratio based on the plan's data is close or equal to 100%).

For the pre-retirement mortality assumption, Segal recommended a 90% adjustment to the Headcount-Weighted RP-2014 Employee Mortality Table without showing any experience data and without substantiating the credibility needed to perform that adjustment. Typically, when there is very little actual experience, which is usually the case with active member mortality experience, significant adjustments to the standard table are not made. For future reports, we suggest that Segal provide the active mortality experience data and consider the credibility of the data before making any adjustments to the standard table.

Optional Forms

Segal provided a letter on July 17, 2019 with their recommendation for determining actuarial assumptions for optional forms and annuity benefits and we concur that their approach is reasonable. Their recommendation is to use a static table with projected mortality improvement for 15 years, representing the approximate duration for active members expected to retire in the next three years based on the 2018 valuation data.

Another option is to develop factors using the full generationally-projected mortality tables, based on those computed for a member expected to retire at the mid-point of the time period to which the factors are expected to be used. This option is sometimes limited, however, by the constraints of the Plan's benefit administration software.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION IV – REVIEW OF ACTUARIAL ASSUMPTIONS

Rates of Reciprocity

As part of their last experience review, Segal recommended maintaining the assumption that 5% of inactive vested members will go on to be covered by a reciprocal retirement system. These assumptions are somewhat lower than the rates of reciprocity we have seen at other California systems.

Segal noted that they reviewed all the inactive member data and that approximately 4% were reported as being covered by a reciprocal system.

However, for many plans we work with, members do not report that they have established reciprocity with another system until just prior to retirement. Therefore, we generally request that the system provide us with the new retirees who have retired from inactive vested status during the study period, and determine what percentage of those individuals retired from a reciprocal system, rather than just looking at the percentage of current inactive vested members with reciprocity. In addition, we suggest that Segal review the members who terminated more recently (i.e., during the last two previous experience study period) to see if the experience differs from that of the entire inactive vested population.

We recommend at the time of the next experience study that Segal analyze the reciprocity assumption based on new retirements and recent terminations, instead of basing the assumption on the total inactive vested cohort.

Other Demographic Assumptions

We believe the analysis and assumptions proposed by Segal for the other demographic assumptions – including retirement and termination rates, merit and promotional pay increases, retirement age for inactive vested members, percentage married/domestic partner, and assumed spouse age differences – are reasonable based on the information presented, and consistent with the methods and assumptions we have seen used at other systems.

Similar to our recommendation in the June 30, 2012 actuarial valuation audit, we maintain that Segal should disclose the number of exposures, actual and expected decrements, and the actual-to-expected (A/E) ratios for each of the demographic assumptions. In addition to giving a reviewer the information necessary to evaluate the proposed assumptions, providing this information will also allow better assessment of what credibility to give the observed experience versus the rates developed based on the historical experience.

On the next page, we show an example of a chart that illustrates the results of a demographic assumption analysis. In this example, the actual retirement experience for general members who are eligible to retire with between 20 to 29 years of service is shown. Generally, the closer the actual-to-expected ratio is to 100%, the closer the assumptions align with the experience of the plan and are better predictors of future behavior.

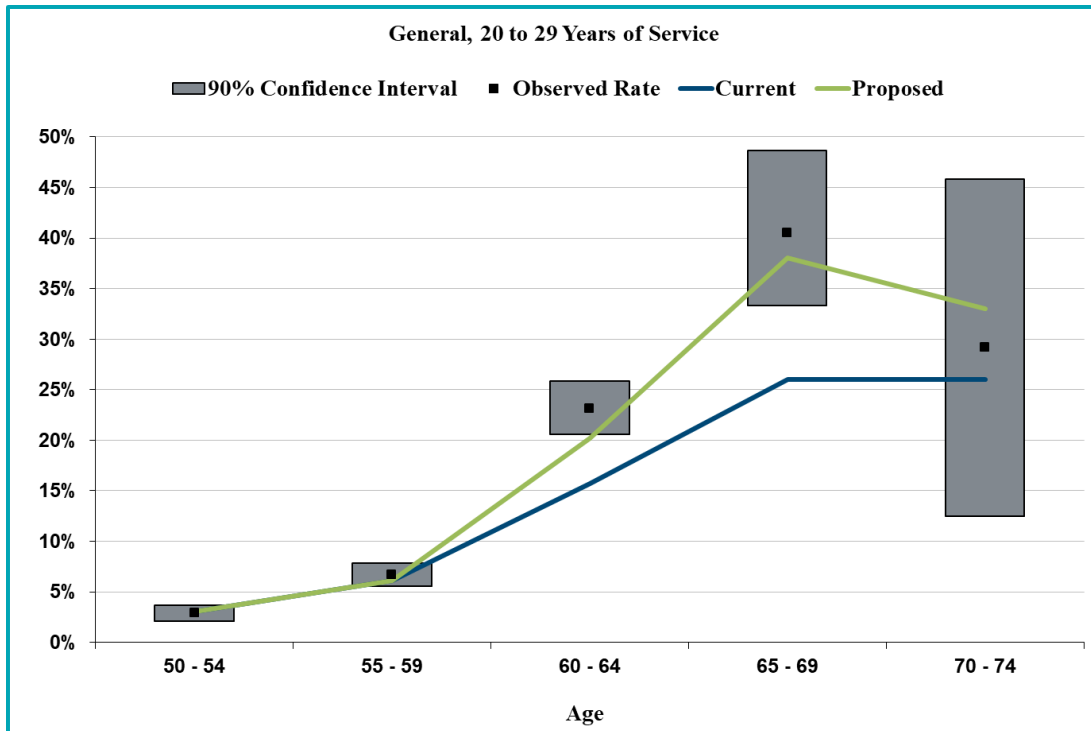
**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION IV – REVIEW OF ACTUARIAL ASSUMPTIONS

With the proposed assumption change, the number of assumed retirements increased from 268 to 315, closer to the actual number of retirements that was 343. The proposed assumption changes resulted in decreasing the A/E ratio for this group from 128% to 109%.

General, 20 to 29 Years of Service						
Age	Exposures	Retirements			Actual to Expected Ratios	
		Actual	Current	Proposed	Current	Proposed
50 - 54	1,316	38	39	40	96%	95%
55 - 59	1,329	89	82	82	109%	109%
60 - 64	709	164	111	143	147%	115%
65 - 69	111	45	29	42	156%	107%
70 - 74	24	7	6	8	112%	88%
Total	3,489	343	268	315	128%	109%
R-squared			93%	98%		

We also suggest performing a more in-depth analysis of retirement, termination, mortality, and disability incidence by developing confidence intervals for age or service ranges. In the example below, 90% confidence intervals are calculated, which represents the range within which the true decrement rate during an experience study period falls with 90% confidence. (If there is insufficient data to calculate a confidence interval, the confidence interval is shown as the entire range of the graph.) If the current assumption is outside the 90% confidence interval of the observed experience, it is a generally a good indicator that a change to the assumption should be considered (i.e. increasing the retirement rates for ages 60-69).



ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

SECTION IV – REVIEW OF ACTUARIAL ASSUMPTIONS

Economic Assumptions

Overall, the economic assumptions proposed in Segal's review represent a reasonable set of assumptions. In particular, we agree with Segal's recommendation to reduce the assumed rate of price inflation from 3.00% to 2.75%, and to reduce the investment return assumption from 7.25% to 7.00%, net of investment and administrative expenses. However, the decision to maintain the 7.25% assumed rate of return and 3.00% inflation rate are also reasonable. We encourage the Board and Segal to continue to monitor these assumptions since the current market environment and peer group comparisons with other California systems show support for lowering these assumptions.

We have comments, however, on the "risk adjustment" that Segal used in developing their return recommendation, as well as several other aspects of the economic assumptions.

Risk Adjustment

In their experience study report, Segal spends a significant amount of time discussing the concept of a "risk adjustment" – also referred to as a margin for adverse deviation. The following language is from their experience study report (page 16):

In our model, the confidence level associated with a particular risk adjustment represents the relative likelihood that future investment earnings would equal or exceed the assumed earnings over a 15-year period on an expected value basis.

In a footnote, they explain that the expected value basis means that:

*If a retirement system uses the expected **arithmetic** average return as the discount rate in the funding valuation, that retirement system is expected to have no surplus or asset shortfall relative to its expected obligations assuming all actuarial assumptions are met in the future.*

Another approach actuaries use in defining a "confidence level" answers the question: what is the likelihood the investment return will exceed the assumed return, when compounded over a given period of time? This approach is related to the average **geometric** return (rather than the average **arithmetic** return), which will always be lower than the arithmetic average. Both approaches are discussed in the applicable Actuarial Standards of Practice.

In the most recent experience study, Segal's "confidence level" model provided LACERS with a 58% likelihood that the arithmetic average investment return will exceed the recommended assumption of 7.00% over a 15-year period. We performed our own modeling of the confidence level using the geometric return approach and the sample of investment consultants that Segal used in developing their recommendations. We measured a 49% likelihood of achieving the 7.00% return after adjusting these returns for the 2.75% inflation assumption recommended by Segal and if the returns were reduced by 0.40% for the investment and administrative expenses identified by Segal.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION IV – REVIEW OF ACTUARIAL ASSUMPTIONS

To update this analysis, we modeled the confidence level based on NEPC's 2019 capital market assumptions, the target asset allocation adopted on April 10, 2018, and LACERS' assumed rate of return of 7.25% and 3.00% inflation assumption. We measured a 50% likelihood of achieving the current assumed return of 7.25%, net of administrative and investment expenses.

Investment Expenses

A frequent assumption used in setting return assumptions is that the additional returns earned due to active management will offset the higher level of expenses associated with active management. Instead of this approach, Segal assumes that additional expenses for active management simply reduce the return, which is a more conservative assumption but implies that – all other things being equal – Segal's model would result in a higher recommended return assumption if the Board were invested passively instead of using active managers. While there is much debate about this question among investment professionals, we prefer to remain neutral, assuming no advantage or disadvantage to active management.

Segal did note that only 1/3 of the investment expenses, approximately eight basis points, in 2017 were paid for expenses associated with active management. We note that the slight conservatism included in this approach may enhance the likelihood that the investment return assumption could be achieved on a compound basis, yet not enough to offset the impact from the risk adjustment issue identified above.

Inflation

We believe that both Segal's recommendation to move to a 2.75% inflation assumption and the Board's decision to maintain a 3.00% assumption represent a reasonable long-term assumption. However, we note that NEPC's inflation assumption for both the short-term (2.25%) and long-term (2.75%), as well as the inflation forecasts used by Social Security in their 2019 report (2.60%) and derived from 30-year Treasury bonds as of February 2020 (1.68%) are all still below the current inflation assumption of 3.00%.

While we understand that large and sudden changes in long-term assumptions can be disruptive to the employers and members, and we acknowledge that a 3.00% inflation assumption still represents a reasonable long-term expectation given historical rates, we recommend that Segal and the Board continue to monitor this assumption and consider further reductions if market-based inflation expectations remain low.

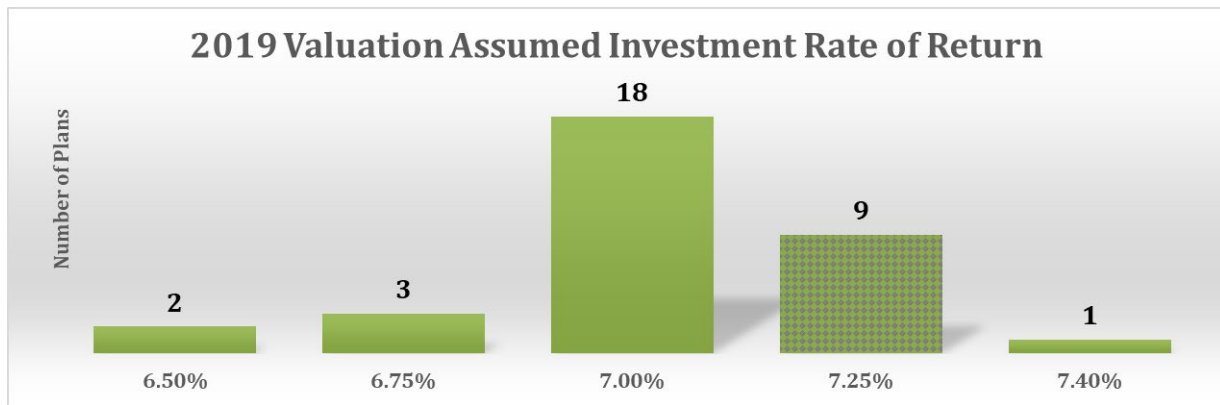
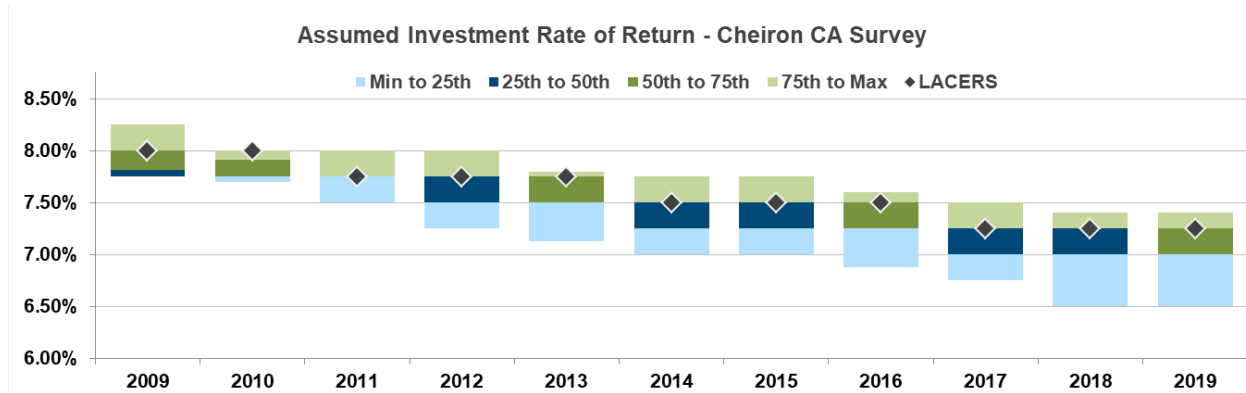
Comparison with Other California Public Retirement Systems

Each System has a unique asset allocation, which is the main driver in determining the portfolio's expected rate of investment return, along with the investment consultants' capital market assumptions for the respective asset classes. However, we would like to point out that there has been a significant trend over the last decade of public pension systems lowering their investment rate of return.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION IV – REVIEW OF ACTUARIAL ASSUMPTIONS

The graphs below show distribution of assumed investment rate of return for a sample of California public pension systems and the trend of lowering the assumed rate of return.



The median investment rate of return for most of the California pension systems is now 7.00%.

Other Economic Assumptions

We believe the analysis and assumptions proposed by Segal for the other economic assumptions – including “across the board” real pay increases, amortization payment growth, COLA growth, and crediting rate for employee contributions – are reasonable based on the information presented, and consistent with the methods and assumptions we have seen used at other systems.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION V – REVIEW OF ACTUARIAL METHODS

Actuarial Methods

Actuarial methods relate to the application of actuarial assumptions in the determination of Plan liabilities and contributions. These methods include the actuarial cost method, amortization policy, actuarial asset smoothing, and cost-sharing methodologies. The questions guiding our review of the actuarial methods were the following:

- Are the methods acceptable and appropriate for the intended purpose?
- Do the methods comply with relevant accounting and actuarial standards?

Actuarial Cost Method

The individual Entry Age Actuarial Cost Method is used in the June 30, 2019 actuarial valuation. Under this method, the expected cost of benefits for each individual member is allocated over that member's career as a level percentage of that member's expected salary. The normal cost for the plan is the sum of the individual normal costs calculated for each member. We concur with this methodology and note that it is a "Model Practice" based on the guidance issued by the California Actuarial Advisory Panel (CAAP), and a "Best Practice" based on guidance issued by the Government Finance Officers Association. Segal has also applied this method in a manner that complies with the disclosure requirements under GASB Statements 67 and 68.

Asset Smoothing Method

The Actuarial (or smoothed) Value of Assets is determined using a seven-year period, for investment gains and losses. The Actuarial Value of Assets is limited by a 40% corridor around the Market Value of Assets and we have confirmed that the Segal report applies the actuarial smoothing method as described.

Most other public plans we serve use a five-year smoothing period and incorporate either a 20% corridor below and above the Market Value of Assets or do not apply a corridor. We performed stochastic projections of funded ratios and employer contribution rates using both LACERS asset smoothing method and a five-year smoothing period with a 20% corridor. There was no measurable difference in the results between the two asset smoothing methods.

In our opinion, the method used by LACERS satisfies the Actuarial Standard of Practice, which governs asset valuation methods (ASOP No. 44), which requires that the actuarial asset value should fall within a "reasonable range around the corresponding market value" and that differences between the actuarial and the market value should be "recognized within a reasonable period of time." In fact, the Market Value and Actuarial Value of Assets were within 0.02% as of June 30, 2019.

We commend Segal for including the funded ratio and unfunded liability using both the market value and smoothed value of assets in their report. These disclosures are included in the "Model Disclosure Elements for Actuarial Valuation Reports" adopted by the CAAP.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION V – REVIEW OF ACTUARIAL METHODS

Amortization Policy

The current Amortization Policy for LACERS is a layered amortization policy, with the balance of the unfunded liability as of June 30, 2012 (with the exception of the 2009 ERIP and the two GASB 25/27 layers) amortized as a level percentage of payroll over a closed 30-year period (23 years remaining as of June 30, 2019). On or after June 30, 2004 each subsequent year's unfunded liability attributable to experience gains or losses is amortized as a level percentage of payroll over a new closed 15-year period, while assumption or method changes are amortized over separate 20-year periods. Plan amendments are amortized over closed 15-year periods and future early retirement incentive programs will be amortized over a period of up to five years.

We have confirmed that the Segal report applies the amortization method as described. This amortization method is in accordance with funding policy guidance issued by the CAAP, GFOA, and the Conference of Consulting Actuaries Public Plans Community.

We commend Segal for calculating and disclosing what is known as the “single equivalent amortization period” for the amortization schedule (about 20 years as of June 30, 2019). This provides the reader with an estimate of the “average” amortization period, and represents the length of time that would be required to amortize the overall UAL if the current UAL payment rate were held constant.

Medical Trends

We recommend a longer grading period for the medical trends to reach the ultimate level such as those that can be developed using the Getzen Model of Long-Run Medical Cost Trends published by the Society of Actuaries. A parameterized model where initial trends reflect short-term plan specific expectations and longer-term trends are based on economic assumptions provides a more dynamic assessment than survey data. The actuary provides input on the long-term model parameters including inflation, real per capita GDP growth, excess medical cost growth, and capacity constraints on health costs with respect to GDP. Longer grading periods would most likely increase the accrued liability and normal costs.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION VI – CONTENTS OF REPORTS

Contents of the Actuarial Valuation Reports

As noted in the Executive Summary, one of the objectives of the audit is to determine whether the information being provided to LACERS is comprehensive, and includes the information required to assess the present and future financial status of the Plans.

We find the actuarial valuation report is comprehensive and provides the information required to assess the present financial status of the Plan. In particular, the report is in compliance with Actuarial Standards of Practice with respect to the disclosures required under the relevant standards, including ASOP 4 (Measuring Pension Obligations), ASOP 6 (Measuring Retiree Group Benefits Obligations), ASOP 27 (Selection of Economic Assumptions), ASOP 35 (Selection of Demographic and Other Noneconomic Assumptions), ASOP 41 (Actuarial Communications), and ASOP 44 (Selection and Use of Asset Valuation Methods).

However, we have some recommendations with respect to additional disclosures that could be included which we believe would add value to the valuation report and related documents, in particular in areas that would assist the trustees and other stakeholders in their ability to assess the *future* financial status of the Plan.

Projections

We commend Segal for including projections of the outstanding balance of the Unfunded Actuarial Liability (UAL) and UAL payment projections in the actuarial valuation report. However, under LACERS's asset smoothing method there are gains and losses to be realized over the next six years, even if the investment returns actually achieve the 7.25% target each year, that are not included in Segal's projections.

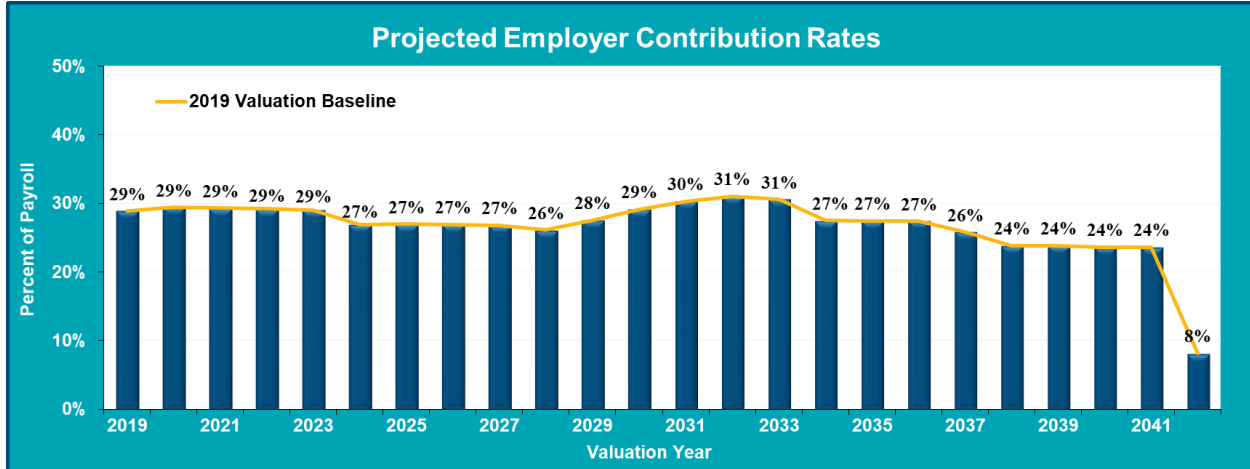
We believe that the report would be significantly improved and more useful to readers if it contained projections of future employer contributions, the projected UAL (including the phasing-in of deferred gains and losses), and funded ratios. Also, the dynamics of Tier 3 in reducing the employer contribution rate should be of interest to stakeholders. At a minimum, these projections should be based on all assumptions being met.

We note that including deterministic projections directly in the valuation report is a common approach by other firms as well, as can be seen in the valuation reports performed by Milliman for LACERA (https://www.lacera.com/investments/actuarial_reports/actuarial_valuation.pdf), by Gabriel Roeder Smith for the Employees Retirement System of Texas (<https://ers.texas.gov/About-ERS/Reports-and-Studies/ERS-Actuarial-Valuation-Reports/2017-ERS-Pension-Valuation-Reports-December-2017.pdf>), as well as by Segal for some of their other clients (https://www.trsil.org/sites/default/files/documents/TRS_Annual-Actuarial-Valuation_Final.pdf). We note that these types of projections are included in LACERS's Risk Assessment report dated February 19, 2020, but we suggest that including these types of projections in the valuation report would provide a benefit to the reader by enabling them to have complete information without having to review a second report.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

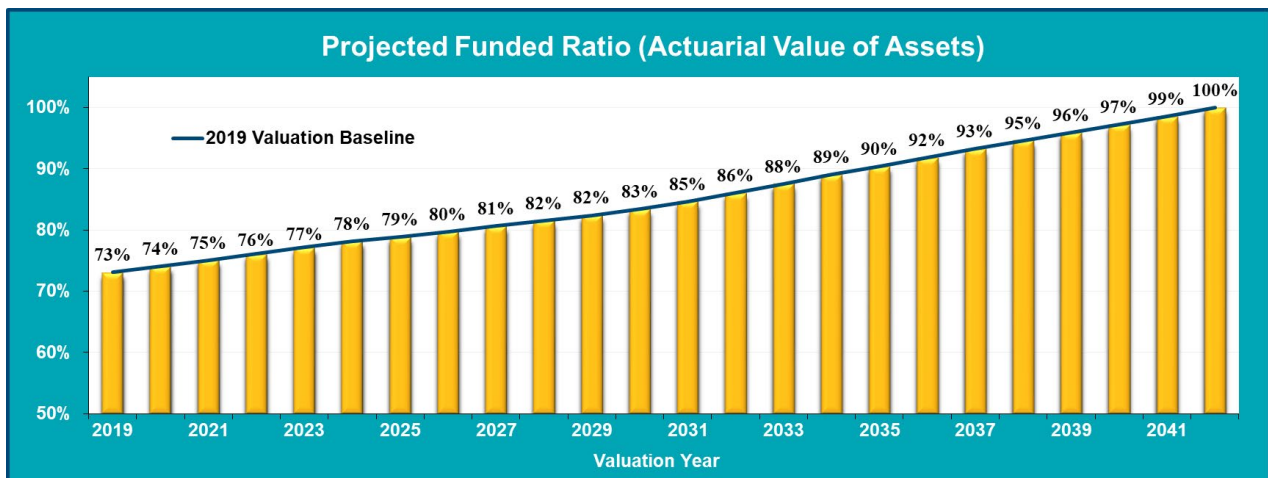
SECTION VI – CONTENTS OF REPORTS

Below we have provided projections for LACERS combined retirement and health plans, based on an assumption that the Plan will earn 7.25% each on the assets.



The contribution projections show the total employer contribution rate over a 23-year period. The employer contribution rate is expected to gradually decrease over the next five years due to net deferred assets gains. The rate decreases in 2024 and 2028 are a result of the 2009 ERIP amendment and 2013 actuarial loss, respectively, being fully paid. The contribution rate begins to increase from 2029 to 2032 due to past actuarial gains for FYE 2014-2017 becoming fully amortized. Starting in 2032, several amortization payments will be fully paid including the 2014, 2017, and 2018 assumption changes and the \$4.2 billion UAL as of June 30, 2012 with the 2042 valuation.

The next graph shows a projection of the funded ratio based on the Actuarial Value of Assets.



The projections show gradual funding progress each year and LACERS is expected to be fully funded in 2042, if all actuarial assumptions are met in each future year, including an investment return of 7.25% each year.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

SECTION VI – CONTENTS OF REPORTS

Health Valuation Reports

In accordance with ASOP No. 6, the age and gender specific factors provided on page 35 of the OPEB report are used to adjust premiums to develop graded per-capita claim costs. It may be more appropriate to provide the resulting age banded and gender dollar costs by carrier and tier to illustrate the resulting per capita claim cost assumptions made on page 34, instead of providing the average of the calendar 2019 and 2020 premium rates and referring to those as per capita costs. Rather than as an assumption, the actual premium rates for both 2019 and 2020 could be provided elsewhere such as under Summary of Plan to document the source data used from the annual Health Benefits Guides. This would have no impact on the valuation cost results.

With respect to Health Care reform, it is noted on page 38 that the anticipated future excise tax on high cost plans was reflected in the current valuation. We believe it would have been helpful to the readers to have known the dollar impact of this “Cadillac tax” on the current valuation result and when it would first impact LACERS. However, since this tax – as well as the Medical Device and Health Insurance Tax (HIT) – were subsequently repealed in December of 2019, the issue is now moot.

Risk Disclosures

In order to comply with ASOP No. 51, actuaries must both identify and assess risks that “may reasonably be anticipated to significantly affect the plan’s future financial condition” (Section 3.2). The identification and measurement of risk can be done in either the valuation report or a separate document, as Segal has done in the Risk Assessment Report, and we commend Segal in their identification of specific risk factors on page 16-17 of this report.

However, in Section 3.4 of ASOP No. 51, several methods – including scenario testing, stress testing, sensitivity testing, and stochastic modeling – are suggested for the actuary to use for assessing risks that have been identified. We note that Segal’s Risk Assessment Report only includes two scenario projections, reflecting scenarios where FYE 2020 investment returns are 0% or 14.50%, instead of the assumed 7.25%. Many firms frequently provide assessments using the other suggested methods, including sensitivity testing and stochastic modeling, and we note that Segal also included several of these assessments in their Risk Analysis presentation from 2017. We suggest that Segal consider expanding the disclosures included in their Risk Assessment Report, and have provided some suggested examples in a supplementary document provided to Staff.

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

APPENDIX A – GLOSSARY OF TERMS

1. Actuarial Assumptions

Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, investment income, and salary increases. Demographic assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

2. Actuarial Gain (Loss)

The difference between actual experience and actuarial assumption anticipated experience during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial funding method.

3. Actuarial Liability

The Actuarial Liability is the present value of all benefits accrued as of the valuation date using the methods and assumptions of the valuation. It is also referred to by some actuaries as the “accrued liability” or “actuarial accrued liability.”

4. Actuarial Present Value

The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment.

5. Actuarial Value of Assets

The Actuarial Value of Assets equals the Market Value of Assets adjusted according to the smoothing method. The smoothing method is intended to smooth out the short-term volatility of investment returns in order to stabilize contribution rates and the funded status.

6. Actuarial Cost Method

A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future plan benefits” between the actuarial present value of future normal costs and the Actuarial Liability. It is sometimes referred to as the “actuarial funding method.”

**ACTUARIAL AUDIT REPORT OF THE
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM**

APPENDIX A – GLOSSARY OF TERMS

7. Funded Status

The Actuarial Value of Assets divided by the Actuarial Liability. The funded status can also be calculated using the Market Value of Assets.

8. Governmental Accounting Standards Board

The Governmental Accounting Standards Board (GASB) defines the accounting and financial reporting requirements for governmental entities. GASB Statement No. 67 defines the plan accounting and financial reporting for governmental pension plans, and GASB Statement No. 68 defines the employer accounting and financial reporting for participating in a governmental pension plan. GASB Statement No. 74 defines the plan accounting and financial reporting for governmental OPEB plans, and GASB Statement No. 75 defines the employer accounting and financial reporting for participating in a governmental OPEB plan.

9. Market Value of Assets

The fair value of the Plan's assets assuming that all holdings are liquidated on the measurement date.

10. Normal Cost

The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. It is sometimes referred to as "current service cost." Any payment toward the Unfunded Actuarial Liability is not part of the normal cost.

11. Present Value of Projected Benefits

The estimated amount of assets needed today to pay for all benefits promised in the future to current members of the Plan, assuming all actuarial assumptions are met.

12. Present Value of Future Normal Costs

The actuarial present value of retirement association benefits allocated to future years of service.

13. Unfunded Actuarial Liability (UAL)

The difference between the Actuarial Liability and the Actuarial Value of Assets. This is sometimes referred to as the "unfunded accrued liability."



Classic Values, Innovative Advice



Paul Angelo, FSA, MAAA, FCA, EA
Andy Yeung, ASA, MAAA, FCA, EA
T 415.263.8200
pangelo@segalco.com
ayeung@segalco.com

180 Howard Street,
Suite 1100
San Francisco, CA 94105-6147
segalco.com

BOARD Meeting: 04/28/20
Item VI – D
Attachment 3

April 2, 2020

Mr. Todd Bouey
Assistant General Manager
Los Angeles City Employees' Retirement System
P.O. Box 512218
Los Angeles, CA 90051-0218

**Re: Los Angeles City Employees' Retirement System (LACERS)
Response to Cheiron's Audit Findings on the June 30, 2019 Actuarial Valuation and
July 1, 2014 Through June 30, 2017 Triennial Experience Study**

Dear Todd:

Cheiron was contracted by the Board to review the liabilities and the 2020/2021 contribution rates determined in the June 30, 2019 valuations of the Retirement and Retiree Health (OPEB) Plans. They were also contracted to perform a high level review of the most recent July 1, 2014 through June 30, 2017 triennial experience study that the Board used to set the actuarial assumptions applied in the June 30, 2018 and 2019 valuations.

Our overall reaction is that the actuarial audit confirms the accuracy and reasonableness of the actuarial valuation and the experience study. We have prepared the following responses to several of the points raised throughout Cheiron's audit.

Statement of Key Findings and Recommendations from Actuarial Audit

According to Cheiron, "The results reported by Segal can be relied upon, Segal's actuarial valuation report, assumptions and methods comply with Actuarial Standards of Practice (ASOP), and the communication of the actuarial valuation results is complete and reasonable."

Liabilities and Costs

The following are the principal valuation results from Cheiron's audit:

	Segal	Cheiron
Retirement Plan		
Aggregate Beginning of Year Employer Contribution Rate (% of Payroll)	24.56%	24.34%
Funded Ratio	71.3%	71.3%
Retiree Health Plan		
Aggregate Beginning of Year Employer Contribution Rate (% of Payroll)	4.47%	4.53%
Funded Ratio	84.4%	84.1%

Economic Assumptions

Cheiron supports our recommendation in the triennial experience study to reduce the inflation assumption from 3.00% to 2.75% and the discount rate from 7.25% to 7.00%. This is true even though, in the body of their report, they also comment on the “expected arithmetic return” approach we use to set the investment return assumption for LACERS versus the “expected geometric return” approach they use to set the investment return assumption for their clients, both of which are acceptable under the applicable Actuarial Standards of Practice.

On that topic, Cheiron is not doing an “apples-to-apples” comparison when they determine a 49% likelihood of LACERS achieving the 7.00% return after adjusting for the 2.75% inflation assumption under their model. This is because under the geometric approach used by Cheiron for their other California clients, we understand they would not have reduced the expected return calculation by any of the observed 0.28% that Segal included as an allowance for investment expenses.

Benefit-Weighted Mortality Tables

Cheiron strongly suggests that Segal use a benefit-weighted approach to develop the mortality assumption. This is consistent with prior advice provided to LACERS by Segal. Specifically, on page 30 of our July 1, 2014 through June 30, 2017 triennial experience study, for the Retirement Plan we estimated an increase in cost of 3.12% of payroll associated with switching ultimately to benefit-weighted generational RP-2014 mortality tables, and an increase in cost of 1.76% of payroll associated with switching to headcount-weighted generational RP-2014 mortality tables (for an additional increase of 1.36% of payroll under benefit-weighted mortality). As we also indicated in that study, and based on subsequent discussion with LACERS, we would recommend to LACERS to switch to the benefit-weighted generational mortality table when the mortality tables developed based on public sector experience became available. Since the Society of Actuaries published and adopted the Pub-2010 mortality tables in 2019, we are going to recommend those tables in the triennial experience study that is currently in progress.

Based on the results previously provided in the above study, we find Cheiron’s estimated cost increase of 1% to 2% of payroll included in their audit report as the impact of adopting the benefit-weighted mortality tables to be reasonable.

Proportion of Future Active Members Leaving LACERS to Work for a Reciprocal Employer

In Cheiron's report, they recommend that we "Review the rates of vested terminated members retiring from reciprocal and non-reciprocal status when determining the likelihood of future terminating members establishing reciprocity and the newly terminated employees during the experience study period, rather than just basing the assumption on the percentage of all terminated members reporting reciprocity."

Even though in our experience study report we mentioned that the 5% reciprocity assumption was developed based on all inactive vested members (which was increased with a margin of 1% above the 4% of vested terminated members actually reported with a reciprocal employer), during the study we also looked at the proportion of newly terminated employees who were reported with a reciprocal employer during July 1, 2014 and June 30, 2017 and that proportion came in at less than 1%. We did not use the less than 1% proportion of only newly terminated employees to set this assumption because it may be the case that not all members had yet reported their reciprocal status.

Additional Disclosures on Exposures, Actual and Expected Decrements and Ratios

Cheiron has suggested that we include additional disclosures on exposures, actual and expected decrements and ratios in our triennial experience study report. Since we have already included some of the above disclosures in our triennial experience study, we would take their suggestion to include more disclosures under advisement.

Include Projections of Employer Contribution Rate and Funded Status in Valuation Report

Cheiron suggested that "Segal also include projections of the employer contribution rate and funded status in their report to help the LACERS Board and stakeholders understand the dynamics of their actuarial funding policies and the impact of the new benefit tiers on the future costs of the system." Based on Segal's experience with similar retirement systems and consistent with LACERS' past practice and direction, we have included projections of the employer contribution rate and funded status in a stand-alone Segal work product. Specifically, starting with the June 30, 2019 valuation, some of the sample information provided and cited in Cheiron's audit report has already been included in our Risk Report prepared for LACERS. Furthermore, based on our discussion with the Board when we presented the Risk Report, we are working with LACERS staff to determine what additional stress testing and/or stochastic modeling would be useful for inclusion in future Risk Reports.

As for where and how such risk assessments should be made available to LACERS and its stakeholders, we do not agree with Cheiron's practice of including such extensive risk modeling in the basic actuarial valuation report. For a complex system such as LACERS with many stakeholders looking for different information about the Retirement and Health Plans, we find it more effective to present the funding valuation and the risk assessments in separate reports. The funding valuation determines current funded status and recommends contribution rate requirements based on a point-in-time measure of the assets and the liabilities. In contrast, Segal's Risk Report presents first a detailed review of past experience, followed by

assessments and illustrations of potential future experience. Even though these more detailed risk assessments are a relatively new work product, we have already found having a separate report and a separate presentation has led to deeper and more focused discussions of risk than if this information was bundled with the regular actuarial valuation.

Medical Trend Assumptions and Use of the Getzen Model

In Cheiron's report, they recommend "a longer grading period for the medical trends to reach the ultimate level such as those that can be developed using the Getzen Model of Long-Run Medical Cost Trends published by the Society of Actuaries...The actuary provides input on the long-term model parameters including inflation, real per capita GDP growth, excess medical cost growth, and capacity constraints on health costs with respect to GDP."

As alluded to by Cheiron, the model published by the Society of Actuaries (SOA) and used by Cheiron is dependent on additional assumptions in particular about the "year limit" and "share resistance level of GDP", which project at what point the level of health care spending is high enough relative to income that it creates resistance to further increases. We note that in the Technical Manual that accompanies the SOA model, it says that "Both the year and resistance limits are plausible and conceptually sound, yet any specific value chosen for such limits is somewhat arbitrary and speculative". We echo the limitation cited in the Technical Manual but we would be glad to further explore the pros and cons of that alternative model (including the contribution rate impact) if the Board were to authorize such analysis before LACERS chooses the medical trend assumptions before the June 30, 2020 valuation.

Please let us know if you have any questions.

Sincerely,



Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President & Actuary



Andy Yeung, ASA, MAAA, FCA, EA
Vice President & Actuary

DNA/hy

cc: Anne D. Harper, FSA, EA, MAAA
Graham A. Schmidt, ASA, EA, FCA, MAAA
James A. Summers, FSA, MAAA