Segal Consulting

Los Angeles City Employees' Retirement System

Actuarial Valuation and Review of Retirement and Health Benefits as of June 30, 2018

This report has been prepared at the request of the Board of Administration to assist in administering the Fund. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Administration and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Segal Consulting

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November 7, 2018

Board of Administration
Los Angeles City Employees' Retirement System
202 W. 1st Street, Suite 500
Los Angeles, CA 90012-4401

Re: June 30, 2018 Actuarial Valuations

Dear Board Members:

Enclosed please find the June 30, 2018 actuarial valuations for the retirement and health plans.

As requested by the System, we have attached the following supplemental schedules:

- Exhibit A - Summary of significant results for the retirement and health plans.
- Exhibit B - History of computed contribution rates for the retirement and health plans.
- Exhibit C - Solvency test for the retirement plan.[1]
- Exhibit D - Schedule of retirees and beneficiaries added to and removed from the rolls for the retirement plan.[2]

We look forward to discussing the reports and the enclosed schedules with the Board.

Sincerely,

Andy Yeung

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

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

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[1] For the health plan, a similar schedule is provided in Exhibit I of Section 3 of the health valuation report.

[2] For the health plan, a similar schedule is provided in Exhibit C of the health valuation report.

Exhibit A

Los Angeles City Employees' Retirement System
Summary of Significant Valuation Results

		June 30, 2018	June 30, 2017	Percent Change
I.	**Total Membership**			
	A. Active Members	26,042	25,457	2.3%
	B. Pensioners and Beneficiaries	19,379	18,805	3.1%
II.	**Valuation Salary**			
	A. Total Annual Projected Payroll	$2,177,687,102	$2,062,316,129	5.6%
	B. Average Projected Monthly Salary	6,969	6,751	3.2%
III.	**Benefits to Current Retirees and Beneficiaries**(1)			
	A. Total Annual Benefits	$880,071,707	$819,515,912	7.4%
	B. Average Monthly Benefit Amount	3,784	3,632	4.2%
IV.	**Total System Assets**(2)			
	A. Actuarial Value	$16,687,907,767	$15,686,973,131	6.4%
	B. Market Value	16,989,616,344	15,689,570,310	8.3%
V.	**Unfunded Actuarial Accrued Liability (UAAL)**			
	A. Retirement Benefits	$5,962,143,593(3)	$5,279,854,069(4)	12.9%
	B. Health Subsidy Benefits	627,984,336(3)	567,348,102(4)	10.7%

(1) *Includes July COLA.*

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

(3) *Includes liabilities for enhanced benefits for Airport Peace Officers effective January 7, 2018.*

(4) *Excludes liabilities for enhanced benefits for Airport Peace Officers effective January 7, 2018.*

Exhibit A (continued)

Los Angeles City Employees' Retirement System
Summary of Significant Valuation Results

VI.	**Budget Items (as a Percent of Pay)(1)**	**FY 2019-2020**		**FY 2018-2019**		**Difference**	
		Beginning of Year(2)	July 15	Beginning of Year	July 15	Beginning of Year	July 15
	A. Retirement Benefits (Tier 1 and Tier 3 Combined)						
	1. Normal Cost	6.38%	6.41%	6.50%	6.51%	(0.12)%	(0.10)%
	2. Amortization of UAAL	18.29%	18.34%	16.49%	16.55%	1.80%	1.79%
	3. Total Retirement Contribution	24.67%	24.75%	22.99%	23.06%	1.68%	1.69%
	B. Health Subsidy Benefits (Tier 1 and Tier 3 Combined)						
	1. Normal Cost	3.42%	3.44%	3.61%	3.63%	(0.19)%	(0.19)%
	2. Amortization of UAAL	1.47%	1.47%	1.47%	1.47%	0.00%	0.00%
	3. Total Health Subsidy Contribution	4.89%	4.91%	5.08%	5.10%	(0.19)%	(0.19)%
	C. Total Contribution (A + B)	29.56%	29.66%	28.07%	28.16%	1.49%	1.50%

VII.	**Funded Ratio**	**June 30, 2018(1)**	**June 30, 2017**	**Difference**
	(Based on Valuation Value of Assets)			
	A. Retirement Benefits	70.1%	71.4%	(1.3)%
	B. Health Subsidy Benefits	80.7%	81.1%	(0.4)%
	C. Total	71.6%	72.8%	(1.2)%
	(Based on Market Value of Assets)			
	D. Retirement Benefits	71.4%	71.4%	0.0%
	E. Health Subsidy Benefits	82.2%	81.1%	1.1%
	F. Total	72.9%	72.8%	0.1%

(1) *After reflecting enhanced benefits for Airport Peace Officers effective January 7, 2018.*

(2) *Alternative contribution payment date for FY 2019-2020:*

	Retirement	*Health*	*Total*
End of Pay Periods	*25.56%*	*5.07%*	*30.63%*

Exhibit B

Los Angeles City Employees’ Retirement System
Computed Contribution Rates(1) – Historical Comparison

Valuation Date	Retirement	Health	Total	Projected Valuation Payroll (thousands)
06/30/1994	12.07%	2.99%	15.06%	$884,951
06/30/1995	7.34%	2.30%	9.64%	911,292
06/30/1996	6.51%	3.18%	9.69%	957,423
06/30/1997	6.57%	1.85%	8.42%	990,616
06/30/1998	6.43%	1.27%	7.70%	1,011,857
06/30/1999	4.93%	0.67%	5.60%	1,068,124
06/30/2000	2.54%	2.17%	4.71%	1,182,203
06/30/2001	3.84%	1.98%	5.82%	1,293,350
06/30/2002	9.22%	1.85%	11.07%	1,334,335
06/30/2003	11.95%	4.02%	15.97%	1,405,058
06/30/2004	14.76%	4.94%	19.70%	1,575,285
06/30/2005	17.51%	7.27%	24.78%	1,589,306
06/30/2006	17.18%	6.49%	23.67%	1,733,340
06/30/2007	15.52%	5.38%	20.90%	1,896,609
06/30/2008	14.65%	5.48%	20.13%	1,977,645
06/30/2009	18.73%	6.62%	25.35%	1,816,171
06/30/2010				
Before Additional Employee Contributions	21.19%	7.45%	28.64%	1,817,662
After Additional Employee Contributions	18.67%	6.94%	25.61%	1,817,662
06/30/2011(2)				
Before Additional Employee Contributions	24.31%	4.49%	28.80%	1,833,392
After Additional Employee Contributions	21.64%	4.49%	26.13%	1,833,392
06/30/2012(3)	21.34%	5.74%	27.08%	1,819,270
06/30/2013	22.24%	5.80%	28.04%	1,846,970
06/30/2014	24.05%	5.81%	29.86%	1,898,064
06/30/2015	23.65%	4.90%	28.55%	1,907,665
06/30/2016	22.96%	5.09%	28.05%	1,968,703
06/30/2017(4)	23.81%	5.26%	29.07%	2,062,316
06/30/2018	25.56%	5.07%	30.63%	2,177,687

(1) *Contributions are assumed to be made at the end of the pay period. For the 6/30/2014 and 6/30/2015 valuations, the contribution rates are the combined rates for Tiers 1 and 2. Beginning with the 6/30/2016 valuation, the contribution rates are the combined rates for Tiers 1 and 3 (Tier 2 was rescinded effective February 21, 2016).*

(2) *Beginning with the 6/30/2011 valuation date, the contribution rates are before adjustments to phase in over five years the impact of new actuarial assumptions (as a result of the June 30, 2011 Triennial Experience Study) on the City’s contributions. Those adjustments no longer apply after the June 30, 2014 valuation.*

(3) *Beginning with the 6/30/2012 valuation date, the contribution rates are after additional employee contributions.*

(4) *Beginning with the 6/30/2017 valuation date, the contribution rates are after reflecting enhanced benefits for Airport Peace Officers effective January 7, 2018.*

Exhibit C

Los Angeles City Employees' Retirement System

Solvency Test for Retirement Benefits

For Years Ended June 30

($ In Thousands)

	Aggregate Actuarial Accrued Liabilities For				Portion of Accrued Liabilities Covered by Reported Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
Valuation Date	Member Contributions	Retirees, Beneficiaries, & Inactives	Active Members	Valuation Value of Assets	Member Contributions	Retirees, Beneficiaries, & Inactives	Active Members
06/30/1996	$637,737	$2,357,798	$1,480,489	$4,468,433	100.0%	100.0%	99.5%
06/30/1997	683,048	2,598,432	1,604,857	4,802,509	100.0	100.0	94.8
06/30/1998	733,680	2,772,712	1,806,526	5,362,923	100.0	100.0	100.0
06/30/1999	776,617	2,989,218	1,918,751	5,910,948	100.0	100.0	100.0
06/30/2000	827,729	3,149,392	2,035,810	6,561,365	100.0	100.0	100.0
06/30/2001	889,658	3,444,240	2,134,168	6,988,782	100.0	100.0	100.0
06/30/2002	950,002	3,756,935	2,545,181	7,060,188	100.0	100.0	92.5
06/30/2003	1,005,888	4,021,213	2,632,745	6,999,647	100.0	100.0	74.9
06/30/2004	1,062,002	4,348,252	3,123,610	7,042,108	100.0	100.0	52.2
06/30/2005	1,128,101	4,858,932	3,334,492	7,193,142	100.0	100.0	36.2
06/30/2006	1,210,246	5,149,385	3,511,031	7,674,999	100.0	100.0	37.5
06/30/2007	1,307,008	5,365,437	3,854,429	8,599,700(1)	100.0	100.0	50.0
06/30/2008	1,408,074	5,665,130	4,113,200	9,438,318	100.0	100.0	57.5
06/30/2009	1,282,663	7,356,302	3,403,019	9,577,747	100.0	100.0	27.6
06/30/2010	1,379,098	7,507,945	3,707,982	9,554,027	100.0	100.0	18.0
06/30/2011	1,474,824	7,765,071	4,151,809	9,691,011	100.0	100.0	10.9
06/30/2012	1,625,207	7,893,684	4,875,068	9,934,959	100.0	100.0	8.5
06/30/2013	1,757,195	8,066,564	5,057,904	10,223,961	100.0	100.0	7.9
06/30/2014	1,900,068	8,700,896	5,647,889	10,944,751	100.0	100.0	6.1
06/30/2015	2,012,378	9,118,166	5,779,452	11,727,161	100.0	100.0	10.3
06/30/2016	2,137,269	9,439,001	5,848,726	12,439,250	100.0	100.0	14.8
06/30/2017	2,255,048	10,164,403	6,038,737	13,178,334	100.0	100.0	12.6
06/30/2018	2,354,026	11,079,053	6,511,500	13,982,435	100.0	100.0	8.4

(1) *Excludes assets transferred for Port Police.*

Exhibit D

Los Angeles City Employees' Retirement System
Retirees and Beneficiaries Added To and Removed From the Rolls[1]
For Years Ended June 30

Year Ended	No. of New Retirees/ Beneficiaries	Annual Allowances Added[2]	No. of Retirees/ Beneficiaries Removed	Annual Allowances Removed	No. of Retirees/ Beneficiaries at 6/30	Annual Allowances at 6/30	Percent Increase in Annual Allowances	Average Annual Allowance
06/30/2002	844	$23,740,829	620	$11,316,344	13,589	$336,437,038	6.4%	$24,758
06/30/2003	827	24,729,535	611	12,008,132	13,805	359,036,215	6.7%	26,008
06/30/2004	986	53,452,133	654	13,220,316	14,137	399,268,032	11.2%	28,243
06/30/2005	934	43,454,836	749	14,769,736	14,322	427,953,132	7.2%	29,881
06/30/2006	890	42,821,079	642	15,061,287	14,570	455,712,924	6.5%	31,277
06/30/2007	821	34,131,744	555	13,210,740	14,836	476,633,928	4.6%	32,127
06/30/2008	748	40,680,279	609	14,956,623	14,975	502,357,584	5.4%	33,546
06/30/2009	632	36,887,854	616	17,386,042	14,991	521,859,396	3.9%	34,812
06/30/2010	2,893	144,594,918	620	17,604,486	17,264	648,849,828	24.3%	37,584
06/30/2011	528	24,282,965	595	16,585,589	17,197	656,547,204	1.2%	38,178
06/30/2012	620	38,314,256	594	17,986,700	17,223	676,874,760	3.1%	39,301
06/30/2013	772	40,966,952	633	18,776,770	17,362	699,064,942	3.3%	40,264
06/30/2014	831	38,666,905	661	21,175,777	17,532	716,556,070	2.5%	40,871
06/30/2015	1,083	55,849,106	683	22,013,426	17,932	750,391,750	4.7%	41,847
06/30/2016	1,082	51,056,286	657	23,092,610	18,357	778,355,426	3.7%	42,401
06/30/2017	1,142	65,583,105	694	24,422,619	18,805	819,515,912	5.3%	43,580
06/30/2018	1,312	86,917,553	738	26,361,758	19,379	880,071,707	7.4%	45,414

(1) *Does not include Family Death Benefit Plan members. Table based on valuation data.*

(2) *Effective 06/30/2004, also includes the COLA granted in July.*

Segal Consulting

Los Angeles City Employees' Retirement System

Actuarial Valuation and Review of Retirement Benefits as of June 30, 2018

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100 MONTGOMERY STREET, SUITE 500 SAN FRANCISCO, CA 94104
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November 7, 2018

Board of Administration
Los Angeles City Employees' Retirement System
202 W. 1st Street, Suite 500
Los Angeles, CA 90012-4401

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of June 30, 2018. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2019/2020 and analyzes the preceding year's experience.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Plan. The census and unaudited financial information on which our calculations were based were prepared by LACERS. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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); and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Andy Yeung, ASA, MAAA, FCA, Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal Consulting, a Member of the Segal Group, Inc.

By:

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

Andy Yeung

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

JRC/bbf

SECTION 1

VALUATION SUMMARY

SECTION 2

VALUATION RESULTS

SECTION 3

SUPPLEMENTAL INFORMATION

SECTION 4

REPORTING INFORMATION

Purpose

This report has been prepared by Segal Consulting ("Segal") to present an actuarial valuation of the Los Angeles City Employees' Retirement System as of June 30, 2018. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension Plan, as administered by the Board of Administration;
- The characteristics of covered active members, inactive members, and retired members and beneficiaries as of June 30, 2018, provided by LACERS;
- The assets of the Plan as of June 30, 2018, provided by LACERS;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

Ref: Pgs. 38 and 16

- The results of this valuation reflect changes in the actuarial assumptions adopted by the Board on August 14, 2018. These new assumptions are described in Section 4, Exhibit III of this report. These assumption changes, in particular, the use of generational mortality tables to reflect future mortality improvement, resulted in an increase in the combined (Tier 1 and Tier 3) City contribution rate of 1.68% of payroll.

Ref: Pg. 13

- As part of this valuation, we obtained actual membership information available for the first time for the employees at the Airport who elected to stay at LACERS, and would therefore be entitled to enhanced Tier 1 benefits, instead of transferring to LAFPP on January 7, 2018. Using that data and applying the method we previously discussed with LACERS, we have calculated the increase in normal cost by comparing the normal cost for the Airport Peace Officers (APO) before and after the enhancement. The change in normal cost contribution amounts, expressed as a percentage of the City's entire Tier 1 payroll, is provided in Chart 14 of this report.

  Similarly, we have estimated the increase in the unfunded actuarial accrued liability (UAAL) to improve past service earned through January 6, 2018 from Tier 1 to enhanced Tier 1 by using salary and other demographic information reported in the June 30, 2018 valuation. That increase in UAAL was calculated based on service earned through

January 6, 2018.[1] That increase in the UAAL was determined using the actuarial assumptions in the June 30, 2018 valuation and has been adjusted to reflect the anticipated payment of the $5,700 required to receive the enhanced benefits by every APO member with past service. We have further adjusted the change in UAAL to reflect the UAAL contributions paid by the Airport for the period January 7, 2018 to June 30, 2018, and for the period July 1, 2018 to June 30, 2019. That change in UAAL, reflecting all those adjustments, was used in determining the change in UAAL contribution amounts, expressed as a percentage of the City's entire Tier 1 and Tier 3 payroll, as shown in Chart 14.

Ref: Pgs. 18 and 28

- The ratio of the valuation value of assets to actuarial accrued liabilities decreased from 71.40% to 70.11%. On a market value of assets basis, the funded ratio decreased from 71.41% to 71.37%. The UAAL increased from $5.280 billion to $5.962 billion. The increase was due to: (i) actual contributions less than expected as a result of the anticipated one-year delay in implementing the higher contribution rate in the prior valuation, (ii) higher than expected salary increases for continuing active members, (iii) changes in the actuarial assumptions, (iv) adoption of enhanced Tier 1 benefits for APO members, and (v) other miscellaneous actuarial losses, offset somewhat by (vi) a higher than expected return on the valuation value of assets (after smoothing) and (vii) lower than expected COLAs granted to retirees and beneficiaries. A complete reconciliation of the System's UAAL is provided in Section 3, Exhibit G. A schedule of the current UAAL amortization amounts is provided in Section 3, Exhibit H. Note that a graphical presentation of the UAAL amortization bases and payments has been provided as a new Exhibit I in Section 3.

Ref: Pg. 16

- The aggregate employer rate (if received on July 15) calculated in this valuation has increased from 23.06% of payroll (after reflecting enhanced benefits for APO) to 24.75% of payroll. The annual dollar employer contributions calculated in this valuation increased from about $475.7 million (after reflecting enhanced benefits for APO) to $539.0 million. The increase in the employer rate was due to: (i) actual contributions less than expected as a result of the anticipated one-year delay in implementing the higher contribution rate calculated in the prior valuation, (ii) higher than expected salary increases for continuing active members, (iii) changes in the actuarial assumptions, (iv) actual enhanced Tier 1 enrollment compared to expected, and (v) other miscellaneous actuarial losses, offset somewhat by (vi) a decrease in the normal cost rate due, in part, to the enrollment of new employees in Tier 3, (vii) a higher than expected return on the valuation value of assets (after smoothing), (viii) amortizing the prior year's UAAL over a larger than expected projected total payroll, and (ix) lower than expected COLAs granted to retirees and beneficiaries. A complete reconciliation of the aggregate employer contribution is provided in Section 2, Chart 15.
- Based on action taken by the Board on July 24, 2018, the net amount of unrecognized investment gain as of June 30, 2017 (i.e., $2,597,179) has been recognized in six level amounts, with five years of recognition remaining after the June 30, 2018 valuation.

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[1] *We have excluded benefit enhancement for service earned after January 6, 2018 because higher normal cost contributions would have already been paid by the Airport.*

Ref: Pg. 5

- As indicated in Section 2, Subsection B of this report, the total net unrecognized investment gain as of June 30, 2018 is \$301,708,577[2] for the assets for Retirement, Health, Family Death, and Larger Annuity Benefits. This net investment gain will be recognized in the determination of the actuarial value of assets for funding purposes in the next several years. This implies that earning the assumed rate of investment return of 7.25% per year (net of investment and administrative expenses) on a market value basis will result in a net investment gain on the actuarial value of assets after June 30, 2018. Item 9 in Chart 7 shows how, under the asset smoothing method, the \$301.7 million in unrecognized gains will be recognized in the next six years.

  The net deferred gain of \$301.7 million represent 1.78% of the market value of assets as of June 30, 2018. Unless offset by future investment losses or other unfavorable experience, the recognition of the net \$301.7 million market gain is expected to have an impact on the System's future funded percentage and contribution rate requirements. This potential impact may be illustrated as follows:

  - If the retirement plan component of the deferred gains were recognized immediately in the valuation value of assets, the funded percentage would increase from 70.11% to 71.37%.

    For comparison purposes, if all the net deferred gains for the retirement plan in the June 30, 2017 valuation had been recognized immediately in the June 30, 2017 valuation, the funded percentage would have increased from 71.40% to 71.41%.

  - If the retirement plan component of the deferred gains were recognized immediately in the valuation value of assets, the aggregate employer rate (if received on July 15, 2019) would decrease from 24.75% to about 23.77% of payroll.

    For comparison purposes, if all the net deferred gains for the retirement plan in the June 30, 2017 valuation had been recognized immediately in the June 30, 2017 valuation, the aggregate employer rate (if received on July 15, 2018) would have decreased from 23.06% of payroll to 23.05% of payroll.

- As in prior years, the employer contribution rates provided in this report have been developed assuming they will be received by LACERS on any of the following dates:

  (1) The beginning of the fiscal year, or

  (2) On July 15, 2019, or

  (3) Throughout the year (i.e., LACERS will receive contributions at the end of every pay period).

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[2] *For comparison purposes, the total net unrecognized investment gain as of June 30, 2017 was \$2,597,179.*

Ref: Pg. 29

- Carrying over the prior instructions from the Board of Administration, the recommended contribution is set equal to the contributions under the current funding policy plus an additional contribution due to the application of the 40-year minimum amortization requirement for both fiscal year 2003/2004 and fiscal year 2004/2005. The amortization of the 40-year minimum for 2003/2004 and 2004/2005 will be fully completed in the next two valuations.
- The actuarial valuation report as of June 30, 2018 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increase the actuarial cost of the Plan, while increases will decrease the actuarial cost of the Plan.

Impact of Future Experience on Contribution Rates

Future contribution requirements may differ from those determined in the valuation because of:

1) difference between actual experience and anticipated experience;
2) changes in actuarial assumptions or methods;
3) changes in statutory provisions; and
4) difference between the contribution rates determined by the valuation and those adopted by the Board.

New Actuarial Standard of Practice on Risk Assessment

The Actuarial Standards Board approved a new Actuarial Standard of Practice No. 51 (ASOP 51) regarding risk assessment. ASOP 51 will be effective with LACERS' June 30, 2019 actuarial valuation. ASOP 51 requires actuaries to identify risks that "may reasonably be anticipated to significantly affect the plan's future financial condition". Investment risk, asset/liability mismatch risk, interest rate risk, longevity and other demographic risks and contribution risk are also cited as examples in ASOP 51. The standard does not require the actuary to evaluate the likelihood of contributing entities to make contributions when due, nor does it require the actuary to assess the likelihood or consequences of future changes in applicable law.

The actuary's assessment can be qualitative or quantitative (e.g., based on numerical demonstrations). The actuary may use non-numerical methods for assessing risks that might take the form of commentary about potential adverse experience and the likely effect on future results. While the standard does not require that every valuation include a quantitative risk assessment, the actuary may recommend that a more detailed risk assessment be performed. When making that decision, the actuary will take into account such factors as the Plan's design, maturity, size, funded status, asset allocation, cash flow, possible insolvency and current market conditions.

We will discuss with LACERS what would be most appropriate to include in LACERS' risk report for the June 30, 2019 valuation.

Summary of Key Valuation Results

	2018	2017
Employer contributions calculated as of June 30:(1)		
Recommended as a percentage of pay (there is a 12-month delay until the rate is effective)		
Tier 1		
At the beginning of the year	24.98%	23.17%
On July 15	25.06%	23.25%
At the end of each pay period	25.88%	24.00%
Tier 3		
At the beginning of the year	22.05%	20.15%
On July 15	22.12%	20.20%
At the end of each pay period	22.85%	20.86%
Combined		
At the beginning of the year	24.67%	22.99%
On July 15	24.75%	23.06%
At the end of each pay period	25.56%	23.81%
Funding elements for plan year ended June 30:		
Normal cost	$370,409,073(1)	$352,282,612(2)
Market value of assets (MVA)(3)	16,989,616,344	15,689,570,310
Actuarial value of assets (AVA)(3)	16,687,907,767	15,686,973,131
Valuation value of retirement assets (VVA)	13,982,435,465	13,178,333,884
Market value of retirement assets (MVA)	14,235,230,528	13,180,515,725
Actuarial accrued liability (AAL)	19,944,579,058(1)	18,458,187,953(2)
Unfunded actuarial accrued liability (UAAL) on VVA basis	5,962,143,593	5,279,854,069
Unfunded actuarial accrued liability (UAAL) on MVA basis	5,709,348,530	5,277,672,228
Funded ratio on VVA basis for retirement (VVA/AAL)	70.11%	71.40%
Funded ratio on MVA basis for retirement (MVA/AAL)	71.37%	71.41%

(1) *After reflecting enhanced benefits for APO.*

(2) *Excludes enhanced benefits for APO.*

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

Summary of Key Valuation Results (continued)

	2018	2017
Employer contributions for fiscal year ended June 30:		
Actuarially determined employer contributions	$450,195,254	$453,356,059
Actual contributions	450,195,254	453,356,059
Percentage contributed	100.00%	100.00%
Demographic data for plan year ended June 30:		
Number of retired members and beneficiaries	19,379	18,805
Number of inactive members	8,028	7,428
Number of active members	26,042	25,457
Projected total payroll(4)	$2,177,687,102	$2,062,316,129
Projected average payroll(4)	$83,622	$81,012

(4) *Reflects annualized salaries for part-time members.*

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare an actuarial valuation, Segal relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the Retirement System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by the System. The System uses an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of LACERS. Segal is not responsible for the use or misuse of its report, particularly by any other party.

- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- If LACERS is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. LACERS should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of LACERS, it is not a fiduciary in its capacity as actuaries and consultants with respect to LACERS.

Actuarial Certification

November 7, 2018

This is to certify that Segal Consulting (Segal) has conducted an actuarial valuation of the Los Angeles City Employees' Retirement System (LACERS or the "System") retirement program as of June 30, 2018, in accordance with generally accepted actuarial principles and practices. In particular, it is our understanding that the assumptions and methods used for funding purposes meet the parameters set by the Actuarial Standards of Practice (ASOPs). Actuarial valuations are performed annually for this retirement program with the last valuation completed on June 30, 2017. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of the historical funding methods used in determination of the liability for retirement benefits.

The actuarial valuation is based on the plan of benefits verified by LACERS and on participant and financial data provided by LACERS. Segal did not audit LACERS' financial statements, but we conducted an examination of all participant data for reasonableness and we concluded that it was reasonable and consistent with the prior year's data.

One of the general goals of an actuarial valuation is to establish contributions that fully fund the Retirement System's liabilities, and that, as a percentage of payroll, remain as level as possible for each generation of active members. Both the Normal Cost and the Actuarial Accrued Liability are determined under the Entry Age cost method.

The actuarial computations made are for funding plan benefits. Accordingly, additional determinations will be needed for other purposes, such as satisfying financial accounting requirements under Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 and judging benefit security at termination of the plan.

Segal prepared all of the supporting schedules in the Actuarial Section of the Comprehensive Annual Financial Report (CAFR) and certain supporting schedules in the Financial Section, based on the results of the June 30, 2018 actuarial valuation. A listing of the supporting schedules Segal prepared for inclusion in the Financial Section as Required Supplementary Information prescribed by GASB, and in the Actuarial Section, is provided below:

Financial Section

1) Schedule of Net Pension Liability*
2) Schedule of Changes in Net Pension Liability and Related Ratios*
3) Schedule of Contribution History*

Actuarial Certification (continued)

November 7, 2018

Actuarial Section

4) Summary of Significant Valuation Results
5) Active Member Valuation Data
6) Retirees and Beneficiaries Added to and Removed from Retiree Payroll
7) Solvency Test
8) Schedule of Funding Progress
9) Actuarial Analysis of Financial Experience
10) Actuarial Balance Sheet
11) Schedule of Changes in Net Pension Liability and Related Ratios*
12) Projection of Pension Plan's Fiduciary Net Position for use in Calculation of Discount Rate of 7.25% and Preparation of GASB 67 Report as of June 30, 2018*

* Source: Segal's GASB Statement No. 67 valuation report as of June 30, 2018.

LACERS' staff prepared other trend data schedules in the Statistical Section based on information supplied in Segal's valuation report.

To the best of our knowledge, this report is complete and accurate and in our opinion presents the plan's current funding information. The undersigned is a member of the American Academy of Actuaries and is qualified to render the actuarial opinion contained herein.

Andy Yeung

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

A. MEMBER DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, inactive non-vested members (entitled to a refund of member contributions), inactive vested members, retired members and beneficiaries.

This section presents a summary of significant statistical data on these member groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

A historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.

CHART 1

Member Population: June 30, 2009 – 2018

Year Ended June 30	Active Members	Inactive Members*	Retired Members and Beneficiaries	Ratio of Non-Actives to Actives
2009	30,065	4,554	14,991	0.65
2010	26,245	5,344	17,264	0.86**
2011	25,449	5,623	17,197	0.90
2012	24,917	5,808	17,223	0.92
2013	24,441	5,799	17,362	0.95
2014	24,009	6,031	17,532	0.98
2015	23,895	6,507	17,932	1.02
2016	24,446	6,895	18,357	1.03
2017	25,457	7,428	18,805	1.03
2018	26,042	8,028	19,379	1.05

* *Includes terminated members due a refund of employee contributions.*

** *Reflects 2009 Early Retirement Incentive Program.*

Active Members

Plan costs are affected by the age, years of service and payroll of active members. In this year's valuation, there were 26,042 active members with an average age of 47.4, average years of service of 13.7 years and average payroll of $83,622.

The 25,457 active members in the prior valuation had an average age of 48.0, average service of 14.1 years and average payroll of $81,012.

Inactive Members

In this year's valuation, there were 8,028 members who were either non-vested and entitled to a refund of member contributions or vested with a right to a deferred or immediate benefit, versus 7,428 in the prior valuation.

These graphs show a distribution of active members by age and by years of service.

CHART 2

Distribution of Active Members by Age as of June 30, 2018

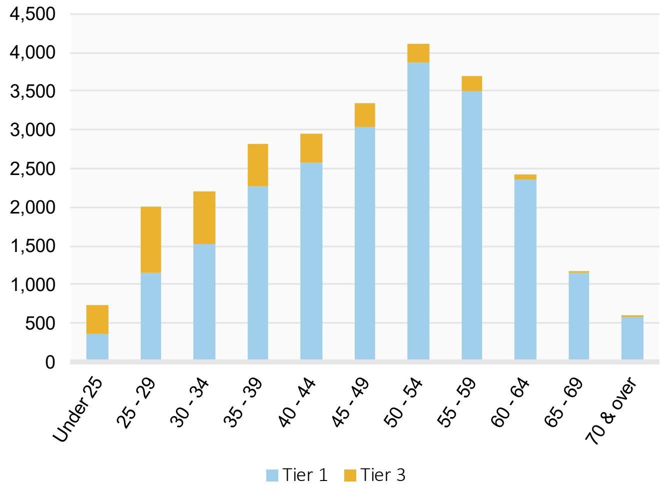
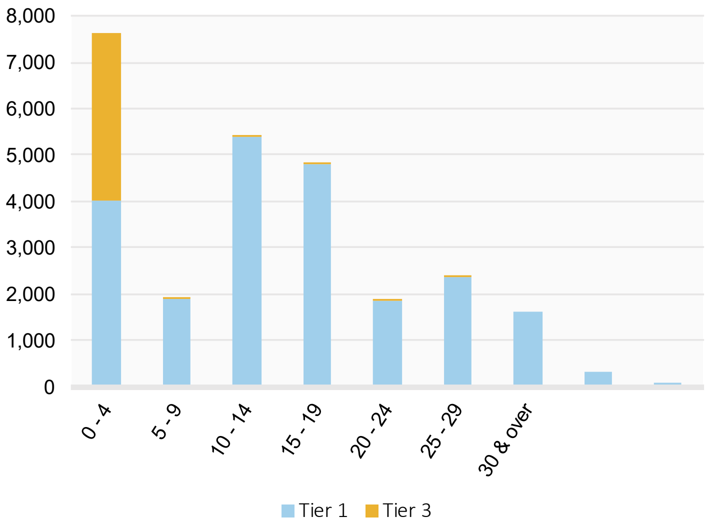


CHART 3

Distribution of Active Members by Years of Service as of June 30, 2018



Retired Members and Beneficiaries
As of June 30, 2018, 15,477 retired members and 3,902 beneficiaries were receiving total monthly benefits of $73,339,309. For comparison, in the previous valuation, there were 14,888 retired members and 3,917 beneficiaries receiving total monthly benefits of $68,292,993. These monthly benefits have been adjusted for the COLA granted effective for the month of July.

These graphs show a distribution of the current retired members based on their monthly amount and age, by type of pension.

CHART 4

Distribution of Retired Members by Type and by Monthly Amount as of June 30, 2018

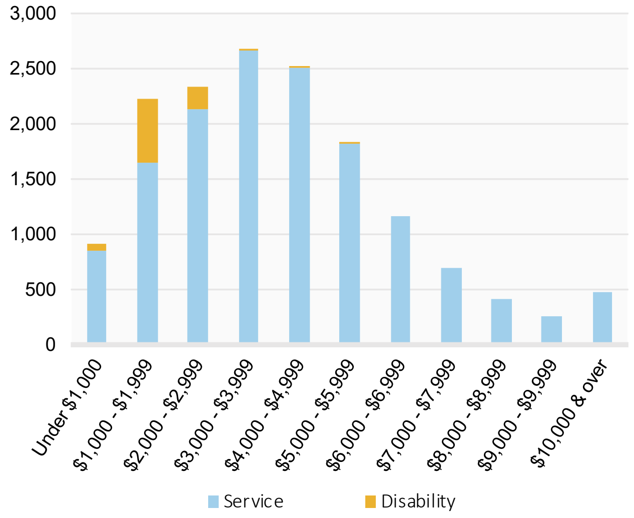
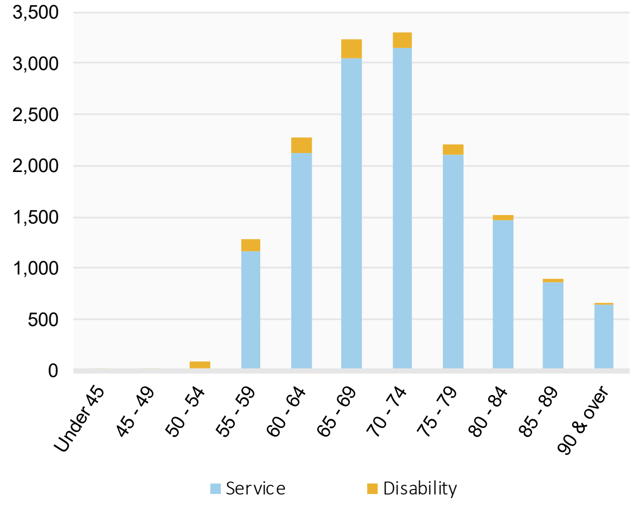


CHART 5

Distribution of Retired Members by Type and by Age as of June 30, 2018



B. FINANCIAL INFORMATION

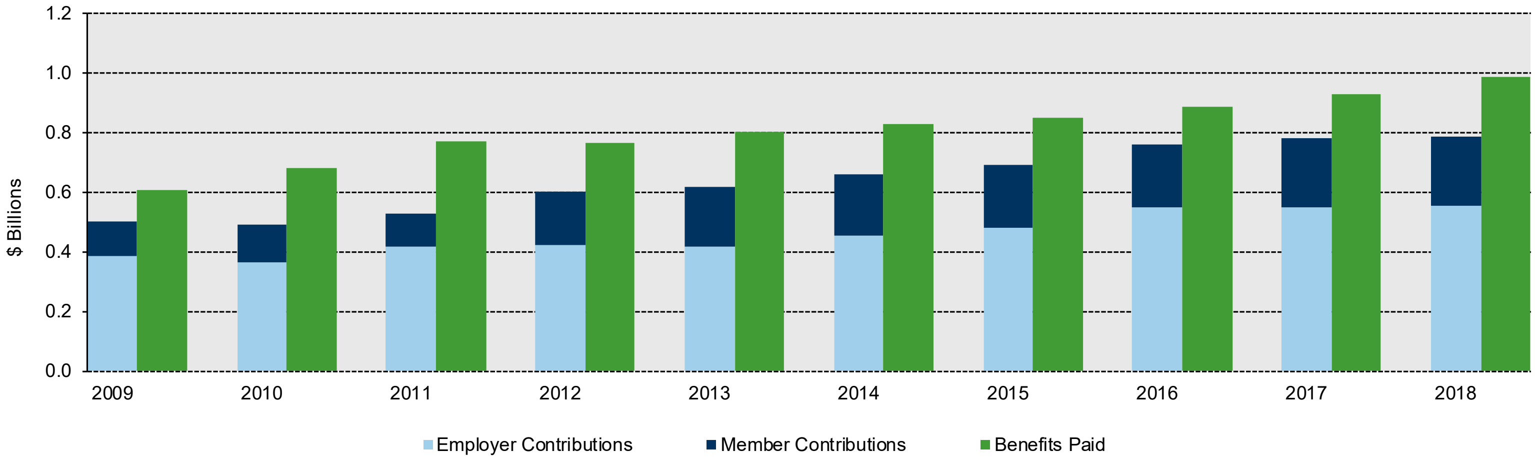
Retirement plan funding anticipates that, over the long term, both contributions and net investment earnings (less investment fees and administrative expenses) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits D, E and F.

The chart depicts two components of changes in the actuarial value of assets over the last ten years. Note: The first bar represents increases in assets due to contributions during each year while the second bar details the decreases due to benefit payments.

CHART 6

Comparison of Contributions with Benefits for Years Ended June 30, 2009 – 2018



It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board of Administration has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

The chart shows the determination of the actuarial value of assets as of the valuation date.

CHART 7

Determination of Actuarial Value of Assets as of June 30, 2018

	Original Amount	Portion Not Recognized	Amount Not Recognized	
1. Market value of assets				$16,989,616,344
2. Calculation of unrecognized return(1)				
(a) Year ended June 30, 2018	$349,468,305	6/7	$299,544,261	
(b) Year ended June 30, 2017	770,969,472			
(c) Year ended June 30, 2016	-1,065,023,569			
(d) Year ended June 30, 2015	-707,760,540	see footnote (2) below		
(e) Year ended June 30, 2014	1,246,285,581			
(f) Combined net deferred loss as of June 30, 2013	-81,571,421	5/6	2,164,316	
(g) Total unrecognized return				$301,708,577
3. Preliminary actuarial value: (1) - (2g)				$16,687,907,767
4. Adjustment to be within 40% corridor				0
5. Final actuarial value of assets: (3) + (4)				$16,687,907,767
6. Actuarial value as a percentage of market value: (5) ÷ (1)				98.2%
7. Market value of retirement assets				$14,235,230,528
8. Valuation value of retirement assets (5) ÷ (1) x (7)				$13,982,435,465
9. Deferred return recognized in each of the next 6 years:				
(a) Amount recognized on 6/30/2019				$50,356,907
(b) Amount recognized on 6/30/2020				50,356,907
(c) Amount recognized on 6/30/2021				50,356,907
(d) Amount recognized on 6/30/2022				50,356,907
(e) Amount recognized on 6/30/2023				50,356,907
(f) Amount recognized on 6/30/2024				49,924,044
(g) Subtotal (may not total exactly due to rounding)				$301,708,577

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(1) *Total return minus expected return on a market value basis.*

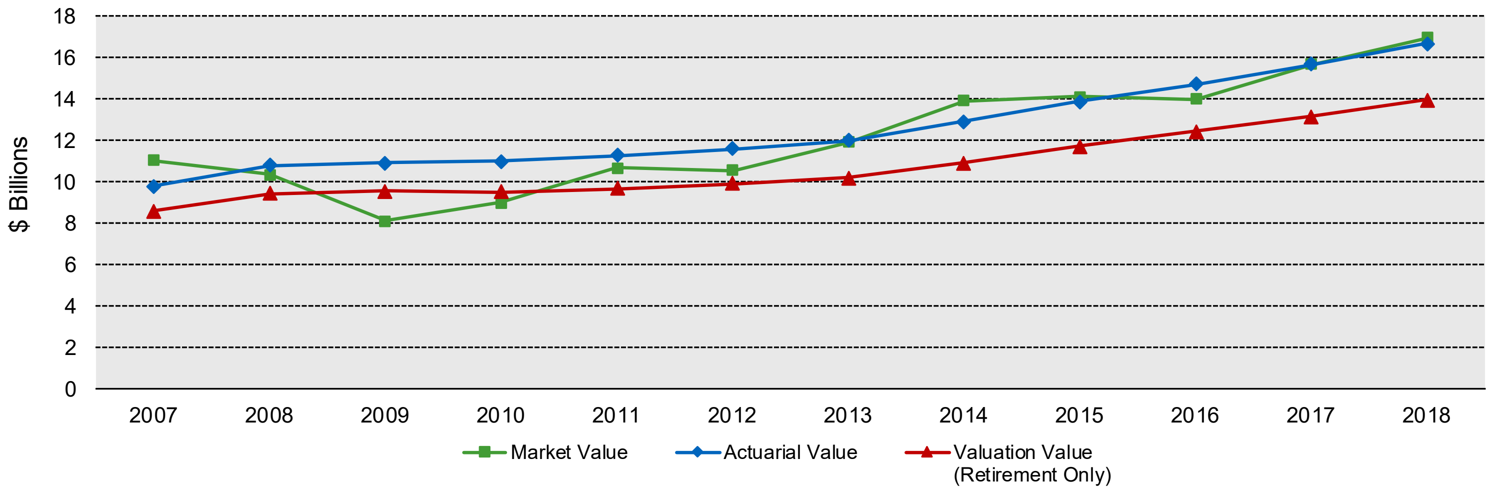
(2) *Based on action taken by the Board on July 24, 2018, the net unrecognized gain as of June 30, 2017 (i.e., $2,597,179) has been recognized in six level amounts, with five years of recognition remaining after the June 30, 2018 valuation.*

The actuarial value, market value and valuation value of assets are representations of LACERS' financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The portion of the total actuarial value of assets allocated for retirement benefits, based on a prorated share of market value, is shown as the valuation value of assets. The valuation value of assets is significant because LACERS' liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

This chart shows the change in the assets over the past twelve years.

CHART 8

Market Value, Actuarial Value, and Valuation Value (Retirement Only) of Assets as of June 30, 2007– 2018



C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss of $147,418,362 was due to an investment gain of $11,346,787 (after smoothing), and a loss of $158,765,149 from all other sources. The net experience variation from all other sources was 0.80% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

This chart provides a summary of the actuarial experience during the past year.

CHART 9

Actuarial Experience for Year Ended June 30, 2018

1.	Net gain from investments*	$11,346,787
2.	Net loss from other experience**	-144,729,707
3.	Net loss from scheduled one-year delay in implementing the higher contribution rate calculated in the June 30, 2017 valuation until fiscal year 2018/2019	-14,035,442
4.	Net experience loss: (1) + (2) + (3)	-$147,418,362

* *Details in Chart 10.*

** *Details in Chart 13. The net loss is attributed to actual liability experience from July 1, 2017 through June 30, 2018 compared to the projected experience based on the actuarial assumptions as of June 30, 2017.*

Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on LACERS' investment policy. For valuation purposes, the assumed rate of return on the valuation value of assets is 7.25% (for the June 30, 2017 valuation). The actual rate of return on the valuation value of assets basis for the 2018 plan year was 7.34%.

Since the actual return for the year was more than the assumed return, LACERS experienced an actuarial gain during the year ended June 30, 2018 with regard to its investments.

This chart shows the gain/(loss) due to investment experience.

CHART 10

Investment Experience for Year Ended June 30, 2018

	Market Value (Includes assets for Retirement, Health, Family Death, and Larger Annuity Benefits)	Actuarial Value (Includes assets for Retirement, Health, Family Death, and Larger Annuity Benefits)	Valuation Value (Includes assets for Retirement Only)
1. Actual return	$1,498,100,177	$1,198,988,779	$975,505,148
2. Average value of assets	$15,843,198,235	$15,840,601,056	$13,298,736,019
3. Actual rate of return: (1) ÷ (2)	9.46%	7.57%	7.34%
4. Assumed rate of return	7.25%	7.25%	7.25%
5. Expected return: (2) x (4)	$1,148,631,872	$1,148,443,577	$964,158,361
6. Actuarial gain/(loss): (1) – (5)	$349,468,305	$50,545,202	$11,346,787

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the Retirement, Health, Family Death and Larger Annuity Benefits for the last ten years, including the five-year average.

CHART 11

Investment Return – Actuarial Value vs. Market Value: Years Ended June 30, 2009 – 2018

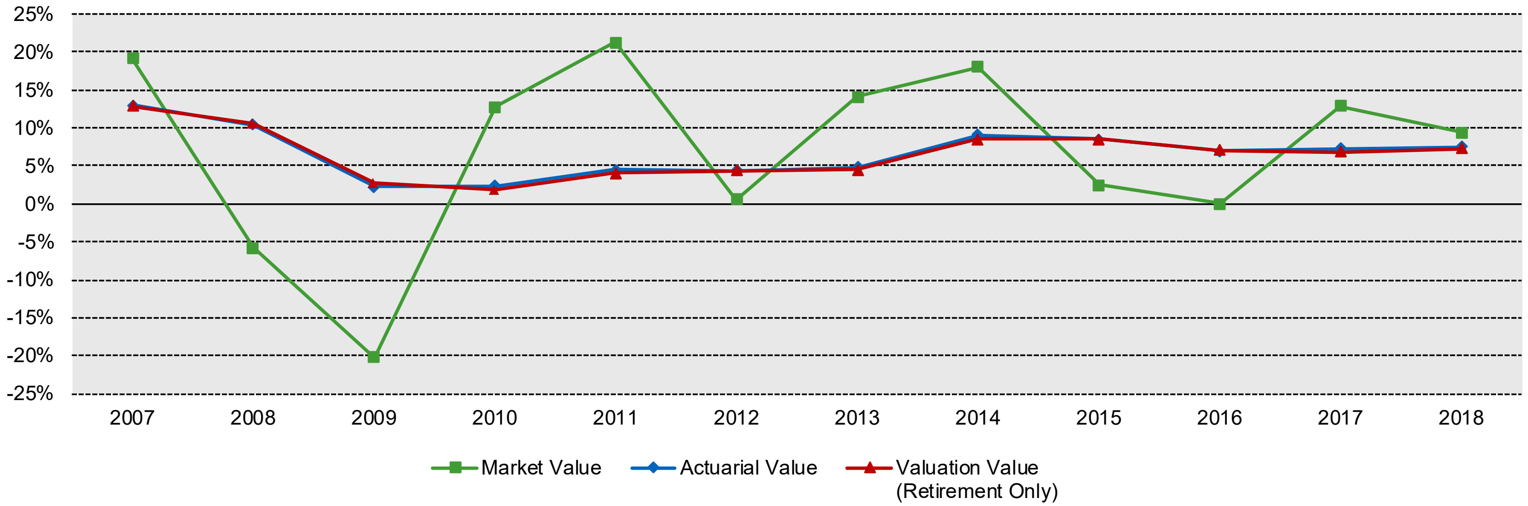
	Net Interest and Dividend Income		Recognition of Capital Appreciation		Actuarial Value Investment Return		Market Value Investment Return	
Year Ended June 30	**Amount**	**Percent**	**Amount**	**Percent**	**Amount**	**Percent**	**Amount**	**Percent**
2009	$237,249,377	2.17%	$9,861,278	0.09%	$247,110,655	2.26%	-$2,125,637,471	-20.26%
2010	190,583,695	1.73%	71,009,369	0.64%	261,593,064	2.37%	1,049,769,484	12.79%
2011	211,685,408	1.91%	291,263,922	2.63%	502,949,330	4.54%	1,934,130,562	21.33%
2012	213,980,878	1.88%	290,831,650	2.55%	504,812,528	4.43%	67,093,447	0.62%
2013	253,877,178	2.17%	315,633,473	2.69%	569,510,651	4.86%	1,512,696,071	14.14%
2014	225,147,763	1.86%	873,017,519	7.19%	1,098,165,282	9.05%	2,180,005,303	18.09%
2015	231,942,743	1.77%	887,268,617	6.79%	1,119,211,360	8.56%	348,113,908	2.47%
2016	240,916,934	1.71%	742,488,219	5.28%	983,405,153	6.99%	7,190,895	0.05%
2017	277,724,021	1.86%	807,293,418	5.41%	1,085,017,439	7.27%	1,834,657,728	12.94%
2018	291,385,736	1.84%	907,603,043	5.73%	1,198,988,779	7.57%	1,498,100,177	9.46%
Total	$2,374,493,733		$5,196,270,508		$7,570,764,241		$8,306,120,104	
					Five-year average return:	7.89%		8.40%
					Ten-year average return:	5.76%		6.49%

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

This chart illustrates how this leveling effect has actually worked over the years 2007 - 2018.

CHART 12

Market Value, Actuarial Value, and Valuation Value (Retirement Only) Rates of Return for Years Ended June 30, 2007– 2018



Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),
- the number of disability retirements, and
- salary increases different than assumed.

The net loss from this other experience for the year ended June 30, 2018 amounted to $144,729,707 which is 0.73% of the actuarial accrued liability.

A brief summary of the demographic loss experience of LACERS for the year ended June 30, 2018 is shown in the chart below.

The chart shows elements of the experience gain/(loss) for the most recent year.

CHART 13
Experience Due to Changes in Demographics for Year Ended June 30, 2018

1. Loss due to higher than expected salary increases for continuing actives	-$132,619,617
2. Gain due to lower than expected COLA granted to retirees and beneficiaries	19,600,829
3. Other demographic experience losses	-31,710,919
4. Total loss	-$144,729,707

D. RECOMMENDED CONTRIBUTION

The amount of annual contribution required to fund the Plan is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability. This total amount, adjusted with interest for timing, is then divided by the projected payroll for active members to determine the funding rate of 24.75% of payroll, if received by LACERS on July 15, 2019. The recommended contribution is set equal to the contributions under the current funding policy plus an additional contribution due to the application of the 40-year minimum amortization requirement for both fiscal year 2003/2004 and fiscal year 2004/2005. The amortization of the 40-year minimum for 2003/2004 and 2004/2005 will be fully completed in the next two valuations.

A summary of the recommended contributions by Tier is shown on pages 13 through 15.

The chart compares this valuation's recommended contribution with the prior valuation.

CHART 14
Recommended Contribution

Tier 1	Year Ended June 30			
	2018		2017	
Before Reflecting Increase in Contribution Rates due to Enhanced Benefits for APO	**Amount**	**% Payroll**	**Amount**	**% Payroll**
1. Total normal cost	$336,013,540	17.26%	$334,390,089	17.26%
2. Expected employee contributions(1)	-206,802,784	-10.63%	-205,720,520	-10.63%
3. Employer normal cost: (1) + (2)	$129,210,756	6.63%	$128,669,569	6.63%
4. Actuarial accrued liability	19,878,462,120		18,447,394,187	
5. Valuation value of assets	-13,908,770,325		-13,161,660,563	
6. Unfunded actuarial accrued liability	$5,969,691,795		$5,285,733,624	
7. Amortization of unfunded accrued liability	354,180,665	18.19%(2),(3)	318,001,527	16.42%(2)
8. Total recommended contribution, beginning of year: (3) + (7)	$483,391,421	24.82%	$446,671,096	23.05%
9. Total recommended contribution, July 15	484,783,849	24.90%	447,957,750	23.13%
10. Total recommended contribution, end of pay periods	500,607,773	25.71%	462,579,626	23.88%
Increase in Contribution Rates due to Enhanced Benefits for APO				
11. Employer normal cost, July 15		0.06%(4)		0.05%
12. Unfunded actuarial accrued liability, July 15		0.10%(4)		0.07%
13. Total recommended contribution, July 15		0.16%		0.12%
After Reflecting Increase in Contribution Rates due to Enhanced Benefits for APO				
14. Total recommended contribution, beginning of year	$486,645,060	24.98%	$448,800,203	23.17%
15. Total recommended contribution, July 15	488,046,860	25.06%	450,349,794	23.25%
16. Total recommended contribution, end of pay periods	503,977,293	25.88%	464,877,207	24.00%
17. Projected payroll	$1,947,223,478		$1,936,988,361	

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(1) *Discounted to beginning of year. The average employee rate for contributions made at the end of each pay period is actually 11.01% for the June 30, 2017 and June 30, 2018 valuations.*

(2) *In developing the UAAL contribution rate, we have combined the UAAL for Tiers 1 and 3 and amortized that total UAAL over the total payroll for Tiers 1 and 3.*

(3) *For purposes of purchasing service with the Water and Power Employees' Retirement Plan (WPERP) for Tier 1, the UAAL rate as of June 30, 2018 is 18.19% before reflecting enhanced benefits for APO, plus an additional 0.10% for the cost increase for the enhanced APO benefits for a total of 18.29%, if received at the beginning of the year. If received on July 15, the total UAAL rate of 18.29% increases to 18.34%.*

(4) *As previously discussed with LACERS, these rate increases have been re-measured for the June 30, 2018 valuation, since the actual elections for APO members remaining at LACERS and eligible to receive enhanced benefits were known for the first time as of this valuation date. These re-measured rates reflect all of the changes in the actuarial assumptions adopted by the Board for this valuation (i.e., after the June 30, 2016 valuation, which was the prior measurement date of the cost of the enhanced benefits for APO). Note that the UAAL rate increase of 0.10% measured as of June 30, 2018 and payable during FY 2019/2020 already reflects the pre-payment of the (a) the Normal Cost rate increase of 0.05% of Tier 1 payroll, and (b) the UAAL rate increase of 0.07% of all Tier 1 and Tier 3 payroll, both for the cost of the APO enhanced benefits resulting from the June 30, 2017 valuation and received on July 15, 2018 for FY 2018/2019.*

CHART 14
Recommended Contribution

Tier 3	Year Ended June 30			
	2018		2017	
Before Reflecting Increase in Contribution Rates due to Enhanced Benefits for APO	**Amount**	**% Payroll**	**Amount**	**% Payroll**
1. Total normal cost	$33,148,485	14.38%	$17,892,523	14.28%
2. Expected employee contributions[1]	-24,471,538	-10.62%	-13,307,624	-10.62%
3. Employer normal cost: (1) + (2)	$8,676,947	3.76%	$4,584,899	3.66%
4. Actuarial accrued liability	40,943,716		10,793,766	
5. Valuation value of assets	-73,665,140		-16,673,321	
6. Unfunded actuarial accrued liability	-$32,721,424		-$5,879,555	
7. Amortization of unfunded accrued liability	41,919,051	18.19%[2],[3]	20,575,457	16.42%[2]
8. Total recommended contribution, beginning of year: (3) + (7)	$50,595,998	21.95%	$25,160,356	20.08%
9. Total recommended contribution, July 15	50,741,742	22.02%	25,232,831	20.13%
10. Total recommended contribution, end of pay periods	52,398,013	22.74%	26,056,461	20.79%
Increase in Contribution Rates due to Enhanced Benefits for APO				
11. Employer normal cost, July 15		0.00%[4]		0.00%
12. Unfunded actuarial accrued liability, July 15		0.10%[4]		0.07%
13. Total recommended contribution, July 15		0.10%		0.07%
After Reflecting Increase in Contribution Rates due to Enhanced Benefits for APO				
14. Total recommended contribution, beginning of year	$50,833,488	22.05%	$25,253,545	20.15%
15. Total recommended contribution, July 15	50,979,916	22.12%	25,316,209	20.20%
16. Total recommended contribution, end of pay periods	52,643,961	22.85%	26,143,372	20.86%
17. Projected payroll	$230,463,624		$125,327,768	

[1] *Discounted to beginning of year. The average employee rate for contributions made at the end of each pay period is actually 11.00% for the June 30, 2017 and June 30, 2018 valuations.*

[2] *In developing the UAAL contribution rate, we have combined the UAAL for Tiers 1 and 3 and amortized that total UAAL over the total payroll for Tiers 1 and 3.*

[3] *For purposes of Government Service Buybacks for Tier 3, the cost of the purchase is based, in part, on the "City Contribution Rate," pursuant to the Administrative Code. As Tier 3 has no UAAL as of June 30, 2018, the City's normal cost rate of 3.76% (beginning of year) is used for purposes of these buybacks.*

[4] *As previously discussed with LACERS, these rate increases have been re-measured for the June 30, 2018 valuation, since the actual elections for APO members remaining at LACERS and eligible to receive enhanced benefits were known for the first time as of this valuation date. These re-measured rates reflect all of the changes in the actuarial assumptions adopted by the Board for this valuation (i.e., after the June 30, 2016 valuation, which was the prior measurement date of the cost of the enhanced benefits for APO). Note that the UAAL rate increase of 0.10% measured as of June 30, 2018 and payable during FY 2019/2020 already reflects the pre-payment of the UAAL rate increase of 0.07% of all Tier 1 and Tier 3 payroll for the cost of the APO enhanced benefits resulting from the June 30, 2017 valuation and received on July 15, 2018 for FY 2018/2019.*

CHART 14
Recommended Contribution

Combined	Year Ended June 30			
	2018		2017	
Before Reflecting Increase in Contribution Rates due to Enhanced Benefits for APO	Amount	% Payroll	Amount	% Payroll
1. Total normal cost	$369,162,025	16.95%	$352,282,612	17.08%
2. Expected employee contributions	-231,274,322	-10.63%	-219,028,144	-10.63%
3. Employer normal cost: (1) + (2)	$137,887,703	6.32%	$133,254,468	6.45%
4. Actuarial accrued liability	19,919,405,836		18,458,187,953	
5. Valuation value of assets	-13,982,435,465		-13,178,333,884	
6. Unfunded actuarial accrued liability	$5,936,970,371		$5,279,854,069	
7. Amortization of unfunded accrued liability	396,099,716	18.19%	338,576,984	16.42%
8. Total recommended contribution, beginning of year: (3) + (7)	$533,987,419	24.51%	$471,831,452	22.87%
9. Total recommended contribution, July 15	535,525,591	24.59%	473,190,581	22.94%
10. Total recommended contribution, end of pay periods	553,005,786	25.39%	488,636,087	23.69%
Increase in Contribution Rates due to Enhanced Benefits for APO				
11. Employer normal cost, July 15		0.06%		0.05%
12. Unfunded actuarial accrued liability, July 15		0.10%		0.07%
13. Total recommended contribution, July 15		0.16%		0.12%
After Reflecting Increase in Contribution Rates due to Enhanced Benefits for APO				
14. Total normal cost	$370,409,073	17.01%		
15. Expected employee contributions	-231,274,322	-10.63%		
16. Employer normal cost: (14) + (15)	$139,134,751	6.38%		
17. Actuarial accrued liability	19,944,579,058			
18. Valuation value of assets	-13,982,435,465			
19. Unfunded actuarial accrued liability	$5,962,143,593			
20. Amortization of unfunded accrued liability	398,343,797	18.29%		
21. Total recommended contribution, beginning of year: (16) + (19)	$537,478,548	24.67%	$474,053,748	22.99%
22. Total recommended contribution, July 15	539,026,776	24.75%	475,666,003	23.06%
23. Total recommended contribution, end of pay periods	556,621,254	25.56%	491,020,579	23.81%
24. Projected payroll	$2,177,687,102		$2,062,316,129	

The contribution rates as of June 30, 2018 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation.

Reconciliation of Recommended Contribution
The chart below details the changes in the recommended contribution from the prior valuation to the current year's valuation.

The chart reconciles the contribution from the prior valuation to the amount determined in this valuation.

CHART 15

Reconciliation of Recommended Contribution[1] from June 30, 2017 to June 30, 2018

Recommended Contribution as of June 30, 2017	23.06%
Effect of decrease in employer normal cost due to payroll and demographic changes (including the enrollment of new employees in Tier 3)	-0.28%
Effect of anticipated one-year delay in implementing the higher combined contribution rate calculated in the prior valuation	0.05%
Effect of investment gain on smoothed value of assets	-0.04%
Effect of higher than expected salary increases for actives	0.52%
Effect of amortizing prior year's UAAL over a larger than expected projected total payroll	-0.32%
Effect of lower than expected COLAs granted to retirees and beneficiaries	-0.08%
Effect of changes in actuarial assumptions	1.68%
Effect of actual enhanced Tier 1 elections[2]	0.04%
Effect of other demographic experience losses on accrued liability	0.12%
Total change	1.69%
Recommended Contribution as of June 30, 2018	24.75%

[1] *If received on July 15.*

[2] *The re-measured cost of the APO Tier 1 enhancements was 0.16% of payroll as of June 30, 2018, as shown in Chart 14. This item represents the 0.04% of payroll increase over the prior measurement of 0.12% (which was measured as of June 30, 2016). The increase was primarily a result of measuring the increase in the UAAL to improve past service earned through January 6, 2018 by using salary and other demographic information reported in the June 30, 2018 valuation.*

E. FUNDED RATIO

A commonly reported piece of information regarding the Plan's financial status is the funded ratio. The ratios compare the valuation value of assets and the market value of assets to the actuarial accrued liabilities of the Plan as calculated. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors. The chart below depicts a history of the funded ratios for this plan.

The funded status measures shown in this valuation are appropriate for assessing the need for or amount of future contributions. However, they are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations. As the chart below shows, the measures are different depending on whether the valuation or market value of assets is used.

CHART 16

Funded Ratio for Years Ending June 30, 2007– 2018

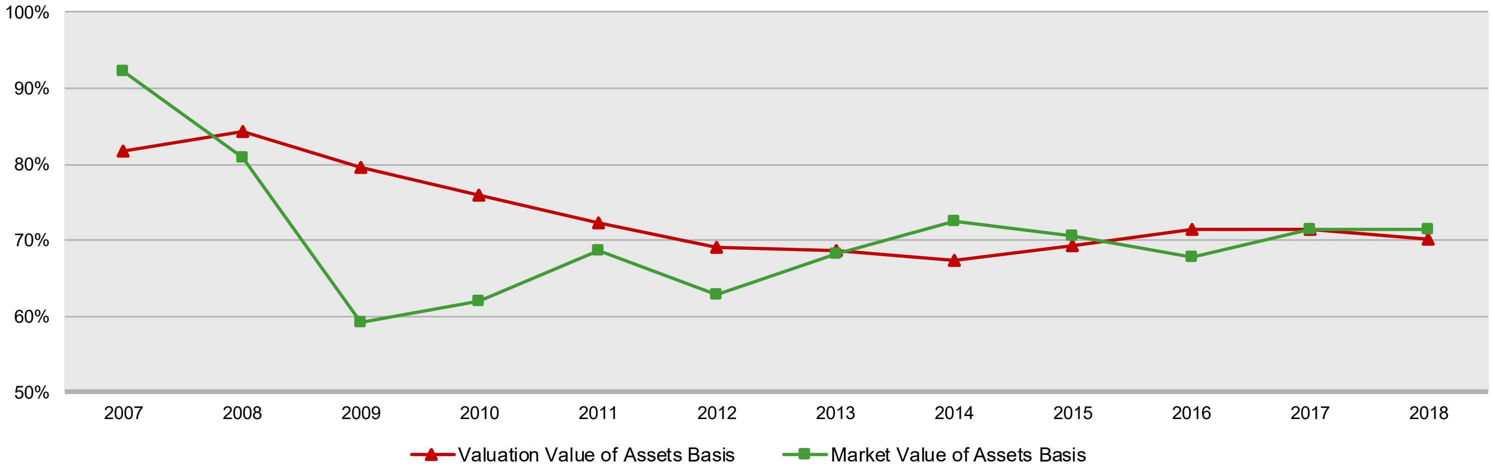

CHART 17
Schedule of Funding Progress

Actuarial Valuation Date	Valuation Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c)
06/30/2009	$9,577,747,421	$12,041,983,936	$2,464,236,515	79.54%	$1,816,171,212	135.68%
06/30/2010	9,554,027,411	12,595,025,119	3,040,997,708	75.86%	1,817,662,284	167.30%
06/30/2011	9,691,011,496	13,391,704,000	3,700,692,504	72.37%	1,833,392,381	201.85%
06/30/2012	9,934,959,310	14,393,958,574	4,458,999,264	69.02%	1,819,269,630	245.10%
06/30/2013	10,223,960,886	14,881,663,162	4,657,702,276	68.70%	1,846,970,474	252.18%
06/30/2014	10,944,750,574	16,248,853,099	5,304,102,525	67.36%	1,898,064,175	279.45%
06/30/2015	11,727,161,378	16,909,996,380	5,182,835,002	69.35%	1,907,664,598	271.68%
06/30/2016	12,439,250,206	17,424,996,329	4,985,746,123	71.39%	1,968,702,630	253.25%
06/30/2017	13,178,333,884	18,458,187,953	5,279,854,069	71.40%	2,062,316,129	256.02%
06/30/2018	13,982,435,465	19,944,579,058	5,962,143,593	70.11%	2,177,687,102	273.78%

F. VOLATILITY RATIOS

Retirement plans are subject to volatility in the level of required contributions. This volatility tends to increase as retirement plans become more mature.

The Asset Volatility Ratio (AVR), which is equal to the market value of assets divided by total payroll, provides an indication of the potential contribution volatility for any given level of investment volatility. A higher AVR indicates that the plan is subject to a greater level of contribution volatility. This is a current measure since it is based on the current level of assets.

For LACERS, the current AVR is about 6.5. This means that a 1% asset gain/(loss) (relative to the assumed investment return) translates to about 6.5% of one-year's payroll. Since LACERS amortizes actuarial gains and losses over a period of 15 years, there would be a 0.6% of payroll decrease/(increase) in the required contribution for each 1% asset gain/(loss).

The Liability Volatility Ratio (LVR), which is equal to the Actuarial Accrued Liability divided by payroll, provides an indication of the longer-term potential for contribution volatility for any given level of investment volatility. This is because, over an extended period of time, the plan's assets should track the plan's liabilities. For example, if a plan is 50% funded on a market value basis, the liability volatility ratio would be double the asset volatility ratio and the plan sponsor should expect contribution volatility to increase over time as the plan becomes better funded.

The LVR also indicates how volatile contributions will be in response to changes in the Actuarial Accrued Liability due to actual experience or to changes in actuarial assumptions.

For LACERS, the current LVR is about 9.2. This is about 42% higher than the AVR. Therefore, we would expect that contribution volatility will increase over the long-term.

This chart shows how the asset and liability volatility ratios have varied over time.

CHART 18

Volatility Ratios for Years Ended June 30, 2009 – 2018

Year Ended June 30	Asset Volatility Ratio	Liability Volatility Ratio
2009	3.8	6.5
2010	4.3	6.9
2011	5.0	7.3
2012	5.0	7.9
2013	5.5	8.1
2014	6.2	8.6
2015	6.2	8.9
2016	6.0	8.9
2017	6.4	9.0
2018	6.5	9.2

EXHIBIT A

Table of Plan Coverage

i. Tier 1

Category	Year Ended June 30 2018***	2017	Change From Prior Year
Active members in valuation:			
Number	22,409	23,426	-4.3%
Average age	49.2	48.9	0.3
Average service	15.7	15.2	0.5
Projected total payroll*	$1,947,223,478	$1,936,988,361	0.5%
Projected average payroll*	$86,895	$82,685	5.1%
Account balances	$2,143,199,216	$2,076,407,564	3.2%
Total active vested members	18,406	19,187	-4.1%
Inactive members:			
Number	7,490	7,238	3.5%
Average age	45.3	44.9	0.4
Average contribution balance for those with under 5 years of service	$6,329	$5,710	10.8%
Average monthly benefit at age 60 for those with 5 or more years of service	$1,538	$1,562**	1.3%
Retired members:			
Number in pay status	14,583	13,986	4.3%
Average service at retirement	26.6	26.6	0.0
Average age at retirement	60.3	60.3	0.0
Average age	71.8	71.9	-0.1
Average monthly benefit (includes July COLA)	$4,326	$4,167	3.8%
Disabled members:			
Number in pay status	894	902	-0.9%
Average service at retirement	11.6	11.7	-0.1
Average age at retirement	47.3	47.1	0.2
Average age	66.5	65.9	0.6
Average monthly benefit (includes July COLA)	$1,714	$1,669	2.7%
Beneficiaries:			
Number in pay status	3,902	3,917	-0.4%
Average age	76.2	76.3	-0.1
Average monthly benefit (includes July COLA)	$2,236	$2,171	3.0%

* *Reflects annualized salaries for part-time members.*

** *Based on salary at termination from LACERS.*

*** *Includes the following number of Airport Peace Officers eligible for enhanced benefits:*

Active members	*457*	*Retired members*	*31*	*Beneficiaries*	*0*
Inactive members	*7*	*Disabled members*	*0*		

Note that of the 457 active APO Tier 1 members as of June 30, 2018, 10 of them were active Tier 3 members as of June 30, 2017.

EXHIBIT A

Table of Plan Coverage

ii. Tier 3

Category	Year Ended June 30 2018	2017	Change From Prior Year
Active members in valuation:			
Number	3,633	2,031	78.9%
Average age	36.6	36.5	0.1
Average service	1.2	0.6	0.6
Projected total payroll*	$230,463,624	$125,327,768	83.9%
Projected average payroll*	$63,436	$61,707	2.8%
Account balances	$26,302,529	$8,647,360	204.2%
Total active vested members	54	1	5300.0%
Inactive members:			
Number	538	190	183.2%
Average age	36.1	35.8	0.3
Average contribution balance for those with under 5 years of service	$4,152	$2,070	100.6%
Average monthly benefit at age 60 for those with 5 or more years of service	N/A	N/A	N/A
Retired members:			
Number in pay status	0	0	N/A
Average service at retirement	N/A	N/A	N/A
Average age at retirement	N/A	N/A	N/A
Average age	N/A	N/A	N/A
Average monthly benefit (includes July COLA)	N/A	N/A	N/A
Disabled members:			
Number in pay status	0	0	N/A
Average service at retirement	N/A	N/A	N/A
Average age at retirement	N/A	N/A	N/A
Average age	N/A	N/A	N/A
Average monthly benefit (includes July COLA)	N/A	N/A	N/A
Beneficiaries:			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit (includes July COLA)	N/A	N/A	N/A

* *Reflects annualized salaries for part-time members.*

EXHIBIT B

Members in Active Service as of June 30, 2018
By Age, Years of Service*, and Average Payroll

i. Tier 1

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	363	363	- -	- -	- -	- -	- -	- -	- -	- -
	$44,115	$44,115	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,150	1,032	108	10	- -	- -	- -	- -	- -	- -
	57,749	57,238	$62,376	$60,513	- -	- -	- -	- -	- -	- -
30 - 34	1,520	792	374	350	4	- -	- -	- -	- -	- -
	70,201	64,956	75,261	76,743	$63,258	- -	- -	- -	- -	- -
35 - 39	2,273	544	360	1,067	298	4	- -	- -	- -	- -
	82,899	73,048	81,186	87,679	85,999	$70,407	- -	- -	- -	- -
40 - 44	2,583	367	247	946	888	131	4	- -	- -	- -
	89,148	75,890	84,252	88,642	95,443	95,982	$106,411	- -	- -	- -
45 - 49	3,048	335	217	789	971	466	243	27	- -	- -
	91,313	71,756	79,387	83,854	97,453	104,482	102,999	$94,545	- -	- -
50 - 54	3,870	214	197	740	894	494	833	481	17	- -
	95,129	76,017	76,016	79,865	91,123	105,846	111,857	102,154	$102,505	- -
55 - 59	3,507	201	178	597	730	374	697	578	149	3
	94,483	70,288	69,830	77,644	89,264	100,843	106,853	111,966	107,105	$136,839
60 - 64	2,363	115	115	524	532	236	383	318	105	35
	91,897	70,032	72,711	79,060	85,430	97,268	104,597	113,877	107,519	95,511
65 - 69	1,151	43	63	250	309	109	154	146	44	33
	86,649	57,829	71,373	71,442	84,137	94,442	100,412	98,735	107,392	120,991
70 & over	581	24	47	119	161	64	52	61	20	33
	76,907	62,503	56,000	60,202	73,129	83,055	93,135	92,112	104,455	113,530
Total	22,409	4,030	1,906	5,392	4,787	1,878	2,366	1,611	335	104
	$86,895	$64,663	$76,098	$82,148	$90,894	$101,231	$107,132	$107,171	$106,881	$110,506

* *Based on employment service. Average employment service for Tier 1 is 15.7 compared to average benefit service of 15.0.*

EXHIBIT B

Members in Active Service as of June 30, 2018
By Age, Years of Service*, and Average Payroll

ii. Tier 3

	Years of Service									
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	377	377	- -	- -	- -	- -	- -	- -	- -	- -
	$47,140	$47,140	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	852	851	1	- -	- -	- -	- -	- -	- -	- -
	55,296	55,250	$94,096	- -	- -	- -	- -	- -	- -	- -
30 - 34	685	678	4	3	- -	- -	- -	- -	- -	- -
	64,664	64,365	101,321	$83,332	- -	- -	- -	- -	- -	- -
35 - 39	544	537	3	3	1	- -	- -	- -	- -	- -
	68,091	68,007	75,499	78,254	$60,826	- -	- -	- -	- -	- -
40 - 44	362	353	4	2	2	1	- -	- -	- -	- -
	69,353	68,922	101,691	92,014	59,919	$65,650	- -	- -	- -	- -
45 - 49	297	283	2	6	4	- -	2	- -	- -	- -
	74,271	71,565	74,625	109,844	123,707	- -	$251,206	- -	- -	- -
50 - 54	249	238	4	- -	6	1	- -	- -	- -	- -
	73,324	72,753	78,018	- -	87,690	104,272	- -	- -	- -	- -
55 - 59	180	175	1	2	- -	- -	2	- -	- -	- -
	68,648	67,453	63,880	161,837	- -	- -	82,353	- -	- -	- -
60 - 64	64	64	- -	- -	- -	- -	- -	- -	- -	- -
	69,034	69,034	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	21	21	- -	- -	- -	- -	- -	- -	- -	- -
	85,421	85,421	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	2	2	- -	- -	- -	- -	- -	- -	- -	- -
	126,147	126,147	- -	- -	- -	- -	- -	- -	- -	- -
Total	3,633	3,579	19	16	13	2	4	- -	- -	- -
	$63,436	$62,899	$87,255	$103,220	$92,433	$84,962	$166,779	- -	- -	- -

* *Based on employment service. Average employment service for Tier 3 is 1.2 compared to average benefit service of 1.0. We understand that several Tier 3 members entered LACERS with incoming reciprocal (i.e., employment) service.*

EXHIBIT C

Reconciliation of Member Data

	Active Members	Inactive Members	Disableds	Retired Members	Beneficiaries	Total
Number as of June 30, 2017	25,457	7,428	902	13,986	3,917	51,690
New members	2,369	N/A	N/A	N/A	N/A	2,369
Terminations – with vested rights	-1,003	1,003	0	0	0	0
Retirements	-902	-140	N/A	1,042	N/A	0
New disabilities	0	-25	25	N/A	N/A	0
Died with beneficiary	N/A	N/A	N/A	N/A	245	245
Deaths or benefits expired	-57	-45	-31	-445	-259	-837
Refund of members contributions	-97	-110	0	0	0	-207
Rehired	275	-274	-1	0	N/A	0
Data adjustments	0	191*	-1	0	-1	189
Number as of June 30, 2018	26,042	8,028	894	14,583	3,902	53,449

* *Includes members who were both hired and terminated during the year.*

Note: For the change in the annual benefits from the retirees and beneficiaries added to and removed from the rolls, refer to Exhibit D of the supplemental schedules that accompany this report.

EXHIBIT D

Summary Statement of Income and Expenses on an Actuarial Value Basis for Retirement, Health, Family Death, and Larger Annuity Benefits

	June 30, 2018		June 30, 2017	
Contribution income:				
Employer contributions	$551,247,264		$550,961,514	
Employee contributions	236,222,166		227,531,810	
Net contribution income		$787,469,430		$778,493,324
Investment income:				
Interest, dividends and other income	$391,326,284		$371,193,752	
Recognition of capital appreciation	907,603,043		807,293,418	
Less investment and administrative fees	-99,940,548		-93,469,731	
Net investment income		$1,198,988,779		$1,085,017,439
Total income available for benefits		$1,986,458,209		$1,863,510,763
Less benefit payments:				
Payment of benefits	-$975,112,058		-$918,837,634	
Refunds of contributions	-10,411,515		-9,802,623	
Net benefit payments		-$985,523,573		-$928,640,257
Change in reserve for future benefits		$1,000,934,636		$934,870,506

Note: Results may be slightly off due to rounding.

EXHIBIT E

Summary Statement of Assets for Retirement, Health, Family Death, and Larger Annuity Benefits

	June 30, 2018		June 30, 2017	
Cash equivalents		$470,390,317		$491,514,054
Accounts receivable:				
Accrued investment income	$57,236,792		$52,776,887	
Proceeds from sales of investments	86,261,200		112,600,821	
Other	13,985,260		13,529,376	
Total accounts receivable		$157,483,252		$178,907,084
Investments:				
Fixed income	$4,054,094,716		$3,726,445,570	
Equities	9,783,373,660		9,019,681,282	
Real estate and alternative investment	2,608,972,084		2,413,497,346	
Other	911,404,923		962,815,829	
Total investments at market value		$17,357,845,384		$16,122,440,027
Capital assets		$9,184,627		$6,489,879
Total assets		$17,994,903,579		$16,799,351,044
Less accounts payable:				
Accounts payable and accrued expenses		-$40,966,628		-$37,587,430
Accrued investment expenses		-10,455,435		-10,779,563
Purchases of investments		-158,788,428		-197,722,529
Security lending collateral		-795,076,744		-863,691,212
Total accounts payable		-$1,005,287,235		-$1,109,780,734
Net assets at market value		$16,989,616,344		$15,689,570,310
Net assets at actuarial value		$16,687,907,767		$15,686,973,131
Net assets at valuation value (retirement benefits)		$13,982,435,465		$13,178,333,884

Note: Results may be slightly off due to rounding.

EXHIBIT F

Development of the Fund Through June 30, 2018 for Retirement, Health, Family Death, and Larger Annuity Benefits

Year Ended June 30	Employer Contributions	Employee Contributions	Net Investment Return[1]	Benefit Payments	Actuarial Value of Assets at End of Year
2009	$383,637,842	$118,592,071	$247,110,655	$605,798,000	$10,949,384,202
2010	362,751,146	126,961,295	261,593,064	681,106,189	11,019,583,518
2011	414,133,032	114,731,434	502,949,330	770,755,578	11,280,641,736
2012	423,920,740	178,246,151	504,812,528	767,163,328	11,620,457,827
2013	419,266,581	197,880,631	569,510,651	803,005,352	12,004,110,338
2014	455,658,786	204,135,914	1,098,165,281	826,566,921	12,935,503,398
2015	481,765,868	207,564,465	1,119,211,360	848,455,864[2]	13,895,589,227
2016	546,687,123	211,344,752	983,405,153	884,923,630	14,752,102,625
2017	550,961,514	227,531,810	1,085,017,439	928,640,257	15,686,973,131
2018	551,247,264	236,222,166	1,198,988,779	985,523,573[3]	16,687,907,767

[1] *Based on actuarial value of assets. Net of investment fees and administrative expenses.*

[2] *Includes transfer of $2,614,765 to Fire and Police Pension for Office of Public Safety.*

[3] *Includes approximately $3.0 million transferred to LAFPP on January 5, 2018 for the APO who transferred from LACERS to LAFPP on January 7, 2018.*

EXHIBIT G

Development of Unfunded Actuarial Accrued Liability for Year Ended June 30, 2018

1. Unfunded actuarial accrued liability at beginning of year	$5,279,854,069
2. Normal cost at beginning of year	352,282,612
3. Expected contributions at beginning of year*	-684,971,324
4. Interest	358,669,488
5. Expected unfunded actuarial accrued liability	$5,305,834,845
6. Changes due to net experience loss**	147,418,362
7. Changes due to new actuarial assumptions	483,717,164
8. Changes due to APO Enhanced Tier 1	25,173,222
9. Unfunded actuarial accrued liability at end of year	$5,962,143,593

* *Net of the additional expected employer contributions due to the application of the 40-year minimum amortization required for the two GASB 25/27 layers, since the beginning of year UAAL was developed without the liability associated with those two layers. These additional contributions will serve to reduce the contribution loss (if any) from the scheduled one-year delay in implementing the higher contribution rates calculated in the prior valuation.*

** *The breakdown of the net experience loss is as follows:*

Loss due to actual contributions less than expected (with interest to end of year)	*$14,035,442*
Investment gain on smoothed value of assets	*-11,346,787*
Loss due to higher than expected salary increases for continuing actives	*132,619,617*
Gain due to lower than expected COLAs granted to retirees and beneficiaries	*-19,600,829*
Other losses on demographic experience	*31,710,919*
Total loss	*$147,418,362*

EXHIBIT H

Table of Amortization Bases

Type	Date Established	Initial Years	Initial Amount	Outstanding Balance	Years Remaining	Annual Payment[1]
Plan amendment (2009 ERIP)	06/30/2009	15	$300,225,354	$198,679,322	6	$36,127,827
Combined base	06/30/2012	30	4,173,548,280	4,601,972,146	24	280,147,598
Experience loss	06/30/2013	15	116,022,989	101,507,481	10	11,851,886
Experience gain	06/30/2014	15	-215,549,892	-195,909,066	11	-21,144,601
Change in assumptions	06/30/2014	20	785,439,114	777,311,341	16	62,599,783
Experience gain	06/30/2015	15	-185,473,782	-174,102,784	12	-17,513,174
Experience gain	06/30/2016	15	-255,444,007	-245,950,817	13	-23,216,814
Experience gain	06/30/2017	15	-99,814,895	-98,002,951	14	-8,732,142
Change in assumptions	06/30/2017	20	340,717,846	340,330,173	19	24,212,454
Experience loss	06/30/2018	15	147,418,362	147,418,362	15	12,460,534
Change in assumptions	06/30/2018	20	483,717,164	483,717,164	20	33,212,003
Plan amendment (APO Tier 1 Enhancement)	01/07/2018	15	25,170,149	25,173,222[2]	14.5	N/A[3]
Subtotal before GASB amount				**$5,962,143,593**		$392,249,435[3]
40-year minimum GASB 25/27	06/30/2004	15	$29,189,615	$4,296,981	1	$4,296,981
40-year minimum GASB 25/27	06/30/2005	15	12,708,684	3,531,917	2	1,797,381
Total				$5,969,972,491		**$398,343,797[3]**

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[1] *Beginning of year payments, based on level percentage of payroll.*

[2] *Note that this amount is slightly larger than the initial amount since the pre-paid employer contribution received on July 15, 2017 was less than the amount required to pay the actual FY 2017/2018 cost of the APO Tier 1 enhancement based on the membership that actually chose to remain at LACERS and be eligible for the enhancement.*

[3] *These annual payments do not equal the sum of the amounts shown above. (The sum of the annual payments shown, including the GASB amounts, totals $396,099,716.) Note that the annual payment amount for the APO Tier 1 Enhancement amortization base established 1/7/2018 is not shown, since the calculated payment amount for that base was determined as of June 30, 2019 over a 13.5-year amortization period and rolled back to June 30, 2018. This was done to reflect the City's pre-payment received by LACERS on July 15, 2018 for FY 2018/2019 of the Normal Cost rate increase of 0.05% of Tier 1 payroll, and the UAAL rate increase of 0.07% of all Tier 1 and Tier 3 payroll for the cost of the APO enhanced benefits, both based on the results of the June 30, 2017 valuation.*

Note: The equivalent single amortization period is about 21 years.

EXHIBIT I

Projection of UAAL Balances and Payments (1 of 2)

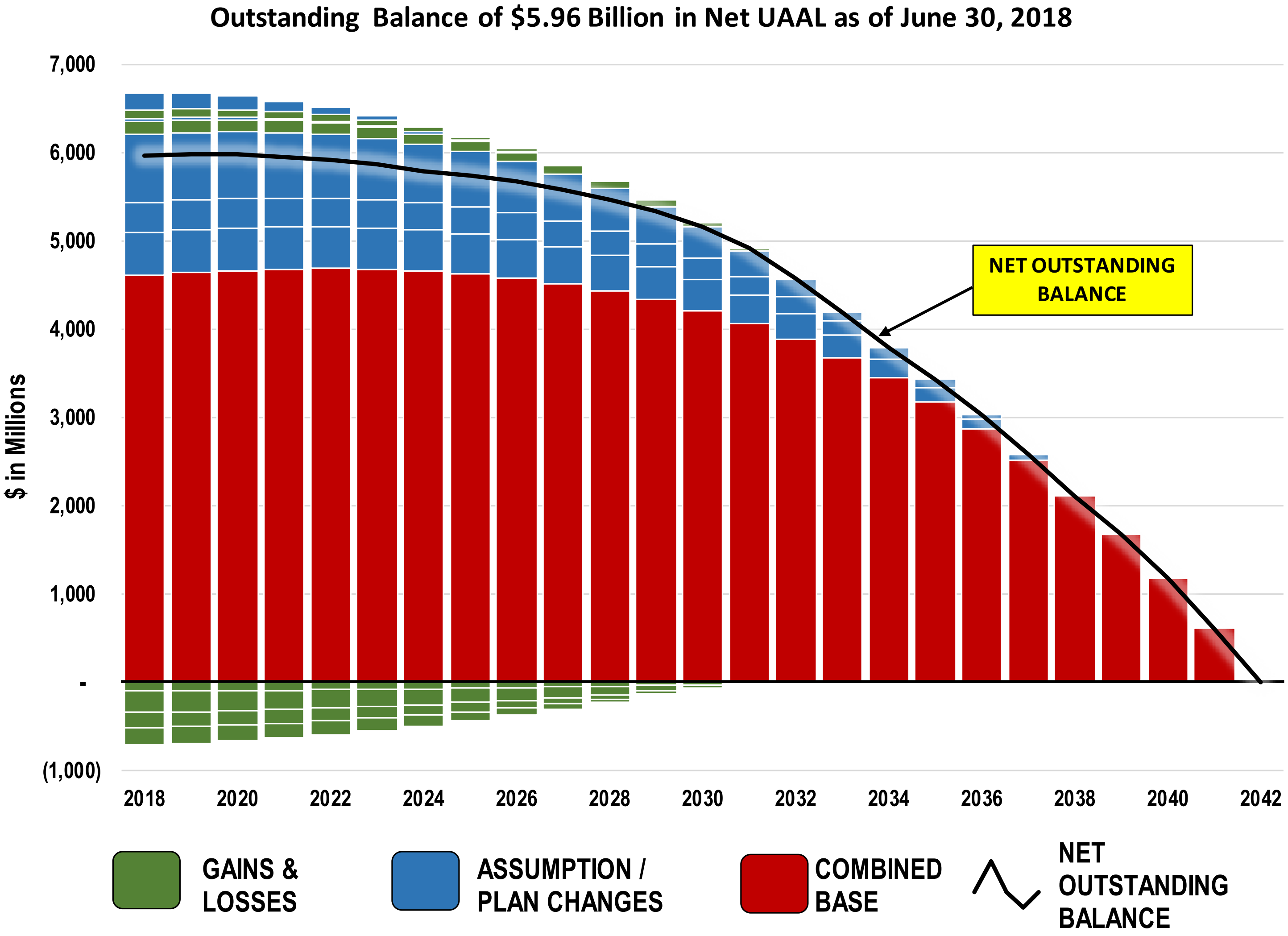

EXHIBIT I

Projection of UAAL Balances and Payments (2 of 2)

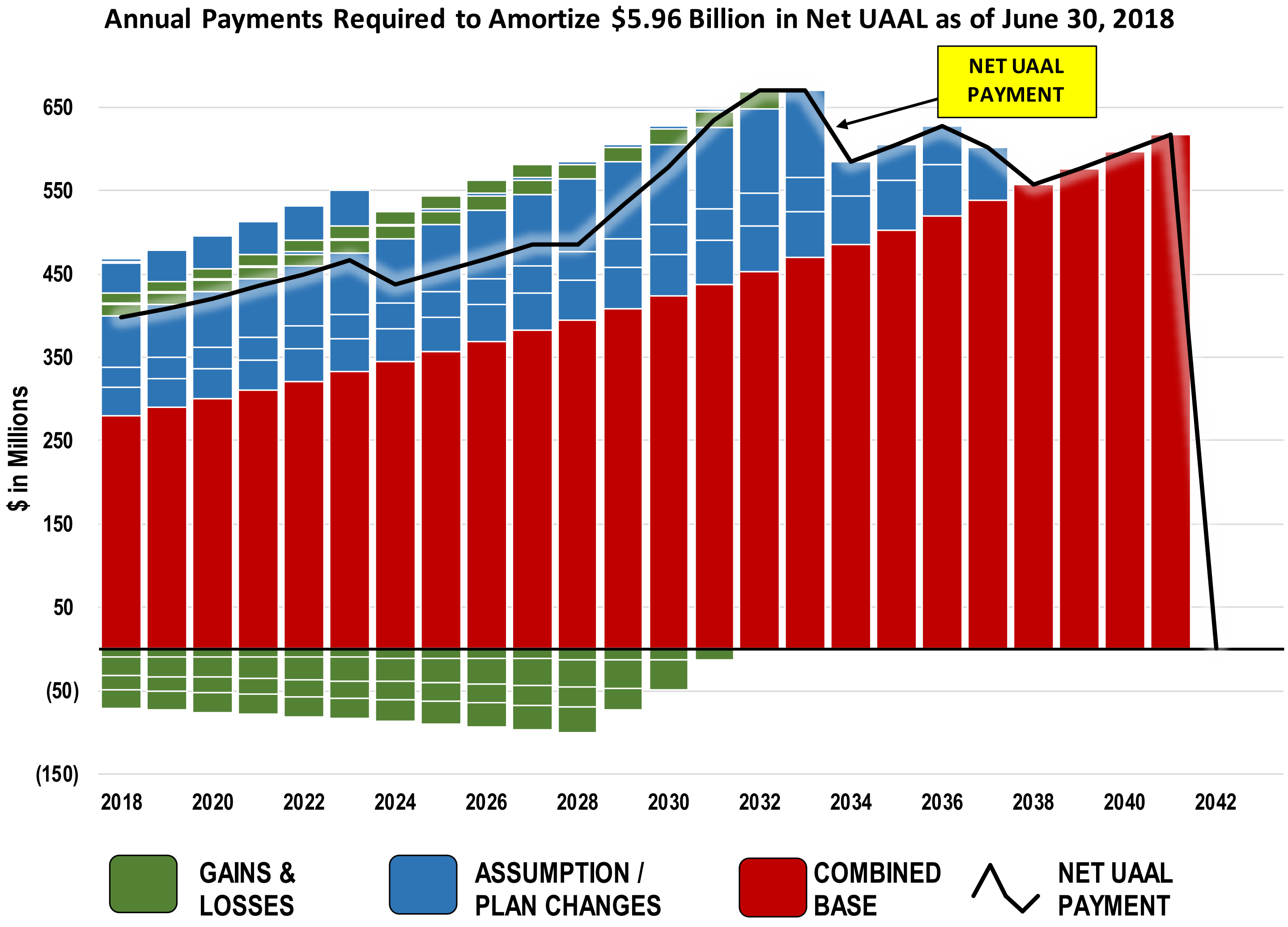

EXHIBIT J

Section 415 Limitations

Section 415 of the Internal Revenue Code (IRC) specifies the maximum benefits that may be paid to an individual from a defined benefit plan and the maximum amounts that may be allocated each year to an individual's account in a defined contribution plan.

A qualified pension plan may not pay benefits in excess of the Section 415 limits. The ultimate penalty for non-compliance is disqualification: active participants could be taxed on their vested benefits and the IRS may seek to tax the income earned on the plan's assets.

In particular, Section 415(b) of the IRC limits the maximum annual benefit payable at the Normal Retirement Age to a dollar limit of $160,000 indexed for inflation. That limit is $220,000 for 2018. Normal Retirement Age for these purposes is age 62. These are the limits in simplified terms. They must be adjusted based on each participant's circumstances, for such things as age at retirement, form of benefits chosen and after tax contributions.

Benefits in excess of the limits may be paid through a qualified governmental excess plan that meets the requirements of Section 415(m).

Legal Counsel's review and interpretation of the law and regulations should be sought on any questions in this regard.

Contribution rates determined in this valuation have not been reduced for the Section 415 limitations. Actual limitations will result in gains as they occur.

EXHIBIT K
Definitions of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or Actuarial Assumptions:	The estimates on which the cost of the Plan is calculated including: (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future; (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates; (c) Retirement rates — the rate or probability of retirement at a given age; and (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.
Normal Cost:	The amount of contributions required to fund the benefit allocated to the current year of service.
Actuarial Accrued Liability For Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability For Pensioners:	The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Unfunded Actuarial Accrued Liability:	The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.
Amortization of the Unfunded Actuarial Accrued Liability:	Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

Investment Return:	The rate of earnings of the Plan from its investments, including interest, dividends and market gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the market gains and losses to avoid significant swings in the value of assets from one year to the next.

EXHIBIT I

Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

1. Retired members as of the valuation date (including 3,902 beneficiaries in pay status)		19,379
2. Inactive members during year ended June 30, 2018 (including 5,158 members with under 5 years of service eligible for a refund of contributions)		8,028
3. Members active during the year ended June 30, 2018		26,042
Fully vested	18,460	
Not vested	7,582	

The actuarial factors as of the valuation date are as follows:

Assets		
1. Valuation value of assets ($16,989,616,344 at market value as reported by LACERS and $16,687,907,767 at actuarial value*)		$13,982,435,465
2. Present value of future normal costs		
Employee	$1,791,352,447	
Employer	1,091,131,372	
Total		2,882,483,819
3. Unfunded actuarial accrued liability		5,962,143,593
4. Present value of current and future assets		$22,827,062,877
Liabilities		
5. Present value of future benefits		
Retired members and beneficiaries	$10,778,202,813	
Inactive members	485,374,682	
Active members	11,563,485,382	
Total		$22,827,062,877

* *Market value and actuarial value of assets include assets for Retirement, Health, Family Death, and Larger Annuity Benefits.*

EXHIBIT I (continued)
Summary of Actuarial Valuation Results

The determination of the recommended contribution is as follows:

		Tier 1	Tier 3	Combined
	Before Reflecting Increase in Contribution Rates due to Enhanced Benefits for APO			
1.	Total normal cost	$336,013,540	$33,148,485	$369,162,025
2.	Expected employee contributions[1]	-206,802,784	-24,471,538	-231,274,322
3.	Employer normal cost: (1) + (2)	$129,210,756	$8,676,947	$137,887,703
4.	Payment on projected unfunded actuarial accrued liability	354,180,665	41,919,051	396,099,716
5.	Total recommended contribution: (3) + (4), beginning of year	$483,391,421	$50,595,998	$533,987,419
6.	Total recommended contribution: adjusted for July 15 timing	484,783,849	50,741,742	535,525,591
7.	Total recommended contribution: adjusted for biweekly timing	500,607,773	52,398,013	553,005,786
8.	Item 5 (beginning of year contribution) as a percentage of projected payroll: (5) ÷ (17)	24.82%	21.95%	24.51%
9.	Item 6 (July 15 contribution) as a percentage of projected payroll: (6) ÷ (17)	24.90%	22.02%	24.59%
10.	Item 7 (biweekly contribution) as a percentage of projected payroll: (7) ÷ (17)	25.71%	22.74%	25.39%
	After Reflecting Increase in Contribution Rates due to Enhanced Benefits for APO			
11.	Total recommended contribution: beginning of year	$486,645,060	$50,833,488	$537,478,548
12.	Total recommended contribution: adjusted for July 15 timing	488,046,860	50,979,916	539,026,776
13.	Total recommended contribution: adjusted for biweekly timing	503,977,293	52,643,961	556,621,254
14.	Item 11 (beginning of year contribution) as a percentage of projected payroll: (11) ÷ (17)	24.98%	22.05%	24.67%
15.	Item 12 (July 15 contribution) as a percentage of projected payroll: (12) ÷ (17)	25.06%	22.12%	24.75%
16.	Item 13 (biweekly contribution) as a percentage of projected payroll: (13) ÷ (17)	25.88%	22.85%	25.56%
17.	Projected payroll	$1,947,223,478	$230,463,624	$2,177,687,102

(1) *Discounted to beginning of year.*

EXHIBIT II

History of Employer Contributions

Plan Year Ended June 30	Actuarially Determined Employer Contributions (ADEC)*	Actual Contributions	Percentage Contributed
2009	$274,554,786	$274,554,786	100.00%
2010	258,642,795	258,642,795	100.00%
2011	303,560,953	303,560,953	100.00%
2012	308,539,905	308,539,905	100.00%
2013	346,180,852	346,180,852	100.00%
2014	357,649,232	357,649,232	100.00%
2015	381,140,923	381,140,923	100.00%
2016	440,546,011	440,546,011	100.00%
2017	453,356,059	453,356,059	100.00%
2018	450,195,254	450,195,254	100.00%

* Prior to plan year ending June 30, 2014, this amount was the Annual Required Contribution (ARC).

EXHIBIT III

Actuarial Assumptions and Actuarial Cost Method

Rationale for Assumptions: The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the July 1, 2014 through June 30, 2017 Actuarial Experience Study dated June 29, 2018, and the June 30, 2017 Review of Economic Actuarial Assumptions dated June 30, 2017. Unless otherwise noted, all actuarial assumptions and methods shown below apply to both Tier 1 and Tier 3 members. These assumptions have been adopted by the Board.

Economic Assumptions:

Net Investment Return: 7.25%, net of investment and administrative expenses.

Consumer Price Index: Increase of 3.00% per year; benefit increases due to CPI subject to 3.00% maximum for Tier 1 and 2.00% maximum for Tier 3.

Employee Contribution Crediting Rate: Based on average of 5-year Treasury note rate. An assumption of 3.00% is used to approximate that crediting rate in this valuation.

Salary Increases: Inflation: 3.00%; plus additional 0.50% "across the board" salary increases (other than inflation); plus the following merit and promotional increases:

Service	Percentage Increase
0	6.50%
1	6.20%
2	5.10%
3	3.10%
4	2.10%
5	1.10%
6	1.00%
7	0.90%
8	0.70%
9	0.60%
10+	0.40%

Demographic Assumptions:

Post-Retirement Mortality Rates:

Healthy Members and All Beneficiaries:	Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females) projected generationally with the two-dimensional mortality improvement scale MP-2017.
Disabled Members:	Headcount-Weighted RP-2014 Disabled Retiree Mortality Table (separate tables for males and females) projected generationally with the two-dimensional mortality improvement scale MP-2017.

The RP-2014 mortality tables and adjustments as shown above reflect the mortality experience as of the measurement date. The generational projection is a provision for future mortality improvement.

Termination Rates Before Retirement:

Pre-Retirement Mortality:	Headcount-Weighted RP-2014 Employee Mortality Table (separate tables for males and females) times 90%, projected generationally with the two-dimensional mortality improvement scale MP-2017.

	Rate (%)	
Age	**Disability**	**Termination***
25	0.01	7.00
30	0.02	7.00
35	0.05	5.50
40	0.07	3.90
45	0.13	3.20
50	0.19	2.70
55	0.20	2.50
60	0.20	2.50

* *Rates for members with five or more years of service. Termination rates are zero for members eligible to retire.*

Rates of termination for members with less than 5 years of service are as follows:

	Rate (%)
Service	**Termination (Based on Service)**
0	12.00
1	10.00
2	9.00
3	8.25
4	7.75

Retirement Rates:

	Rate (%)					
	Tier 1		APO Tier 1(1)		Tier 3	
Age	Non-55/30	55/30	Non-55/30	55/30	Non-55/30	55/30
50	6.0	0.0	7.0	0.0	6.0	0.0
51	3.0	0.0	4.0	0.0	3.0	0.0
52	3.0	0.0	4.0	0.0	3.0	0.0
53	3.0	0.0	4.0	0.0	3.0	0.0
54	17.0	0.0	18.0	0.0	16.0	0.0
55	6.0	24.0	7.0	25.0	0.0(2)	23.0
56	6.0	16.0	7.0	17.0	0.0(2)	15.0
57	6.0	16.0	7.0	17.0	0.0(2)	15.0
58	6.0	16.0	7.0	17.0	0.0(2)	15.0
59	6.0	16.0	7.0	17.0	0.0(2)	15.0
60	7.0	16.0	8.0	17.0	6.0	15.0
61	7.0	16.0	8.0	17.0	6.0	15.0
62	7.0	16.0	8.0	17.0	6.0	15.0
63	7.0	16.0	8.0	17.0	6.0	15.0
64	7.0	16.0	8.0	17.0	6.0	15.0
65	13.0	20.0	14.0	21.0	12.0	19.0
66	13.0	20.0	14.0	21.0	12.0	19.0
67	13.0	20.0	14.0	21.0	12.0	19.0
68	13.0	20.0	14.0	21.0	12.0	19.0
69	13.0	20.0	14.0	21.0	12.0	19.0
70	100.0	100.0	100.0	100.0	100.0	100.0

(1) *Consistent with the cost study prepared for the adoption of enhanced Tier 1 benefits, we have estimated the rates above by increasing the retirement rates for Tier 1 by a flat 1%.*

(2) *Not eligible to retire under the provisions of the Tier 3 plan.*

Retirement Age and Benefit for Inactive Vested Participants:	Pension benefit paid at the later of age 59 or the current attained age. For reciprocals, 3.90% compensation increases per annum.
Exclusion of Inactive Members:	All inactive participants are included in the valuation.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Percent Married/Domestic Partner:	76% of male participants; 50% of female participants.
Age of Spouse:	Male retirees are assumed to be 3 years older than their female spouses. Female retirees are assumed to be 2 years younger than their male spouses.
Service:	Employment service is used for eligibility determination purposes. Benefit service is used for benefit calculation purposes.
Future Benefit Accruals:	1.0 year of service credit per year.
Other Reciprocal Service:	5% of future inactive vested members will work at a reciprocal system.

Actuarial Methods:

Actuarial Value of Assets:	The market value of assets less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual and expected returns on a market value basis and is recognized over a seven-year period. The actuarial value of assets cannot be less than 60% or greater than 140% of the market value of assets.

Actuarial Cost Method:	Entry Age Cost Method, level percent of salary.
Funding Policy:	The plan sponsor of the City of Los Angeles Employees' Retirement System makes contributions equal to the normal cost adjusted by an amount to amortize any surplus or unfunded actuarial accrued liability. The amortization method for the UAAL is a level percent of payroll, assuming annual increases in total covered payroll equal to inflation plus across the board increases (other than inflation). Both the normal cost and the actuarial accrued liability are determined under the Entry Age cost method and are calculated on an individual basis. Entry age is calculated as age on the valuation date minus years of employment service. Under the current funding policy, changes in the UAAL due to actuarial gains/losses are amortized over separate 15-year periods. Any changes in the UAAL due to assumption or method changes are amortized over separate 20-year periods. Plan changes, including the 2009 ERIP, are amortized over separate 15-year periods. Future ERIPs will be amortized over 5 years. Any actuarial surplus is amortized over 30 years. All the bases on or before June 30, 2012, except those arising from the 2009 ERIP and the two GASB 25/27 layers, were combined and amortized over 30 years effective June 30, 2012. The recommended contribution is set equal to the contribution under the current funding policy plus an additional contribution due to the application of the 40-year minimum amortization requirement for both fiscal year 2003/2004 and fiscal year 2004/2005. The amortization of the 40-year minimum for 2003/2004 and 2004/2005 will be fully completed in the next two valuations.
Changes in Actuarial Assumptions:	Based on the July 1, 2014 through June 30, 2017 Actuarial Experience Study, the following actuarial assumptions were changed. Previously, these assumptions were as follows:

Changes in Actuarial Assumptions (continued):

Demographic Assumptions:

Post-Retirement Mortality Rates:

Healthy Members and All Beneficiaries:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.
Disabled Members:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward eight years for females.

The above mortality tables contain about a 10% margin, based on actual to expected deaths, as a provision to reflect future mortality improvement, based on a review of mortality experience as of the measurement date.

Termination Rates Before Retirement:

Pre-Retirement Mortality:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

	Rate (%)	
Age	**Disability**	**Termination***
25	0.01	5.75
30	0.03	5.75
35	0.05	4.85
40	0.09	3.50
45	0.15	2.70
50	0.19	2.50
55	0.20	2.35
60	0.20	2.25

* *Rates for members with five or more years of service. Termination rates are zero for members eligible to retire.*

Changes in Actuarial Assumptions (continued):

Rates of termination for members with less than 5 years of service are as follows:

	Rate (%)
Service	**Termination (Based on Service)**
0	13.25
1	11.00
2	8.75
3	7.25
4	5.75

Retirement Rates:

	Rate (%)					
	Tier 1		**APO Tier 1(1)**		**Tier 3**	
Age	**Non-55/30**	**55/30**	**Non-55/30**	**55/30**	**Non-55/30**	**55/30**
50	6.0	0.0	7.0	0.0	6.0	0.0
51	3.0	0.0	4.0	0.0	3.0	0.0
52	3.0	0.0	4.0	0.0	3.0	0.0
53	3.0	0.0	4.0	0.0	3.0	0.0
54	16.0	0.0	17.0	0.0	15.0	0.0
55	6.0	20.0	7.0	21.0	0.0(2)	19.0
56	6.0	14.0	7.0	15.0	0.0(2)	13.0
57	6.0	14.0	7.0	15.0	0.0(2)	13.0
58	6.0	14.0	7.0	15.0	0.0(2)	13.0
59	6.0	14.0	7.0	15.0	0.0(2)	13.0
60	6.0	14.0	7.0	15.0	5.0	13.0
61	6.0	14.0	7.0	15.0	5.0	13.0
62	7.0	15.0	8.0	16.0	6.0	14.0
63	7.0	15.0	8.0	16.0	6.0	14.0
64	7.0	16.0	8.0	17.0	6.0	15.0
65	12.0	17.0	13.0	18.0	11.0	16.0
66	12.0	17.0	13.0	18.0	11.0	16.0
67	12.0	17.0	13.0	18.0	11.0	16.0
68	12.0	17.0	13.0	18.0	11.0	16.0
69	12.0	17.0	13.0	18.0	11.0	16.0
70	100.0	100.0	100.0	100.0	100.0	100.0

(1) *Consistent with the cost study prepared for the adoption of enhanced Tier 1 benefits, we have estimated the rates above by increasing the retirement rates for Tier 1 by a flat 1%.*

(2) *Not eligible to retire under the provisions of the Tier 3 plan.*

Changes in Actuarial Assumptions (continued):

Retirement Age and Benefit for Inactive Vested Participants:	Pension benefit paid at the later of age 58 or the current attained age. For reciprocals, 3.90% compensation increases per annum.
Age of Spouse:	Male retirees are assumed to be 4 years older than their female spouses. Female retirees are assumed to be 2 years younger than their male spouses.

EXHIBIT IV

Summary of Plan Provisions

This exhibit summarizes the major provisions of LACERS included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Plan Year:	July 1 through June 30
Census Date:	June 30
Membership Eligibility:	
Tier 1 *(§ 4.1002(a))*	All employees who became members of the Retirement System before July 1, 2013, and certain employees who became members of the Retirement System on or after July 1, 2013. In addition, pursuant to Ordinance No. 184134, all Tier 2 employees who became members of the Retirement System between July 1, 2013 and February 21, 2016 were transferred to Tier 1 effective February 21, 2016.
Tier 1 Enhanced *(§4.1002(e))*	All Tier 1 Airport Peace Officers (including certain fire fighters) appointed to their positions before January 7, 2018 who elected to remain at LACERS after January 6, 2018.
Tier 3 *(§4.1080.2(a))*	All employees who became members of the Retirement System on or after February 21, 2016, except as provided otherwise in Section 4.1080.2(b) of the Los Angeles Administrative Code.
Normal Retirement Benefit:	
Tier 1 & Tier 1 Enhanced	
Age & Service Requirement	Age 70; or
(§ 4.1005(a))	Age 60 with 10 years of continuous City service; or
	Age 55 with at least 30 years of City service.

Normal Retirement Benefit: (continued)

Tier 1	
Amount (§ 4.1007(a))	2.16% per year of service credit (not greater than 100%) of the Final Average Monthly Compensation.
Tier 1 Enhanced	
Amount (§ 4.1007(a))	2.30% per year of service credit (not greater than 100%) of the Final Average Monthly Compensation.
Tier 3	
➤ *With less than 30 Years of Service (§ 4.1080.5(a)(2)(i))*	
Age & Service Requirement	Age 60 with 10 years of service, including 5 years of continuous City service.
Amount	1.50% per year of service credit at age 60 (not greater than 80%*) of the Final Average Monthly Compensation.
➤ *With 30 or more Years of Service (§ 4.1080.5(a)(2)(ii))*	
Age & Service Requirement	Age 60 with 30 years of service, including 5 years of continuous City service.
Amount	2.00% per year of service credit at age 60 (not greater than 80%*) of the Final Average Monthly Compensation.

* *Except when benefit is based solely on the annuity component funded by the member's contributions.*

Early Retirement Benefit:

Tier 1 & Tier 1 Enhanced	
Age & Service Requirement (§ 4.1005(b))	Age 55 with 10 years of continuous City service; or Any age with 30 years of City service.

Early Retirement Benefit: (continued)

Tier 1 & Tier 1 Enhanced

Amount (§ 4.1007(a) & (b))

2.16% and 2.30% per year of service credit for Tier 1 and Tier 1 Enhanced, respectively, (not greater than 100%) of the Final Average Monthly Compensation, reduced for retirement ages below age 60 using the following Early Retirement benefit adjustment factors:

Age	Factor	Age	Factor
45	0.6250	53	0.8650
46	0.6550	54	0.8950
47	0.6850	55	0.9250
48	0.7150	56	0.9400
49	0.7450	57	0.9550
50	0.7750	58	0.9700
51	0.8050	59	0.9850
52	0.8350	60	1.0000

Tier 3

Age & Service Requirement (§ 4.1080.5(a)(1))

Prior to age 60 with 30 years of service, including 5 years of continuous City service.

Amount (§ 4.1080.5(a)(1))

2.00% per year of service credit (not greater than 80%*) of the Final Average Monthly Compensation, reduced for retirement ages below age 55 using the following Early Retirement benefit adjustment factors:

Age	Factor	Age	Factor
45	0.6250	50	0.7750
46	0.6550	51	0.8050
47	0.6850	52	0.8350
48	0.7150	53	0.8650
49	0.7450	54	0.8950
		55 - 60	1.0000

* *Except when benefit is based solely on the annuity component funded by the member's contributions.*

Enhanced Retirement Benefit:

Tier 1 & Tier 1 Enhanced

Age & Service Requirement	Not applicable - see Normal Retirement age and service requirement.
Amount	Not applicable - see Normal Retirement amount.

Tier 3

➤ *With less than 30 Years of Service (§ 4.1080.5(a)(3)(i))*

Age & Service Requirement	Age 63 with 10 years of service, including 5 years of continuous City service.
Amount	2.00% per year of service credit at age 63 (not greater than 80%*) of the Final Average Monthly Compensation.

➤ *With 30 or more Years of Service (§ 4.1080.5(a)(3)(ii))*

Age & Service Requirement	Age 63 with 30 years of service, including 5 years of continuous City service.
Amount	2.10% per year of service credit at age 63 (not greater than 80%*) of the Final Average Monthly Compensation.

* *Except when benefit is based solely on the annuity component funded by the member's contributions.*

Service Credit:

Tiers 1, Tier 1 Enhanced & Tier 3

(§ 4.1001(a) & § 4.1080.1(a))	The time component of the formula used by LACERS for purposes of calculating benefits.

Final Average Monthly Compensation:	
Tier 1 & Tier 1 Enhanced	
(§ 4.1001(b))	Equivalent of monthly average salary of highest continuous 12 months (one year); includes base salary plus regularly assigned pensionable bonuses or premium pay.*
Tier 3	
(§ 4.1080.1(b))	Equivalent of monthly average salary of highest continuous 36 months (three years); limited to base salary and any items of compensation that are designated as pension based.*
	* *IRC Section 401(a)(17) compensation limit would apply to all employees who began membership in LACERS after June 30, 1996.*
Cost of Living Benefit:	
Tier 1 & Tier 1 Enhanced	
(§ 4.1022)	Based on changes to Los Angeles area Consumer Price Index, to a maximum of 3% per year; excess banked.
Tier 3	
(§ 4.1080.17)	Based on changes to Los Angeles area Consumer Price Index, to a maximum of 2% per year; excess not banked.
Death after Retirement:	
Tier 1 & Tier 3	
(§ 4.1010(c), § 4.1080.10(c), & § 4.1012(c))	(i) 50% of retiree's unmodified allowance continued to an eligible spouse or a domestic partner; or a modified continuance to an eligible spouse or a domestic partner at the time of member's death (or a designated beneficiary selected by member at the time of retirement)*; (ii) $2,500 lump sum death benefit paid to a designated beneficiary; and (iii) Any unused contributions if the member has elected the cash refund annuity option.
	* *The retiree may elect at the time of retirement to take a reduced allowance in order to provide for a higher continuance percentage pursuant to the provisions of either Section 4.1015 (Tier 1) or Section 4.1080.14 (Tier 3).*

Death after Retirement: (continued)

Tier 1 Enhanced

(§ 4.1010.1(b), § 4.1010.1(i), and § 4.1010.1(j))

- *While on service-connected disability*

(i) 80% of retiree's unmodified allowance continued to an eligible spouse or a domestic partner; or a modified continuance to an eligible spouse or a domestic partner at the time of member's death (or a designated beneficiary selected by member at the time of retirement)*,**

(ii) $2,500 lump sum death benefit paid to a designated beneficiary; and

(iii) Any unused contributions if the member has elected the cash refund annuity option.

* *If the death occurs within three years of the retiree's retirement, the eligible survivor shall receive 80% of the Final Average Monthly Compensation (adjusted with Cost of Living benefit).*

** *The retiree may elect at the time of retirement to take a reduced allowance in order to provide for a higher continuance percentage pursuant to the provision of Section 4.1010.1(c).*

- *While on nonservice-connected disability*

(i) 70% of retiree's unmodified allowance continued to an eligible spouse or a domestic partner; or a modified continuance to an eligible spouse or a domestic partner at the time of member's death (or a designated beneficiary selected by member at the time of retirement)***

(ii) $2,500 lump sum death benefit paid to a designated beneficiary; and

(iii) Any unused contributions if the member has elected the cash refund annuity option.

*** *The retiree may elect at the time of retirement to take a reduced allowance in order to provide for a higher continuance percentage pursuant to the provision of Section 4.1010.1(c).*

Death before Retirement:

Tier 1, Tier 1 Enhanced & Tier 3

(§ 4.1010(a), § 4.1010.1(b), & § 4.1080.10(a))

Greater of:

Option #1:

(i) Eligibility – None.

(ii) Benefit – Refund of employee contributions plus a limited pension benefit equal to 50% of monthly salary paid, according to the following schedule:

Service Credit	Total Number of Monthly Payments
Less than 1 year	0
1 year	2
2 years	4
3 years	6
4 years	8
5 years	10
6+ years	12

Tier 1 & Tier 3

Option #2:

(i) Eligibility – Duty-related death or after 5 years of continuous service.

(ii) Benefit – Continuance of service or disability benefit payable under 100% joint and survivor option to an eligible spouse or qualified domestic partner.

Tier 1 Enhanced

Service-Connected Death

Option #2:

(i) Eligibility – None.

(ii) Benefit – 80% of member’s Final Average Monthly Compensation.

Nonservice-Connected Death

(i) Eligibility – 5 years of service (unless on military leave and killed while on military duties).

(ii) Benefit – 50% of member’s Final Average Monthly Compensation.

Member Contributions:

Tier 1 & Tier 1 Enhanced

(§ 4.1003)

Effective July 1, 2011, the member contribution rate became 7% for all employees. Of the 7% rate, 0.5% is the survivor contribution portion and 6.5% is the normal contribution. The 7% member rate shall be paid until June 30, 2026 or until the ERIP Cost Obligation (defined in ERIP Ordinance No. 180926) is fully paid, whichever comes first*.

Beginning January 1, 2013, all non-represented members and members in certain bargaining groups are required to pay an additional 4% member contribution rate to defray the cost of providing a Retiree Medical Plan premium subsidy (this additional rate has increased to 4.5% for certain members).

For Tier 1, members with no eligible spouse or domestic partner at retirement can request a refund of the survivor portion of the member contributions (i.e., generally based on a contribution rate of 0.5% of pay).

* *The member contribution rate will drop down to 6% afterwards.*

Tier 3

(§ 4.1080.3)

The member contribution rate is 7% for all employees. Of the 7% rate, 0.5% is the survivor contribution portion and 6.5% is the normal contribution.

All members are required to pay an additional 4% member contribution rate to defray the cost of providing a Retiree Medical Plan premium subsidy.

Members with no eligible spouse or domestic partner at retirement can request a refund of the survivor portion of the member contributions (i.e., generally based on a contribution rate of 0.5% of pay).

Disability:

Tier 1 & Tier 3	
Service Requirement *(§ 4.1008(a) & § 4.1080.8(a))*	5 years of continuous service
*Amount** *(§ 4.1008(c) & § 4.1080.8(c))*	1/70 (1.43%) of the Final Average Monthly Compensation per year of service or 1/3 of the Final Average Monthly Compensation, if greater.
Tier 1 Enhanced	
Service Requirement *(§ 4.1008.1)*	
Service-Connected Disability	None
Nonservice-Connected Disability	5 years of continuous service
*Amount** *(§ 4.1008.1)*	
Service-Connected Disability	30% to 90% of the Final Average Monthly Compensation depending on severity of disability, with a minimum of 2% of the Final Average Monthly Compensation per year of service.
Nonservice-Connected Disability	30% to 50% of the Final Average Monthly Compensation depending on severity of disability.

* *The benefit calculated using the service retirement formula will be paid if the member is eligible and that benefit is greater than that calculated under the disability retirement formula.*

Deferred Retirement Benefit (Vested):

Tier 1 & Tier 1 Enhanced

(§ 4.1006)

Age & Service Requirement

Age 70 with 5 years of continuous City service; or

Age 60 with 5 years of continuous City service and at least 10 years elapsed from first date of membership; or

Age 55 with at least 30 years of service.

Deferred employee who meets part-time eligibility: age 60 and at least 10 years elapsed from first date of membership.

Amount

Normal retirement benefit (or refund of contributions and accumulated interest).

Age & Service Requirement

Age 55 with 5 years of continuous City service and at least 10 years elapsed from first date of membership; or

Age 55 with 10 years of continuous City service.

Deferred employee who meets part-time eligibility: age 55 and at least 10 years elapsed from first date of membership.

Amount

Early retirement benefit (or refund of contributions and accumulated interest), using the following Early Retirement benefit adjustment factors:

Age	Factor
55	0.9250
56	0.9400
57	0.9550
58	0.9700
59	0.9850

Tier 3

(§ 4.1080.6)

Age & Service Requirement

Age 60 with 5 years of continuous City service and at least 10 years elapsed from first date of membership; or

Age 70 with 5 years of continuous City service, regardless of the number of years that have elapsed from first date of membership.

Deferred Retirement Benefit (Vested): (continued)

Tier 3 (continued)

Amount	Normal retirement benefit (based on a Retirement Factor of 1.50%; or refund of contributions and accumulated interest).
Age & Service Requirement	Age 60 with 30 years of continuous City service and at least 10 years elapsed from first date of membership; or Age 63 with 10 years of service, including 5 years of continuous City service.
Amount	Normal retirement benefit (based on a Retirement Factor of 2.00%; or refund of contributions and accumulated interest).
Age & Service Requirement	Age 63 with 30 years of continuous City service and at least 10 years elapsed from first date of membership.
Amount	Enhanced retirement (benefit based on a Retirement Factor of 2.10%; or refund of contributions and accumulated interest).
Age & Service Requirement	Age 55 (but not yet 60) with 5 years of continuous City service and at least 10 years elapsed from first date of membership.
Amount	Early retirement benefit (based on a Retirement Factor of 1.50% instead of 2.00%; or refund of contributions and accumulated interest), using the following Early Retirement benefit adjustment factors:

Age	Factor
55	0.9250
56	0.9400
57	0.9550
58	0.9700
59	0.9850

Withdrawal of Contributions Benefit (Ordinary Withdrawal):

Refund of employee contributions with interest.

Changes in Plan Provisions:	Effective January 7, 2018, Tier 1 enhanced benefits are available to APO members who elected to remain at LACERS. The Plan Provisions shown above reflect these enhanced benefits.

NOTE: *The summary of major Plan provisions is designed to outline principal plan benefits as interpreted for purposes of the actuarial valuation. If the System should find the plan summary not in accordance with the actual provisions, the System should alert the actuary so that both parties can be sure the proper provisions are valued.*

Segal Consulting

Los Angeles City Employees' Retirement System

Funding Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2018

This report has been prepared at the request of the Board of Administration to assist in administering the Fund. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Administration and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Segal Consulting
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T 415.263.8200 www.segalco.com

November 7, 2018

Board of Administration
Los Angeles City Employees' Retirement System
202 W. 1st Street, Suite 500
Los Angeles, CA 90012-4401

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2018. The report summarizes the actuarial data used in the valuation, establishes the Actuarially Determined Contribution (ADC) for the Fiscal Year 2019/2020, and analyzes the preceding year's experience. This report was based on the census and unaudited financial data provided by the Retirement System and the terms of the Plan as summarized in Exhbit III. The actuarial calculations were completed under the supervision of Thomas Bergman, ASA, MAAA, Enrolled Actuary and Andy Yeung, ASA, MAAA, FCA, Enrolled Actuary. The health care trend and other related medical assumptions have been reviewed by Melissa Bissett, FSA, MAAA.

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions used in this valution and described in Exhibit II are reasonably related to the experience of and the expectations for the Plan. The actuarial projections are based on these assumptions and the plan of benefits as summarized in Exhibits II and III.

Sincerely,

Segal Consulting, a Member of the Segal Group, Inc.

Andy Yeung

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

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

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SECTION 1

VALUATION SUMMARY

SECTION 2

VALUATION RESULTS

SECTION 3

VALUATION DETAILS

SECTION 4

SUPPORTING INFORMATION

PURPOSE

This report presents the results of our actuarial valuation of the City of Los Angeles Employees' Retirement System OPEB plan as of June 30, 2018 for funding purposes. The results are also consistent with the Governmental Accounting Standards, which prescribe an accrual methodology for accumulating the value of other postemployment benefits (OPEB) over participants' active working lifetimes.

HIGHLIGHTS OF THE VALUATION

- The recommended contribution rate has decreased from 5.10% of payroll to 4.91% of payroll while the recommended contribution amount has increased from $105.1 million to $106.8 million after reflecting an increase in the City's total payroll, assuming contributions are received by LACERS on July 15. The main reasons for the decline in the contribution rate were: (i) investment gain (after smoothing), (ii) 2018/2019 premium and subsidy levels less than expected, and (iii) decrease in Unfunded Actuarial Accrued Liability (UAAL) rate from greater than expected increase in payroll, all offset to some degree by (iv) new actuarial assumptions from the triennial experience study and (v) miscellaneous demographic losses. A complete reconciliation of the change in the recommended contribution rate is provided in Exhibit H. Rates are shown separately for Tier 1 and Tier 3 in Chart 4.
- The ratio of the actuarial value of assets to actuarial accrued liabilities decreased from 81.12% to 80.72%. On a market value of assets basis, the funded ratio increased from 81.14% to 82.18%. The unfunded actuarial accrued liability increased from $567.3 million to $628.0 million. A complete reconciliation of the System's unfunded actuarial accrued liability is provided in Chart 2.
- The GAS 74 report with a measurement date of June 30, 2018 for financial reporting purposes for the Plan was provided as a separate report.
- The GAS 75 report with a measurement date of June 30, 2018 for financial reporting purposes for the employer (with a reporting date of June 30, 2019) will be provided in the next few months.
- The actuarial valuation report as of June 30, 2018 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increase the actuarial cost of the Plan, while increases will decrease the actuarial cost of the Plan.
- As in prior years, the employer contribution rates provided in this report have been developed assuming they will be received by LACERS on any of the following dates:
  1. The beginning of the fiscal year, or
  2. On July 15, 2019, or
  3. Throughout the year (i.e., LACERS will receive contributions at the end of every pay period).
- As part of this valuation, we obtained actual membership information available for the first time for the employees at the Airport who elected to stay at LACERS, and would therefore be entitled to enhanced Tier 1 retirement benefits, instead of transferring to LAFPP on January 7, 2018. Note that a new Tier 1

Enhanced Plan providing a higher retirement benefit was adopted pursuant to Ordinance No. 184853. However, other than Segal applying higher retirement rate assumptions to anticipate somewhat earlier retirement, there are no differences between the retiree health benefits paid by LACERS to those members. Using that data and applying the method we previously discussed with LACERS, we have calculated the increase in normal cost by comparing the normal cost for the Airport Peace Officers (APO) before and after the enhancement due to that earlier than expected retirement. The change in normal cost contribution amounts, expressed as a percentage of the City's entire Tier 1 payroll, is less than 0.01%. Similarly, we have estimated the increase in UAAL to be less than $1 million due to earlier than expected retirement. The change in UAAL contribution amounts, expressed as a percentage of the City's entire Tier 1 and Tier 3 payroll, is less than 0.01%. Due to the minimal cost impact as the change in each of the normal cost rate and the UAAL rate is less than 0.01% of payroll, we have not established a plan change amortization base in this valuation. Additionally, we have not shown an enhanced Tier 1 contribution rate separately in this valuation report and do not plan to show such contribution rate separately in future OPEB funding valuation reports.

The key valuation results for the current and prior years are shown.

SUMMARY OF VALUATION RESULTS

	June 30, 2018	June 30, 2017
Actuarial Accrued Liability (AAL)	$3,256,827,847	$3,005,806,234
Actuarial Value of Assets	2,628,843,511	2,438,458,132
Unfunded Actuarial Accrued Liability	627,984,336	567,348,102
Funded Ratio on Actuarial Value Basis	80.72%	81.12%
Market Value of Assets	$2,676,371,615	$2,438,861,850
Funded Ratio on Market Value Basis	82.18%	81.14%
Actuarially Determined Contribution (ADC)		
Normal cost (beginning of year)	$74,477,507	$74,610,881
Amortization of the unfunded actuarial accrued liability	32,047,427	30,230,115
Total Actuarially Determined Contribution (beginning of year)	$106,524,934	$104,840,996
Total Actuarially Determined Contribution (July 15)	$106,836,051	$105,147,195
Total Actuarially Determined Contribution (end of each pay period)	$110,318,900	$108,574,988
Projected total payroll(1)	$2,177,687,102	$2,062,316,129
ADC as a percentage of pay (there is a 12-month delay until the rate is effective)(2)		
Beginning of year	4.89%	5.08%
July 15	4.91%	5.10%
End of each pay period	5.07%	5.26%
Total Participants	47,731	46,276

(1) *Reflects amount calculated in the pension valuation.*

(2) *A breakdown of the ADC by tier is provided in Chart 4.*

IMPORTANT INFORMATION ABOUT ACTUARIAL VALUATIONS

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of an OPEB plan. It is an estimated forecast – the actual cost of the plan will be determined by the benefits and expenses paid, not by the actuarial valuation.

In order to prepare an actuarial valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan description in this report to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to health care trends and member enrollment in retiree health benefits. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by the System.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of LACERS. Segal is not responsible for the use or misuse of its report, particularly by any other party.

- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- If LACERS is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. LACERS should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of LACERS, it is not a fiduciary in its capacity as actuaries and consultants with respect to LACERS.

November 7, 2018

ACTUARIAL CERTIFICATION

This is to certify that Segal Consulting (Segal) has conducted an actuarial valuation of certain benefit obligations of Los Angeles City Employees' Retirement System's other postemployment benefit programs as of June 30, 2018, in accordance with generally accepted actuarial principles and practices. In particular, it is our understanding that the assumptions and methods used for funding purposes meet the parameters set by the Actuarial Standards of Practice (ASOPs). Actuarial valuations are performed annually for this other postemployment benefit program with the last valuation completed as of June 30, 2017.

The actuarial valuation is based on the plan of benefits verified by LACERS and on participant, premium, claims and financial data provided by LACERS. Segal did not audit LACERS' financial statements, but conducted an examination of all participant data for reasonableness and we concluded that it was reasonable and consistent with the prior year's data.

One of the general goals of an actuarial valuation is to establish contributions that fully fund the Retirement System's liabilities, and that, as a percentage of payroll, remain as level as possible for each generation of active members. Both the Normal Cost and the Actuarial Accrued Liability are determined under the Entry Age cost method.

The actuarial computations made are for funding plan benefits. Accordingly, additional determinations will be needed for other purposes, such as satisfying financial accounting requirements under Governmental Accounting Standards Board (GASB) Statements No. 74 and judging benefit security at termination of the plan.

Segal prepared all of the supporting schedules for the Actuarial Section of the Comprehensive Annual Financial Report (CAFR) and certain supporting schedules in the Financial Section, based on the results of the June 30, 2018 actuarial valuation. A listing of the supporting schedules Segal prepared for inclusion in the Financial Section, and in the Actuarial Section, is provided below:

Financial Section

1) Schedule of Net OPEB Liability*
2) Schedule of Changes in Net OPEB Liability and Related Ratios*
3) Schedule of Contribution History*

Actuarial Section

4) Summary of Significant Valuation Results
5) Active Member Valuation Data
6) Retirees and Beneficiaries Added to and Removed from Retiree Payroll
7) Solvency Test
8) Schedule of Funding Progress
9) Actuarial Analysis of Financial Experience

10) Actuarial Balance Sheet

11) Schedule of Changes in Net OPEB Liability and Related Ratios*

* Source: Segal's GASB Statement No. 74 valuation report as of June 30, 2018.

LACERS' staff prepared other trend data schedules in the Statistical Section based on information supplied in Segal's valuation report.

To the best of our knowledge, this report is complete and accurate and in our opinion presents the information necessary to fund the Plan with respect to the benefit obligations addressed. The signing actuaries are members of the Society of Actuaries, and/or the American Academy of Actuaries, as well as other professional actuarial organizations and collectively meet their "General Qualification Standards for Statements of Actuarial Opinions" to render the actuarial opinion contained herein.

Thomas Bergman

Thomas Bergman, ASA, MAAA, EA
Retiree Health Actuary

Andy Yeung

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

The actuarial present value of total projected benefits uses the actuarial assumptions disclosed in Section 4 to calculate the value today of all benefits expected to be paid to current actives and retired plan members. The actuarial balance sheet shows the expected breakdown of how these benefits will be financed.

CHART 1

Actuarial Present Value of Total Projected Benefits (APB) and Actuarial Balance Sheet

	Actuarial Present Value of Total Projected Benefits (APB)	
	June 30, 2018	June 30, 2017
Participant Category		
Current retirees, beneficiaries, and dependents	$1,497,370,105	$1,379,356,850
Current active members	2,315,910,753	2,208,263,048
Terminated members entitled but not yet eligible	67,137,848	62,252,306
Total	$3,880,418,706	$3,649,872,204

	June 30, 2018	June 30, 2017
Actuarial Balance Sheet		
The actuarial balance sheet as of the valuation date is as follows:		
Assets		
1. Actuarial value of assets	$2,628,843,511	$2,438,458,132
2. Present value of future normal costs	623,590,859	644,065,970
3. Unfunded actuarial accrued liability	627,984,336	567,348,102
4. Present value of current and future assets	$3,880,418,706	$3,649,872,204
Liabilities		
5. Actuarial Present Value of total Projected Benefits	$3,880,418,706	$3,649,872,204

The actuarial accrued liability shows that portion of the APB (Chart 1) allocated to periods prior to the valuation date by the actuarial cost method. The chart below shows the portion of the liability for active and inactive members, and reconciles the unfunded actuarial accrued liability from last year to this year.

CHART 2

Actuarial Accrued Liability (AAL) and Unfunded AAL (UAAL)

	June 30, 2018	June 30, 2017
Participant Category		
Current retirees, beneficiaries, and dependents	$1,497,370,105	$1,379,356,850
Current active members	1,692,319,894	1,564,197,078
Terminated members entitled but not yet eligible	67,137,848	62,252,306
Total actuarial accrued liability	$3,256,827,847	$3,005,806,234
Unfunded Actuarial Accrued Liability		
Total actuarial accrued liability	$3,256,827,847	$3,005,806,234
Actuarial value of assets	2,628,843,511	2,438,458,132
Unfunded actuarial accrued liability	$627,984,336	$567,348,102

Development of Unfunded Actuarial Accrued Liability for the Year Ended June 30, 2018

1.	Unfunded actuarial accrued liability as of June 30, 2017	$567,348,102
2.	Employer normal cost as of June 30, 2017	74,610,881
3.	Expected employer contributions during 2017/2018 fiscal year	-104,840,996
4.	Interest	38,941,054
5.	Adjustment due to prior year's UAAL payment limited to reflect a 30-year effective amortization period	1,797,364
6.	Expected unfunded actuarial accrued liability as of June 30, 2018 (1 + 2 + 3 + 4 + 5)	$577,856,405
7.	Change due to investment gain, after smoothing	-38,401,014
8.	Change due to actual contributions less than expected	4,521,884
9.	Change due to miscellaneous demographic gains and losses	32,375,587
10.	Change due to reallocation between Present Value of Future Normal Cost and AAL as part of adjustment to Entry Age cost methodology[1]	43,428,951
11.	Change due to updated 2018/2019 premium and subsidy levels	-90,960,346
12.	Change due to adopted future medical trend rates and HIT after 2018/2019[2]	-17,704,919
13.	Effect of new actuarial assumptions adopted in triennial experience study	109,882,560
14.	Change due to new enrollment and spouse coverage assumptions	11,754,340
15.	Change due to reflecting deferred starting date for projected ACA excise tax on high-cost health plan	-4,769,112
16.	Unfunded actuarial accrued liability as of June 30, 2018 (6 + 7 + 8 + 9 + 10 + 11 + 12 + 13 + 14 + 15)	$627,984,336

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(1) *This is done as part of an adjustment to Entry Age cost methodology. There is a small contribution rate decrease of 0.07% of payroll as a result of this adjustment.*

(2) *The 2020-2021 premium increases include additional estimated increases of 1.0% (non-Medicare) and 0.5% (Medicare) from the impact of the Health Insurance Tax (HIT).*

Amortization payments may be calculated as level dollar amounts or as amounts designed to remain level as a percent of a growing payroll base. Los Angeles City Employees' Retirement System has elected to amortize the unfunded actuarial accrued liability using the following rules: The costs associated with the 2009 ERIP have been amortized over 15 years beginning with the June 30, 2009 valuation date. The unfunded actuarial accrued liability as of June 30, 2012 is amortized over a fixed period of 30 years beginning July 1, 2012. Assumption changes resulting from the triennial experience study will be amortized over 20 years.

Health trend and premium assumption changes, plan changes, and gains and losses will be amortized over 15 years.

As we discussed with LACERS, the minimum 30-year amortization of UAAL rule under the old GASB 43/45 no longer applied under the new GASB 74/75.

CHART 3

Table of Amortization Bases

Type	Date Established	Initial Year	Initial Amount	Outstanding Balance	Annual Payment*	Years Remaining
Plan Amendment (2009 ERIP)	06/30/2009	15	$54,735,645	$36,222,261	$6,586,652	6
Combined Base**	06/30/2012	30	597,984,614	659,369,046	40,139,455	24
Experience Loss	06/30/2013	15	16,206,142	14,178,611	1,655,477	10
Change in Assumptions	06/30/2014	20	135,287,549	133,887,585	10,782,467	16
Experience Gain	06/30/2014	15	-101,972,860	-92,681,130	-10,003,139	11
Experience Gain	06/30/2015	15	-193,346,818	-181,493,140	-18,256,577	12
Plan Change	06/30/2015	15	17,466,894	16,396,035	1,649,294	12
Experience Gain	06/30/2016	15	-21,878,470	-21,065,390	-1,988,492	13
Change in Assumptions	06/30/2017	20	121,183,087	121,045,204	8,611,641	19
Experience Gain	06/30/2017	15	-109,999,503	-108,002,677	-9,623,125	14
Change in Assumptions	06/30/2018	20	109,882,560	109,882,560	7,544,533	20
Experience Gain	06/30/2018	15	-59,754,629	-59,754,629	-5,050,759	15
Total				$627,984,336	$32,047,427	

* *Level percentage of pay.*

** *On October 23, 2012, the Board elected to combine all amortization bases as of June 30, 2012, except for the base associated with the 2009 ERIP, which remains on its original schedule. In addition, the Board adopted an initial amortization period of 30 years for the combined bases as of June 30, 2012.*

The Actuarially Determined Contribution (ADC) is the amount calculated to determine the annual cost of the OPEB plan for funding purposes on an accrual basis. The calculation consists of adding the Normal Cost of the plan to an amortization payment. Both are determined as of the start of the funding period and adjusted as if the annual cost were to be received throughout the fiscal year or on July 15th.

CHART 4

Determination of Actuarially Determined Contribution (ADC)

Tier 1 - Cost Element		Determined as of June 30, 2018		June 30, 2017	
		Amount	Percentage of Compensation	Amount	Percentage of Compensation
1.	Normal cost	$65,056,794	3.34%	$69,351,491	3.58%
2.	Amortization of the unfunded actuarial accrued liability	28,655,863	1.47%	28,392,522	1.47%
3.	Total Actuarially Determined Contribution (beginning of year)	$93,712,657	4.81%	$97,744,013	5.05%
4.	Projected Payroll[(1)]	$1,947,223,478		$1,936,988,361	
5.	Adjustment for timing (July 15)	$273,698	0.02%	$285,472	0.01%
6.	Total Actuarially Determined Contribution (July 15)	$93,986,355	4.83%	$98,029,485	5.06%
7.	Adjustment for timing (end of pay period)	$3,337,647	0.17%	$3,481,227	0.18%
8.	Total Actuarially Determined Contribution (end of pay period)	$97,050,304	4.98%	$101,225,240	5.23%

(1) *Reflects amount calculated in the pension valuation.*

CHART 4 (continued)

Determination of Actuarially Determined Contribution (ADC)

Tier 3 - Cost Element		**Determined as of June 30, 2018**		**June 30, 2017**	
		Amount	**Percentage of Compensation**	**Amount**	**Percentage of Compensation**
1.	Normal cost	$9,420,713	4.09%	$5,259,390	4.20%
2.	Amortization of the unfunded actuarial accrued liability	3,391,564	1.47%[2][3]	1,837,593	1.47%[2]
3.	Total Actuarially Determined Contribution (beginning of year)	$12,812,277	5.56%	$7,096,983	5.67%
4.	Projected Payroll[1]	$230,463,624		$125,327,768	
5.	Adjustment for timing (July 15)	$37,419	0.02%	$20,727	0.01%
6.	Total Actuarially Determined Contribution (July 15)	$12,849,696	5.58%	$7,117,710	5.68%
7.	Adjustment for timing (end of pay period)	$456,319	0.20%	$252,765	0.19%
8.	Total Actuarially Determined Contribution (end of pay period)	$13,268,596	5.76%	$7,349,748	5.86%

[1] *Reflects amount calculated in the pension valuation.*

[2] *In developing the UAAL contribution rate, we have combined the UAAL for Tier 1 and Tier 3 and amortized that total UAAL over the total payroll for Tier 1 and Tier 3.*

[3] *For purposes of Government Service Buybacks for Tier 3, the cost of the purchase is based, in part, on the "City Contribution Rate," pursuant to the Administrative Code. For this purpose, the UAAL rate as of June 30, 2018 is 0.05%, if received at the beginning of the year. It is calculated by: (i) amortizing $1,637,208 over separate layers (i.e., 15 years for new actuarial (gains)/losses and 20 years for new assumption changes), or a debit of $125,176, and (ii) dividing that debit over Tier 3 payroll (or $230,463,624). If received on July 15, the UAAL rate remains at 0.05%, even though the debit increases to $125,542.*

CHART 4 (continued)

Determination of Actuarially Determined Contribution (ADC)

Combined - Cost Element		Determined as of June 30, 2018		June 30, 2017	
		Amount	Percentage of Compensation	Amount	Percentage of Compensation
1.	Normal cost	$74,477,507	3.42%	$74,610,881	3.61%
2.	Amortization of the unfunded actuarial accrued liability	32,047,427	1.47%	30,230,115	1.47%
3.	Total Actuarially Determined Contribution (beginning of year)	$106,524,934	4.89%	$104,840,996	5.08%
4.	Projected Payroll[1]	$2,177,687,102		$2,062,316,129	
5.	Adjustment for timing (July 15)	$311,117	0.02%	$306,199	0.02%
6.	Total Actuarially Determined Contribution (July 15)	$106,836,051	4.91%	$105,147,195	5.10%
7.	Adjustment for timing (end of pay period)	$3,793,966	0.18%	$3,733,992	0.18%
8.	Total Actuarially Determined Contribution (end of pay period)	$110,318,900	5.07%	$108,574,988	5.26%

(1) *Reflects amount calculated in the pension valuation.*

The schedule of employer contributions compares actual contributions to the Actuarially Determined Contributions.

CHART 5

Schedule of Employer Contributions

Fiscal Year Ended June 30	Actuarially Determined Contributions[1]	Actual Contributions	Percentage Contributed
2013	$72,916,729	$72,916,729	100.00%
2014	97,840,554	97,840,554	100.00%
2015	100,466,945	100,466,945	100.00%
2016	105,983,112	105,983,112	100.00%
2017	97,457,455	97,457,455	100.00%
2018	100,909,010	100,909,010	100.00%

(1) *Prior to plan year ending June 30, 2018, this amount was the Annual Required Contribution (ARC).*

This schedule of funding progress presents multi-year trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liability for benefits.

CHART 6

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll* (c)	UAAL as a Percentage of Covered Payroll [(b) - (a) / (c)]
06/30/2013	$1,734,733,258	$2,412,483,968	$677,750,710	71.91%	$1,846,970,474	36.70%
06/30/2014	1,941,224,810	2,662,853,153	721,628,343	72.90%	1,898,064,175	38.02%
06/30/2015	2,108,924,651	2,646,989,367	538,064,716	79.67%	1,907,664,598	28.21%
06/30/2016	2,248,753,480	2,793,688,955	544,935,475	80.49%	1,968,702,630	27.68%
06/30/2017	2,438,458,132	3,005,806,234	567,348,102	81.12%	2,062,316,129	27.51%
06/30/2018	2,628,843,511	3,256,827,847	627,984,336	80.72%	2,177,687,102	28.84%

* *Reflects amount calculated in the pension valuation.*

VOLATILITY RATIOS

OPEB plans are subject to volatility in the level of determined contributions. This volatility tends to increase as OPEB plans become more mature.

The Asset Volatility Ratio (AVR), which is equal to the market value of assets divided by total payroll, provides an indication of the potential contribution volatility for any given level of investment volatility. A higher AVR indicates that the plan is subject to a greater level of contribution volatility. This is a current measure since it is based on the current level of assets.

For LACERS, the current AVR is about 1.23. This means that a 1% asset gain/(loss) (relative to the assumed investment return) translates to about 1.23% of one-year's payroll. Since LACERS amortizes actuarial gains and losses over a period of 15 years, there would be a 0.1% of payroll decrease/(increase) in the determined contribution for each 1% asset gain/(loss).

The Liability Volatility Ratio (LVR), which is equal to the Actuarial Accrued Liability divided by payroll, provides an indication of the longer-term potential for contribution volatility for any given level of investment volatility. This is because, over an extended period of time, the plan's assets should track the plan's liabilities. For example, if a plan is 50% funded on a market value basis, the liability volatility ratio would be double the asset volatility ratio and the plan sponsor should expect contribution volatility to increase over time as the plan becomes better funded.

The LVR also indicates how volatile contributions will be in response to changes in the Actuarial Accrued Liability due to actual experience or to changes in actuarial assumptions.

For LACERS, the current LVR is about 1.50. This is about 22% higher than the AVR. Therefore, we would expect that contribution volatility will increase over the long-term.

This chart shows how the asset and liability volatility ratios have varied over time.

CHART 7

Volatility Ratios for Years Ended June 30, 2011 – 2018

Year Ended June 30	Asset Volatility Ratio	Liability Volatility Ratio
2011	0.80	1.07
2012	0.82	1.26
2013	0.93	1.31
2014	1.10	1.40
2015	1.12	1.39
2016	1.08	1.42
2017	1.18	1.46
2018	1.23	1.50

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, inactive non-vested members (entitled to a refund of member contributions), inactive vested members, retired members and beneficiaries.

This section presents a summary of significant statistical data on these member groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibit A.

A historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.

CHART 8

Member Population: 2009 – 2018

Year Ended June 30	Active Participants	Inactive Members	Retired Members and Surviving Spouses**	Ratio of Non-Actives to Actives
2009	30,065	674	11,893	0.42
2010	26,245	806	13,442	0.54*
2011	25,449	813	13,436	0.56
2012	24,917	858	13,431	0.57
2013	24,441	861	13,592	0.59
2014	24,009	955	13,686	0.61
2015	23,895	1,032	14,012	0.63
2016	24,446	1,119	14,313	0.63
2017	25,457	1,280	14,652	0.63
2018	26,042	1,401	15,144	0.64

* *Reflects 2009 Early Retirement Incentive Program.*

** *Excludes retirees and surviving spouses not yet enrolled in retiree health benefits.*

This exhibit summarizes the participant data used for the current and prior valuations.

EXHIBIT A

Summary of Participant Data

All

Category	Year Ended June 30		Change From Prior Year
	2018	2017	
Active members in valuation:			
Number	26,042	25,457	2.3%
Average age	47.5	47.9	-0.4
Average service	13.7	14.1	-0.4
Projected total payroll	$2,177,687,102	$2,062,316,129	5.6%
Inactive members:			
Number	1,401	1,280	9.5%
Average age	50.9	50.8	0.1
Retirees:*			
Number of non-disabled	13,029	12,529	4.0%
Number of disabled	326	325	0.3%
Total number of retirees	13,355	12,854	3.9%
Average age of retirees	71.9	71.9	0.0
Number of spouses	5,144	4,887	5.3%
Average age of spouses	68.5	68.5	0.0
Surviving Spouses:*			
Number in pay status	1,789	1,798	-0.5%
Average age	79.6	79.7	-0.1

* *Excludes retirees and surviving spouses not receiving health benefits.*

EXHIBIT A (continued)

Summary of Participant Data

Tier 1

Category	Year Ended June 30 2018**	 2017	Change From Prior Year
Active members in valuation:			
Number	22,409	23,426	-4.3%
Average age	49.2	48.9	0.3
Average service	15.7	15.2	0.5
Projected total payroll	$1,947,223,478	$1,936,988,361	0.5%
Inactive members:			
Number	1,397	1,280	9.1%
Average age	50.9	50.8	0.1
Retirees:*			
Number of non-disabled	13,029	12,529	4.0%
Number of disabled	326	325	0.3%
Total number of retirees	13,355	12,854	3.9%
Average age of retirees	71.9	71.9	0.0
Number of spouses	5,144	4,887	5.3%
Average age of spouses	68.5	68.5	0.00
Surviving Spouses:*			
Number in pay status	1,789	1,798	-0.5%
Average age	79.6	79.7	-0.1

* *Excludes retirees and surviving spouses not receiving health benefits.*

** *Includes the following number of Airport Peace Officers eligible for enhanced benefits:*

Active members	*457*	*Retired members*	*31*	*Beneficiaries*	*0*
Inactive members	*7*	*Disabled members*	*0*		

Note that of the 457 active APO Tier 1 members as of June 30, 2018, 10 of them were active Tier 3 members as of June 30, 2017.

EXHIBIT A (continued)

Summary of Participant Data

Tier 3

Category	Year Ended June 30 2018	 2017	Change From Prior Year
Active members in valuation:			
Number	3,633	2,031	78.9%
Average age	36.6	36.5	0.1
Average service	1.3	0.6	0.7
Projected total payroll	$230,463,624	$125,327,768	83.9%
Inactive members:			
Number	4	0	N/A
Average age	48.0	N/A	N/A
Retirees:			
Number of non-disabled	0	0	N/A
Number of disabled	0	0	N/A
Total number of retirees	0	0	N/A
Average age of retirees	N/A	N/A	N/A
Number of spouses	N/A	N/A	N/A
Average age of spouses	N/A	N/A	N/A
Surviving Spouses:			
Number in pay status	0	0	0
Average age	N/A	N/A	N/A

EXHIBIT B

Reconciliation of Participant Data with Pension Valuation

	Year Ended June 30	
	2018	2017
Active		
Pension valuation	26,042	25,457
Health valuation	26,042	25,457
Retirees		
Pension valuation	14,583	13,986
Retirees with no subsidy due to service or decision not to enroll	-1,532	-1,431
Deferred retirees eligible for future health benefits	-22	-26
Health valuation	13,029	12,529
Disableds		
Pension valuation	894	902
Disabled with no subsidy due to service or decision not to enroll	-512	-519
Deferred disableds eligible for future health benefits	-56	-58
Health valuation	326	325
Surviving Spouses		
Pension valuation	3,902	3,917
Surviving spouses with no subsidy due to service or decision not to enroll	-2,043	-2,041
Deferred surviving spouses eligible for future health benefits	-70	-78
Health valuation	1,789	1,798
Inactive Vested		
Pension valuation	8,028	7,428
Inactive vesteds with less than 10 years of service	-6,627	-6,148
Health valuation	1,401	1,280

EXHIBIT C

Retirees and Beneficiaries Added to and Removed from the Rolls

Year Ended 6/30	No. of New Retirees/ Beneficiaries	Annual Allowances Added*	No. of Retirees/ Beneficiaries Removed	Annual Allowances Removed	No. of Retirees/ Beneficiaries at 6/30	Annual Allowances at 6/30	Percent Increase in Annual Allowances	Average Annual Allowance
2013	635	$9,263,844	474	$2,463,967	13,592	$100,846,520	7.2	$7,420
2014	616	7,160,148	522	3,047,436	13,686	104,959,232	4.1	7,669
2015	860	10,844,333	534	3,174,045	14,012	112,629,520	7.3	8,038
2016	837	2,185,058	536	3,102,492	14,313	111,712,086	-0.8	7,805
2017	913	13,706,185	574	3,316,380	14,652	122,101,891	9.3	8,333
2018	1,104	17,413,241	612	3,649,382	15,144	135,865,750	11.3	8,972

**Also reflects changes in subsidies for continuing retirees and beneficiaries.*

EXHIBIT D
Cash Flow Projections

The ADC generally exceeds the current pay-as-you-go ("paygo") cost of an OPEB plan. Over time the paygo cost will tend to grow and may even eventually exceed the ADC in a well-funded plan. The following table projects the paygo cost as the projected payment over the next ten years.

Year Ending June 30	Projected Number of Retirees*			Projected Benefit Payments		
	Current	Future	Total	Current	Future	Total
2018	20,288	1,699	21,987	$127,337,355	$12,056,918	$139,394,273
2019	19,694	2,809	22,503	124,683,545	22,035,176	146,718,721
2020	19,072	3,963	23,035	125,898,909	34,265,777	160,164,686
2021	18,445	5,113	23,558	126,366,656	47,382,703	173,749,359
2022	17,818	6,232	24,050	126,176,140	62,324,278	188,500,418
2023	17,185	7,323	24,508	125,670,361	76,858,899	202,529,260
2024	16,552	8,336	24,888	124,276,423	91,571,439	215,847,862
2025	15,914	9,313	25,227	122,739,048	105,988,035	228,727,083
2026	15,271	10,234	25,505	120,611,665	119,942,121	240,553,786
2027	14,630	11,127	25,757	118,705,087	133,274,403	251,979,490

* *Includes spouses of retirees, but excludes those not receiving a subsidy from LACERS.*

EXHIBIT E

Summary Statement of Income and Expenses on an Actuarial Value Basis for Retirement, Health, Family Death and Larger Annuity Benefits

	June 30, 2018		June 30, 2017	
Contribution income:				
Employer contributions	$551,247,264		$550,961,514	
Employee contributions	236,222,166		227,531,810	
Net contribution income		$787,469,430		$778,493,324
Investment income:				
Interest, dividends and other income	$391,326,284		$371,193,752	
Recognition of capital appreciation	907,603,043		807,293,418	
Less investment and administrative fees	-99,940,548		-93,469,731	
Net investment income		$1,198,988,779		$1,085,017,439
Total income available for benefits		$1,986,458,209		$1,863,510,763
Less benefit payments:				
Payment of benefits	-$975,112,058		-$918,837,634	
Refunds of contributions	-10,411,515		-9,802,623	
Net benefit payments		-$985,523,573		-$928,640,257
Change in reserve for future benefits		$1,000,934,636		$934,870,506

Note: Results may be slightly off due to rounding.

EXHIBIT F
Summary Statement of Assets for Retirement, Health, Family Death, and Larger Annuity Benefits

	June 30, 2018		June 30, 2017	
Cash equivalents		$470,390,317		$491,514,054
Accounts receivable:				
Investment income	$57,236,792		$52,776,887	
Proceeds from sales of investments	86,261,200		112,600,821	
Other	13,985,260		13,529,376	
Total accounts receivable		$157,483,252		$178,907,084
Investments:				
Fixed Income	$4,054,094,716		$3,726,445,570	
Equities	9,783,373,660		9,019,681,282	
Real Estate and Alternative Investment	2,608,972,084		2,413,497,346	
Other	911,404,923		962,815,829	
Total investments at market value		$17,357,845,384		$16,122,440,027
Capital assets		$9,184,627		$6,489,879
Total assets		$17,994,903,579		$16,799,351,044
Less accounts payable:				
Accounts payable and accrued expenses		-$40,966,628		-$37,587,430
Accrued investment expenses		-10,455,435		-10,779,563
Purchases of investments		-158,788,428		-197,722,529
Security lending collateral		-795,076,744		-863,691,212
Total accounts payable		-$1,005,287,235		-$1,109,780,734
Net assets at market value		$16,989,616,344		$15,689,570,310
Net assets at actuarial value		$16,687,907,767		$15,686,973,131
Net assets at valuation value (health benefits)		$2,628,843,511		$2,438,458,132

Note: *Results may be slightly off due to rounding.*

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board of Administration has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

The chart shows the determination of the actuarial value of assets as of the valuation date.

EXHIBIT G

Determination of Actuarial Value of Assets as of June 30, 2018

1. Market value of assets				$16,989,616,344
2. Calculation of unrecognized return[1]	Original Amount	Portion Not Recognized	Amount Not Recognized	
(a) Year ended June 30, 2018	$349,468,305	6/7	$299,544,261	
(b) Year ended June 30, 2017	770,969,472			
(c) Year ended June 30, 2016	-1,065,023,569			
(d) Year ended June 30, 2015	-707,760,540	see footnote (2) below		
(e) Year ended June 30, 2014	1,246,285,581			
(f) Combined net deferred loss as of June 30, 2013	-81,571,421	5/6	2,164,316	
(g) Total unrecognized return				$301,708,577
3. Preliminary actuarial value: (1) - (2g)				$16,687,907,767
4. Adjustment to be within 40% corridor				0
5. Final actuarial value of assets: (3) + (4)				$16,687,907,767
6. Actuarial value as a percentage of market value: (5) ÷ (1)				98.2%
7. Market value of health assets				$2,676,371,615
8. Valuation value of health assets (5) ÷ (1) x (7)				$2,628,843,511
9. Deferred return recognized in each of the next 6 years:				
(a) Amount recognized on 6/30/2019				$50,356,907
(b) Amount recognized on 6/30/2020				50,356,907
(c) Amount recognized on 6/30/2021				50,356,907
(d) Amount recognized on 6/30/2022				50,356,907
(e) Amount recognized on 6/30/2023				50,356,907
(f) Amount recognized on 6/30/2024				49,924,044
(g) Subtotal (may not total exactly due to rounding)				$301,708,577

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(1) *Total return minus expected return on a market value basis.*

(2) *Based on action taken by the Board on July 24, 2018, the net unrecognized gain as of June 30, 2017 (i.e., $2,597,179) has been recognized in six level amounts, with five years of recognition remaining after the June 30, 2018 valuation.*

The chart below details the changes in the ADC from the prior valuation to the current year's valuation.

EXHIBIT H

Reconciliation of Recommended Contribution from June 30, 2017 to June 30, 2018[1]

Recommended Contribution as of June 30, 2017[1]	5.10%
Change due to investment gain, after smoothing	-0.15
Change due to reallocation between normal cost and AAL as part of adjustment to Entry Age cost method	-0.07
Change due to miscellaneous demographic gains and losses, including lower normal cost for new members	0.24
Change due to updated 2018/2019 premium and subsidy levels	-0.45
Change due to new future medical trend rates after 2018/2019	-0.11
Change due to new actuarial assumptions adopted in triennial experience study	0.41
Change due to new enrollment and spouse coverage assumptions	0.04
Change due to reflecting deferred starting date for projected ACA excise tax on high-cost health plans	-0.02
Effect of decrease in UAAL rate from greater than expected increase in payroll	-0.10
Effect of actual contributions less than expected	0.02
Recommended Contribution as of June 30, 2018[1]	4.91%

[1] *If received on July 15.*

EXHIBIT I
Solvency Test for OPEB

	Aggregate Actuarial Accrued Liabilities For				Portion of Accrued Liabilities Covered by Reported Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
Valuation Date	Terminated Members	Retirees, Beneficiaries, & Dependents	Active Members	Valuation Value of Retiree Health Assets	Terminated Members	Retirees, Beneficiaries, & Dependents	Active Members
06/30/2013	$26,868,636	$1,104,832,577	$1,280,782,755	$1,734,733,258	100	100	47
06/30/2014	41,188,181	1,196,769,321	1,424,895,651	1,941,224,810	100	100	49
06/30/2015	42,943,089	1,210,066,527	1,393,979,751	2,108,924,651	100	100	61
06/30/2016	50,413,399	1,275,604,225	1,467,671,331	2,248,753,480	100	100	63
06/30/2017	62,252,306	1,379,356,850	1,564,197,078	2,438,458,132	100	100	64
06/30/2018	67,137,848	1,497,370,105	1,692,319,894	2,628,843,511	100	100	63

EXHIBIT I

Summary of Supplementary Information

Valuation date	June 30, 2018	
Actuarial cost method	Entry Age Cost Method, level percent of salary.	
Amortization method	Level percent of payroll – assuming a 3.50% increase in total covered payroll.	
Amortization period	Multiple Layers:	
	2009 ERIP	15 years
	2012 Combined Base	30 years
	Actuarial Experience	15 years
	Change in non-health related assumptions	20 years
	Change in health related assumptions	15 years
	Future ERIP	5 years
	AVA in excess of AAL	30 years
	Plan Amendment	15 years
Asset valuation method	Market value of assets less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a seven-year period. The actuarial value of assets cannot be less than 60% or greater than 140% of the market value of assets.	
Actuarial assumptions:		
Investment rate of return	7.25%	
Inflation rate	3.00%	
Real across-the-board salary increase	0.50%	
Projected salary increases	Ranges from 10.00% to 3.90%	
Medical, dental, Medicare Part B trend rates	See table on page 38.	
Plan participants:	June 30, 2018	June 30, 2017
Current retirees, beneficiaries, and dependents receiving benefits	20,288	19,539
Current active participants	26,042	25,457
Terminated participants entitled but not yet eligible	1,401	1,280
Total	47,731	46,276

EXHIBIT II

Actuarial Assumptions and Actuarial Cost Method

Rationale for Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the July 1, 2014 through June 30, 2017 Actuarial Experience Study dated June 29, 2018, economic assumption review dated June 30, 2017 and retiree health assumptions letter dated September 18, 2018. Unless otherwise noted, all actuarial assumptions and methods shown below apply to both Tier 1 and Tier 3 members. These assumptions have been adopted by the Board.
Measurement Date:	June 30, 2018
Data:	LACERS provided detailed census data and financial data for post-employment benefits.
Post-Retirement Mortality Rates:	
Healthy Members and All Beneficiaries:	Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females) projected generationally with the two-dimensional mortality improvement scale MP-2017.
Disabled Members:	Headcount-Weighted RP-2014 Disabled Retiree Mortality Table (separate tables for males and females) projected generationally with the two-dimensional mortality improvement scale MP-2017.

The RP-2014 mortality tables and adjustments as shown above reflect the mortality experience as of the measurement date. The generational projection is a provision for future mortality improvement.

Termination Rates Before Retirement:

Pre-Retirement Mortality: Headcount-Weighted RP-2014 Employee Mortality Table (separate tables for males and females) times 90%, projected generationally with the two-dimensional mortality improvement scale MP-2017.

	Rate (%)	
Age	**Disability**	**Termination***
25	0.01	7.00
30	0.02	7.00
35	0.05	5.50
40	0.07	3.90
45	0.13	3.20
50	0.19	2.70
55	0.20	2.50
60	0.20	2.50

* *Rates for members with five or more years of service. Termination rates are zero for members eligible to retire.*

Rates of termination for members with less than 5 years of service are as follows:

	Rate (%)
Service	**Termination (Based on Service)**
0	12.00
1	10.00
2	9.00
3	8.25
4	7.75

Retirement Rates:

	Rate (%)					
	Tier 1		APO Tier 1(1)		Tier 3	
Age	Non-55/30	55/30	Non-55/30	55/30	Non-55/30	55/30
50	6.0	0.0	7.0	0.0	6.0	0.0
51	3.0	0.0	4.0	0.0	3.0	0.0
52	3.0	0.0	4.0	0.0	3.0	0.0
53	3.0	0.0	4.0	0.0	3.0	0.0
54	17.0	0.0	18.0	0.0	16.0	0.0
55	6.0	24.0	7.0	25.0	0.0(2)	23.0
56	6.0	16.0	7.0	17.0	0.0(2)	15.0
57	6.0	16.0	7.0	17.0	0.0(2)	15.0
58	6.0	16.0	7.0	17.0	0.0(2)	15.0
59	6.0	16.0	7.0	17.0	0.0(2)	15.0
60	7.0	16.0	8.0	17.0	6.0	15.0
61	7.0	16.0	8.0	17.0	6.0	15.0
62	7.0	16.0	8.0	17.0	6.0	15.0
63	7.0	16.0	8.0	17.0	6.0	15.0
64	7.0	16.0	8.0	17.0	6.0	15.0
65	13.0	20.0	14.0	21.0	12.0	19.0
66	13.0	20.0	14.0	21.0	12.0	19.0
67	13.0	20.0	14.0	21.0	12.0	19.0
68	13.0	20.0	14.0	21.0	12.0	19.0
69	13.0	20.0	14.0	21.0	12.0	19.0
70	100.0	100.0	100.0	100.0	100.0	100.0

(1) *Consistent with the cost study prepared for the adoption of enhanced Tier 1 retirement benefits, we have estimated the rates above by increasing the retirement rates for Tier 1 by a flat 1%.*

(2) *Not eligible to retire under the provisions of the Tier 3 plan.*

Retirement Age and Benefit for Inactive Vested Participants:	Assume retiree health benefit will be paid at the later of age 59 or the current attained age.
Exclusion of Inactive Vested:	Inactive vested with less than 10 years of service are excluded.
Definition of Active Members:	First day of biweekly payroll following employment for new department employees or immediately following transfer from other city department.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Service:	Employment service is used for eligibility determination purposes. Benefit service is used for benefit calculation purposes.
Future Benefit Accruals:	1.0 year of service per year.
Net Investment Return:	7.25%
Salary Increases:	Inflation: 3.00%; plus additional 0.50% "across the board" salary increases (other than inflation); plus the following merit and promotional increases:

Service	Percentage Increase
0	6.50%
1	6.20%
2	5.10%
3	3.10%
4	2.10%
5	1.10%
6	1.00%
7	0.90%
8	0.70%
9	0.60%
10+	0.40%

Actuarial Value of Assets:	The market value of assets less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual and expected returns on a market value basis and is recognized over a seven-year period. The actuarial value of assets cannot be less than 60% or greater than 140% of the market value of assets.
Actuarial Cost Method:	Entry Age Cost Method, level percent of salary.
Per Capita Cost Development:	The assumed costs on a composite basis are the future costs of providing postemployment health care benefits at each age. To determine the assumed costs on a composite basis, historical premiums are reviewed and adjusted for increases in the cost of health care services.

Maximum Dental Subsidy

Carrier	Election Percent	Monthly 2018-2019 Fiscal Year Subsidy
Delta Dental PPO	79.2%	$44.60
DeltaCare USA	20.8%	$13.19

Per Capita Cost Development – Tier 1, Not Subject to Medical Subsidy Cap:

Participant Under Age 65 or Not Eligible for Medicare A & B

2018-2019 Fiscal Year		**Single Party**			**Married/With Domestic Partner**			**Eligible Survivor**		
CARRIER	Observed and Assumed Election Percent	Monthly Premium*	Maximum Subsidy	**Subsidy**	Monthly Premium*	Maximum Subsidy	**Subsidy**	Monthly Premium*	Maximum Subsidy	**Subsidy**
Kaiser HMO	**62.4%**	$853.39	$1,790.80	**$853.39**	$1,706.78	$1,790.80	**$1,706.78**	$853.39	$853.39	**$853.39**
Anthem Blue Cross PPO	**21.9%**	$1,270.81	$1,790.80	**$1,270.81**	$2,537.02	$1,790.80	**$1,790.80**	$1,270.81	$853.39	**$853.39**
Anthem Blue Cross HMO	**15.7%**	$1,003.40	$1,790.80	**$1,003.40**	$2,002.19	$1,790.80	**$1,790.80**	$1,003.40	$853.39	**$853.39**

* With the exception of Kaiser, the amounts above reflect the inclusion of the vision insurance plan premium.

Participant Eligible for Medicare A & B

2018-2019 Fiscal Year		**Single Party**			**Married/With Domestic Partner**			**Eligible Survivor**		
CARRIER	Observed and Assumed Election Percent	Monthly Premium*	Maximum Subsidy	**Subsidy**	Monthly Premium*	Maximum Subsidy	**Subsidy**	Monthly Premium*	Maximum Subsidy	**Subsidy**
Kaiser Senior Advantage HMO	**58.1%**	$259.86	$259.86	**$259.86**	$519.72	$519.72	**$519.72**	$259.86	$259.86	**$259.86**
Anthem Blue Cross Medicare Supplement	**30.6%**	$542.51	$542.51	**$542.51**	$1,080.42	$1,062.50	**$1,062.50**	$542.51	$542.51	**$542.51**
UHC Medicare Adv. HMO for California**	**11.3%**	$273.69	$273.69	**$273.69**	$542.78	$542.78	**$542.78**	$273.69	$273.69	**$273.69**

* With the exception of Kaiser, the amounts above reflect the inclusion of the vision insurance plan premium.

** Rates for CA plan.

Members who are subject to the retiree medical subsidy cap will have monthly health insurance subsidy maximums capped at the levels in effect at July 1, 2011, as shown in the table below:

	Single Party	Married/With Domestic Partner	Eligible Survivor
Under 65 – All Plans	$1,190.00	$1,190.00	$593.62
Over 65			
Kaiser HMO	$203.27	$406.54	$203.27
Blue Cross Medicare Supplement	$478.43	$478.43	$478.43
UHC Medicare Adv. HMO for California	$219.09	$396.47	$219.09

These rates only apply to a few inactive members. No active members are subject to the retiree medical subsidy cap.

Adjustments to per-capita costs (as shown on page 35) based on age, gender, and status, are as follows:

	Retiree		Spouse	
Age	**Male**	**Female**	**Male**	**Female**
55	0.9037	0.9330	0.7112	0.8055
60	1.0732	1.0056	0.9521	0.9342
64	1.2312	1.0668	1.2019	1.0515
65	0.9193	0.7814	0.9193	0.7814
70	1.0655	0.8421	1.0655	0.8421
75	1.1482	0.9064	1.1482	0.9064
80+	1.2365	0.9772	1.2365	0.9772

Spouse/Domestic Partner Coverage:	60% of male and 35% of female retirees who receive a subsidy are assumed to be married or have a qualified domestic partner and elect dependent coverage. Of these covered spouses/domestic partners, 100% are assumed to continue coverage if the retiree predeceases the spouse/domestic partner.
Spouse Age Difference:	Male retirees are assumed to be 4 years older than their female spouses. Female retirees are assumed to be 2 years younger than their male spouses.
Participation:	Retiree Medical and Dental Coverage Participation:

Service Range	Percent Covered*
10 – 14	60%
15 – 19	80%
20 – 24	90%
25 and Over	95%

* *Inactive members are assumed to elect coverages at 50% of the rates shown above.*

100% of retirees becoming eligible for Medicare are assumed to be covered by both Parts A and B.

Health Care Cost Subsidy Trend Rates:

MEDICAL TRENDS FOR THE JUNE 30, 2018 VALUATION

Trends to be applied in following fiscal years, to all health plans.

Trend is to be applied to premium for shown fiscal year to calculate next fiscal year's projected premium

First Fiscal Year (July 1, 2018 through June 30, 2019)

Plan	Anthem Blue Cross PPO, Under Age 65	Anthem Blue Cross Medicare Supplement	Kaiser HMO, Under Age 65	Kaiser Senior Advantage	Anthem Blue Cross HMO, Under 65	UHC Medicare HMO
Trend to be applied to 2018-2019 Fiscal Year premium	3.50%	3.25%	3.50%	4.29%	-1.75%	3.25%

	Trend (Approx.)		The fiscal year trend rates are based on the following calendar year trend rates:		
				Trend (applied to calculate following year premium)	
Fiscal Year	Non-Medicare	Medicare	Calendar Year	Non-Medicare	Medicare
2019-2020	6.87%	6.37%	2019	7.00%*	6.50%*
2020-2021	6.62%**	6.12%**	2020	6.75%	6.25%
2021-2022	6.37%	5.87%	2021	6.50%	6.00%
2022-2023	6.12%	5.62%	2022	6.25%	5.75%
2023-2024	5.87%	5.37%	2023	6.00%	5.50%
2024-2025	5.62%	5.12%	2024	5.75%	5.25%
2025-2026	5.37%	4.87%	2025	5.50%	5.00%
2026-2027	5.12%	4.62%	2026	5.25%	4.75%
2027-2028	4.87%	4.50%	2027	5.00%	4.50%
2028-2029	4.62%	4.50%	2028	4.75%	4.50%
2029 and later	4.50%	4.50%	2029	4.50%	4.50%

Dental Premium Trend	4.00% for all years
Medicare Part B Premium Trend	Trend for the 2018-19 fiscal year will be calculated based on the actual increase in Medicare B premium from 2018 to 2019, when it becomes available. 4.00% for years following the 2019 calendar year.

** For example, the 7.00% assumption when applied to the 2019 non-Medicare medical premiums would provide the projected 2020 non-Medicare medical premiums. This trend would also be applied to the maximum medical subsidy, based on the non-Medicare Kaiser premium.*

*** The 2020-2021 premium increases include additional estimated increases of 1.0% (non-Medicare) and 0.5% (Medicare) from the impact of the Health Insurance Tax (HIT).*

Health Care Reform: As directed by LACERS, we have reflected in the current valuation the impact of potential excise tax imposed by the Affordable Care Act (ACA) and related statutes on certain health plans in calculating the contribution rates for the employer. We understand that Statements No. 74 and No. 75 by the Governmental Accounting Standards Board (GASB) for financial reporting purposes require the inclusion of the excise tax in the liability.

Administrative Expenses: No administrative expenses were valued separately from the premium costs.

Plan Design: Development of plan liabilities was based on the substantive plan of benefits in effect as described in Exhibit III.

Assumption Changes Since Prior Valuation: The ultimate trend rate was reduced from 4.50% to 4.00% for Medicare Part B and Dental.

Starting premium costs and first year trends were revised to reflect 2019 calendar year premium data.

Medical and dental carrier election assumptions were updated.

The spouse coverage and retiree medical participation assumptions were updated.

Based on the June 30, 2017 Actuarial Experience Study, the following actuarial assumptions were changed. Previously, these assumptions were as follows:

Post-Retirement Mortality Rates:

Healthy Members and All Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

Disabled Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward eight years for females.

Changes in Actuarial Assumptions (continued):

Termination Rates Before Retirement:

Pre-Retirement Mortality: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

	Rate (%)	
Age	**Disability**	**Termination***
25	0.01	5.75
30	0.03	5.75
35	0.05	4.85
40	0.09	3.50
45	0.15	2.70
50	0.19	2.50
55	0.20	2.35
60	0.20	2.25

* *Rates for members with five or more years of service. Termination rates are zero for members eligible to retire.*

Rates of termination for members with less than 5 years of service are as follows:

	Rate (%)
Service	**Termination (Based on Service)**
0	13.25
1	11.00
2	8.75
3	7.25
4	5.75

Changes in Actuarial Assumptions (continued):

Retirement Rates:

	Rate (%)					
	Tier 1		APO Tier 1(1)		Tier 3	
Age	Non-55/30	55/30	Non-55/30	55/30	Non-55/30	55/30
50	6.0	0.0	7.0	0.0	6.0	0.0
51	3.0	0.0	4.0	0.0	3.0	0.0
52	3.0	0.0	4.0	0.0	3.0	0.0
53	3.0	0.0	4.0	0.0	3.0	0.0
54	16.0	0.0	17.0	0.0	15.0	0.0
55	6.0	20.0	7.0	21.0	0.0(2)	19.0
56	6.0	14.0	7.0	15.0	0.0(2)	13.0
57	6.0	14.0	7.0	15.0	0.0(2)	13.0
58	6.0	14.0	7.0	15.0	0.0(2)	13.0
59	6.0	14.0	7.0	15.0	0.0(2)	13.0
60	6.0	14.0	7.0	15.0	5.0	13.0
61	6.0	14.0	7.0	15.0	5.0	13.0
62	7.0	15.0	8.0	16.0	6.0	14.0
63	7.0	15.0	8.0	16.0	6.0	14.0
64	7.0	16.0	8.0	17.0	6.0	15.0
65	12.0	17.0	13.0	18.0	11.0	16.0
66	12.0	17.0	13.0	18.0	11.0	16.0
67	12.0	17.0	13.0	18.0	11.0	16.0
68	12.0	17.0	13.0	18.0	11.0	16.0
69	12.0	17.0	13.0	18.0	11.0	16.0
70	100.0	100.0	100.0	100.0	100.0	100.0

(1) *Consistent with the cost study prepared for the adoption of enhanced Tier 1 benefits, we have estimated the rates above by increasing the retirement rates for Tier 1 by a flat 1%.*

(2) *Not eligible to retire under the provisions of the Tier 3 plan.*

Retirement Age and Benefit for

Inactive Vested Participants:	Assume retiree health benefit will be paid at the later of age 58 or the current attained age.

EXHIBIT III

Summary of Plan

This exhibit summarizes the major benefit provisions as included in the valuation. To the best of our knowledge, the summary represents the substantive plans as of the measurement date. It is not intended to be, nor should it be interpreted as, a complete statement of all benefit provisions.

Membership Eligibility:

Tier 1 (§4.1002(a))	All employees who became members of the Retirement System before July 1, 2013, and certain employees who became members of the Retirement System on or after July 1, 2013. In addition, pursuant to Ordinance No. 184134, all Tier 2 employees who became members of the Retirement System between July 1, 2013 and February 21, 2016 were transferred to Tier 1 effective February 21, 2016.
Tier 3 (§4.1080.2(a))	All employees who became members of the Retirement System on or after February 21, 2016, except as provided otherwise in Section 4.1080.2(b) of the Los Angeles Administrative Code.

Benefit Eligibility:

Tier 1 (§4.1111(a)) and Tier 3 (§4.1126(a))	Retired age 55 or older with at least 10 years of service (including deferred vested members who terminate employment and receive a retirement benefit from LACERS), or if retirement date is between October 2, 1996, and September 30, 1999 at age 50 or older with at least 30 years of service. Benefits are also payable to spouses, domestic partners, or other qualified dependents while the retiree is alive. Please note that the health subsidy is not payable to a disabled retiree before the member reaches age 55.

Medical Subsidy for Members Not Subject to Cap:

Under Age 65 or Over Age 65 Without Medicare Part A

Tier 1 (§4.1111(d)) and Tier 3 (§4.1126(c))

The System will pay 4% of the maximum health subsidy (limited to actual premium) for each year of Service Credit, up to 100% of the maximum health subsidy. As of July 1, 2018, the maximum health subsidy is $1,790.80 per month, remaining unchanged in calendar year 2019. This amount includes coverage of dependent premium costs.

Over Age 65 and Enrolled in Both Medicare Parts A and B

Tier 1 (§4.1111(e)) and Tier 3 (§4.1126(d))

For retirees, a maximum health subsidy shall be paid in the amount of the single-party monthly premium of the approved Medicare supplemental or coordinated plan in which the retiree is enrolled, subject to the following vesting schedule:

Completed Years of Service	Vested Percentage
1-14	75%
15-19	90%
20+	100%

Subsidy Cap for Tier 1:
(§4.1111(b))

As of the June 30, 2011 valuation, the retiree health benefits program was changed to cap the medical subsidy for non-retired members who do not contribute an additional 4% or 4.5% of employee contributions to the Pension Plan.

The capped subsidy is different for Medicare and non-Medicare retirees.

The cap applies to the medical subsidy limits at the 2011 calendar year level.

The cap does not apply to the dental subsidy or the Medicare Part B premium reimbursement.

Dependents:

Tier 1 (§4.1111(e)(4))
and Tier 3 (§4.1126(d)(4))

An additional amount is added for coverage of dependents which shall not exceed the amount provided to a retiree not enrolled in Medicare Parts A and B and covered by the same medical plan with the same years of service. The combined member and dependent subsidy shall not exceed the actual premium. This refers to dependents of retired members with Medicare Parts A and B. It does not apply to those without Medicare or Part B only.

Dental Subsidy for Members:

Tier 1 (§4.1114(b))
and Tier 3 (§4.1129(b))

The System will pay 4% of the maximum dental subsidy (limited to actual premium) for each year of Service Credit, up to 100% of the maximum dental subsidy. As of July 1, 2018, the maximum dental subsidy is $44.60 per month; remaining unchanged in calendar year 2019.

There is no subsidy available to spouses or domestic partners or for dependent coverage. There is also no reimbursement for dental plans not sponsored by the System.

Medicare Part B Reimbursement for Members:

Tier 1 (§4.1113) and
Tier 3 (§4.1128)

If a Retiree is covered by both Medicare Parts A and B, and enrolled in a LACERS’ medical plan or participates in the LACERS Retiree Medical Premium Reimbursement Program, LACERS will reimburse the retiree the basic Medicare Part B premium.

Surviving Spouse Medical Subsidy

Tier 1 (§4.1115) and Tier 3 (§4.1129.1)

The surviving spouse or domestic partner will be entitled to a health subsidy based on the member's years of service and the surviving dependent's eligibility for Medicare.

Under Age 65 or Over Age 65 Without Medicare Part A

The maximum health subsidy available for survivors is the lowest cost plan available (currently Kaiser) single-party premium ($853.39 per month as of July 1, 2018, remaining unchanged in calendar year 2019).

Over Age 65 and Enrolled in Both Medicare Parts A and B

For survivors, a maximum health subsidy limited to the single-party monthly premium of the plan in which the survivor is enrolled, is provided subject to the following vesting schedule:

Completed Years of Service	Vested Percentage
1-14	75%
15-19	90%
20+	100%

Changes in Plan Provisions:

Note that a new Tier 1 Enhanced Plan providing a higher retirement benefit was adopted pursuant to Ordinance No. 184853. However, other than Segal applying higher retirement rate assumptions to anticipate somewhat earlier retirement, there are no differences between the retiree health benefits paid by LACERS to those members.

NOTE: *The summary of major Plan provisions is designed to outline principal plan benefits as interpreted for purposes of the actuarial valuation. If the System should find the plan summary not in accordance with the actual provisions, the System should alert the actuary so that both parties can be sure the proper provisions are valued.*

EXHIBIT IV

Definitions of Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or Actuarial Assumptions:	The estimates on which the cost of the Plan is calculated including: (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future; (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates; (c) Retirement rates — the rate or probability of retirement at a given age; (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.
Actuarial Present Value of Total Projected Benefits (APB):	Present value of all future benefit payments for current retirees and active employees taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions.
Normal Cost:	The amount of contributions required to fund the benefit allocated to the current year of service.
Actuarial Accrued Liability For Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability For Retirees:	The single sum value of lifetime benefits to existing retirees. This sum takes account of life expectancies appropriate to the ages of the retirees and of the interest which the sum is expected to earn before it is entirely paid out in benefits.

Actuarial Value of Assets (AVA):	The value of assets used by the actuary in the valution. These may be at market value or some other method used to smooth variations in market value from one valuation to the next.
Funded Ratio:	The ratio AVA/AAL.
Unfunded Actuarial Accrued Liability (UAAL):	The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.
Amortization of the Unfunded Actuarial Accrued Liability:	Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.
Investment Return (discount rate):	The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next. If the plan is funded on a pay-as-you-go basis, the discount rate is tied to the expected rate of return on day-to-day employer funds.
Covered Payroll:	Annual reported salaries for all active participants on the valuation date.
ADC as a Percentage of Covered Payroll:	The ratio of the actuarially determined contribution to covered payroll.
Health Care Cost Trend Rates:	The annual rate of increase in net claims costs per individual benefiting from the Plan.
Actuarially Determined Contribution (ADC):	The ADC is equal to the sum of the normal cost and the amortization of the unfunded actuarial accrued liability.

Segal Consulting

Los Angeles City Employees' Retirement System

Governmental Accounting Standards (GAS) 67
Actuarial Valuation as of June 30, 2018

This report has been prepared at the request of the Board of Administration to assist in administering the Fund. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Administration and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Segal Consulting
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November 7, 2018

Board of Administration
Los Angeles City Employees' Retirement System
202 W. 1st Street, Suite 500
Los Angeles, CA 90012-4401

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards (GAS) 67 Actuarial Valuation as of June 30, 2018. It contains various information that will need to be disclosed in order to comply with GAS 67.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the System. The census and financial information on which our calculations were based was prepared by LACERS. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Andy Yeung, ASA, MAAA, FCA, Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and expectations for the System.

We look forward to reviewing this report with you and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By: Andy Yeung

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

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

DNA/HY

SECTION 1

VALUATION SUMMARY

SECTION 2

GASB 67 INFORMATION

Purpose

This report has been prepared by Segal Consulting ("Segal") to present certain disclosure information required by Statement No. 67 of the Governmental Accounting Standards Board as of June 30, 2018. This valuation is based on:

- The benefit provisions of the Pension Plan, as administered by the Board of Administration;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of June 30, 2018, provided by LACERS;
- The assets of the Plan as of June 30, 2018, provided by LACERS;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

General Observations on GAS 67 Valuation

The following points should be considered when reviewing this GAS 67 report:

- The Governmental Accounting Standards Board (GASB) rules only define pension liability and expense for financial reporting purposes, and do not apply to contribution amounts for pension funding purposes. Employers and plans still develop and adopt funding policies under current practices.
- When measuring pension liability, GASB uses the same actuarial cost method (Entry Age) and the same type of discount rate (expected return on assets) as LACERS uses for funding. This means that the Total Pension Liability (TPL) measure for financial reporting shown in this report is determined on the same basis as LACERS' Actuarial Accrued Liability (AAL) measure for funding. We note that the same is true for the Normal Cost component of the annual plan cost for funding and financial reporting.
- The Net Pension Liability (NPL) is equal to the difference between the TPL and the Plan's Fiduciary Net Position. The Plan's Fiduciary Net Position is equal to the market value of assets and therefore, the NPL measure is the same as the Unfunded Actuarial Accrued Liability (UAAL) calculated on a market value basis. The NPL reflects all investment gains and losses as of the measurement date. This is different from the UAAL calculated on an actuarial value of assets basis in the funding valuation that reflects investment gains and losses over a seven-year period.
- The NPLs measured as of June 30, 2018 and 2017 have been determined from the actuarial valuations as of June 30, 2018 and June 30, 2017, respectively.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- As part of this valuation, we obtained actual membership information available for the first time for the Airport Peace Officers (APO) who elected to stay at LACERS, and would therefore be entitled to enhanced Tier 1 benefits, instead of transferring to LAFPP on January 7, 2018. Using that data and applying the method we previously discussed with LACERS, we have estimated the increase in NPL to improve past service earned through January 6, 2018 from Tier 1 to enhanced Tier 1 by using salary and other demographic information reported in the June 30, 2018 valuation. That increase in NPL was calculated by using service earned through January 6, 2018.[1] That increase in the NPL determined using the actuarial assumptions in the June 30, 2018 valuation has been adjusted to reflect the anticipated payment of the $5,700 required to receive the enhanced benefits by every APO member with past service. We have further adjusted the change in the NPL to reflect the contributions paid by the Airport for the period January 7, 2018 to June 30, 2018.
- The NPL increased from $5.28 billion as of June 30, 2017 to $5.71 billion as of June 30, 2018 mainly due to changes in the actuarial assumptions (that change was about $0.48 billion), inclusion of the enhanced benefits for the APO discussed above (that change was about $0.03 billion), and other miscellaneous losses (including about $0.13 billion due to higher than expected salaries for continuing active members), offset somewhat by the return on the market value of retirement plan assets of 9.35%[2] during 2017/2018 that was more than the assumption of 7.25% used in the June 30, 2017 valuation (that gain was about $0.28 billion). Changes in these values during the last two fiscal years ending June 30, 2017 and June 30, 2018 can be found in Exhibit 3.
- The discount rate used to determine the TPL and NPL as of June 30, 2018 and 2017 was 7.25% following the same assumption used by the System in the pension funding valuations as of the same dates. The detailed calculations used in the derivation of the discount rate of 7.25% used in the calculation of the TPL and NPL as of June 30, 2018 can be found in Exhibit 5 of Section 2. Various other information that is required to be disclosed can be found throughout Exhibits 1 through 4 in Section 2.

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[1] *We have excluded benefit enhancement for service earned after January 6, 2018 because higher normal cost contributions would have already been paid by the Airport.*

[2] *Net of investment expenses only.*

Summary of Key Valuation Results

	2018	2017
Disclosure elements for fiscal year ending June 30:		
Service cost(1)	$352,282,612	$340,758,622
Total Pension Liability	19,944,579,058	18,458,187,953
Plan Fiduciary Net Position	14,235,230,528	13,180,515,725
Net Pension Liability	5,709,348,530	5,277,672,228
Schedule of contributions for fiscal year ending June 30:		
Actuarially determined contributions	$450,195,254	$453,356,059
Actual contributions	450,195,254	453,356,059
Contribution deficiency / (excess)	0	0
Demographic data for plan year ending June 30:		
Number of retired members and beneficiaries	19,379	18,805
Number of vested terminated members(2)	8,028	7,428
Number of active members	26,042	25,457
Key assumptions as of June 30:		
Investment rate of return	7.25%	7.25%
Inflation rate	3.00%	3.00%
Projected salary increases(3)	Ranges from 10.00% to 3.90%, based on years of service	Ranges from 10.00% to 3.90%, based on years of service

(1) *The service cost is based on the previous year's valuation, meaning the 2018 and 2017 values are based on the valuations as of June 30, 2017 and June 30, 2016, respectively. The 2018 service cost has been calculated using the assumptions shown in the 2017 column and the 2017 service cost has been calculated using the following assumptions:*

Key assumptions as of June 30, 2016:	
Investment rate of return	*7.50%*
Inflation rate	*3.25%*
*Projected salary increases**	*Ranges from 10.50% to 4.40%, based on years of service*

**Includes inflation of 3.25% plus real across the board salary increases of 0.75% plus merit and promotional increases.*

(2) *Includes terminated members due a refund of employee contributions.*

(3) *Includes inflation at 3.00% plus real across the board salary increase of 0.50%, plus merit and promotional increases.*

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare an actuarial valuation, Segal relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in this report (as well as the plan summary included in our funding valuation report) to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by the System. The System uses an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining contribution requirements.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, termination, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared at the request of the Board to assist the sponsors of the Fund in preparing items related to the pension plan in their financial reports. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- If the System is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Retirement System.

EXHIBIT 1

General Information – "Financial Statements", Note Disclosures and Required Supplementary Information for a Single-Employer Pension Plan

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Plan Description

Plan administration. The Los Angeles City Employees' Retirement System (LACERS) was established by City Charter in 1937. LACERS is a single employer public employee retirement system whose main function is to provide retirement benefits to the civilian employees of the City of Los Angeles.

Under the provisions of the City Charter, the Board of Administration (the "Board") has the responsibility and authority to administer the Plan and to invest its assets. The Board members serve as trustees and must act in the exclusive interest of the Plan's members and beneficiaries. The Board has seven members: four members, one of whom shall be a retired member of the system, shall be appointed by the Mayor subject to the approval of the Council; two members shall be active employee members of the system elected by the active employee members; one shall be a retired member of the system elected by the retired members of the system.

Plan membership. At June 30, 2018, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	19,379
Vested terminated members entitled to, but not yet receiving benefits(1)	8,028
Active members	26,042
Total	53,449

(1) *Includes terminated members due a refund of employee contributions.*

Benefits provided. LACERS provides service retirement, disability, death and survivor benefits to eligible employees. Employees of the City become members of LACERS on the first day of employment in a position with the City in which the employee is not excluded from membership. Members employed prior to July 1, 2013 are designated as Tier 1. All Tier 1 Airport Peace Officers (including certain fire fighters) appointed to their positions before January 7, 2018 who elected to remain at LACERS after January 7, 2018 are designated as Tier 1 Enhanced. Those employed on or after February 21, 2016 are designated as Tier 3 (unless a specific exception applies to the employee, providing a right to Tier 1 status).

Tier 1 and Tier 1 Enhanced members are eligible to retire for service with a normal retirement benefit once they attain the age of 70, or the age of 60 with 10 or more years of continuous City service, or the age of 55 with 30 or more years of City service. Tier 3 members are eligible to retire for service with a normal retirement benefit at 1.50% of final average monthly compensation per year of service credit once they attain the age of 60 with 10 years of service (but with less than 30 years of service), including 5 years of continuous City service, or at 2.00% of final average monthly compensation per year of service credit once they attain the age of 60 with 30 years of service, including 5 years of continuous City service.

Tier 1 and 3 members are eligible to retire for disability once they have 5 or more years of continuous service. Tier 1 Enhanced members are eligible to retire for service-connected disability without a service requirement, and once they have 5 or more years of continuous service for a nonservice-connected disability.

Under the Tier 1 formula, the monthly service retirement allowance at normal retirement age is 2.16% of final average monthly compensation per year of service credit. Under the Tier 1 Enhanced formula, the monthly service retirement allowance at normal retirement age is 2.30% of final average monthly compensation per year of service credit. Reduced retirement allowances are available for early retirement for Tier 1 and Tier 1 Enhanced members reaching age 55 with 10 or more years of continuous City service, or with 30 or more years of City service at any age. The Tier 1 and Tier 1 Enhanced early retirement reduction factors, for retirement below age 60, are as follows:

Age	Factor	Age	Factor
45	0.6250	53	0.8650
46	0.6550	54	0.8950
47	0.6850	55	0.9250
48	0.7150	56	0.9400
49	0.7450	57	0.9550
50	0.7750	58	0.9700
51	0.8050	59	0.9850
52	0.8350	60	1.0000

Under the Tier 3 formula, the monthly service retirement allowance at normal retirement age is 2.00% of final average monthly compensation per year of service credit. Reduced retirement allowances are available for early retirement for Tier 3 members prior to reaching age 60 with 30 years of service, including 5 years of continuous City service. The Tier 3 retirement reduction factors at early retirement ages are as follows:

Age	Factor	Age	Factor
45	0.6250	50	0.7750
46	0.6550	51	0.8050
47	0.6850	52	0.8350
48	0.7150	53	0.8650
49	0.7450	54	0.8950
		55-60	1.0000

Tier 3 members are eligible to retire with an enhanced retirement benefit at 2.00% of final average monthly compensation per year of service credit once they attain the age of 63 with 10 years of service (but with less than 30 years of service), including 5 years of continuous City service, or at 2.10% of final average monthly compensation per year of service credit once they attain the age of 63 with 30 years of service, including 5 years of continuous City service.

Under Tier 1 and Tier 1 Enhanced, pension benefits are calculated based on the highest average salary earned during a 12-month period (including base salary plus regularly assigned pensionable bonuses or premium pay). Under Tier 3, pension benefits are calculated based on the highest average salary earned during a 36-month period (limited to base salary and any items of compensation that are designated as pension based). The IRC Section 401(a)(17) compensation limit applies to all employees who began membership in LACERS after June 30, 1996.

For Tier 1 and Tier 1 Enhanced members, the maximum monthly retirement allowance is 100% of the final average monthly compensation. For Tier 3 members, the maximum monthly retirement allowance is 80% of the final average monthly compensation, except when the benefit is based solely on the annuity component funded by the member's contributions.

In lieu of the service retirement allowance under the Tier 1, Tier 1 Enhanced, and Tier 3 formulas ("unmodified option"), the member may choose an optional retirement allowance. The unmodified option provides the highest monthly benefit and a 50% continuance to an eligible surviving spouse or domestic partner for Tier 1, Tier 1 Enhanced, and Tier 3 members. The optional retirement allowances require a reduction in the unmodified option amount in order to allow the member the ability to provide various benefits to a surviving spouse, domestic partner, or named beneficiary.

LACERS provides annual cost-of-living adjustments (COLAs) to all retirees. The cost-of-living adjustments are made each July 1 based on the percentage change in the average of the Consumer Price Index for the Los Angeles-Riverside-Orange County Area--All Items For All Urban Consumers. It is capped at 3.0% for Tier 1 and Tier 1 Enhanced, and at 2.0% for Tier 3.

The City of Los Angeles contributes to the retirement plan based upon actuarially determined contribution rates adopted by the Board of Administration. Employer contribution rates are adopted annually based upon recommendations received from LACERS' actuary after the completion of the annual actuarial valuation. The combined employer contribution rate as of June 30, 2018 was 21.88% of compensation.[3]

All members are required to make contributions to LACERS regardless of the tier in which they are included. Currently, all Tier 1 members contribute at 11.0% or 11.5% of compensation, and all Tier 1 Enhanced and Tier 3 members contribute at 11.0% of compensation.

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[3] *Based on the June 30, 2016 funding valuation (which established funding requirements for fiscal year 2017/2018). Exhibit 4 in Section 2 of this report provides details on how this rate was calculated.*

EXHIBIT 2

Net Pension Liability

The components of the Net Pension Liability of LACERS are as follows:

	June 30, 2018	**June 30, 2017**
Total Pension Liability	$19,944,579,058	$18,458,187,953
Plan Fiduciary Net Position	-14,235,230,528	-13,180,515,725
System's Net Pension Liability	$5,709,348,530	$5,277,672,228
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	71.37%	71.41%

The NPL was measured as of June 30, 2018 and 2017. The Plan's Fiduciary Net Position was valued as of the measurement date, while the TPL was determined based upon the results of the actuarial valuations as of June 30, 2018 and 2017, respectively.

Plan provisions. The plan provisions used in the measurement of the NPL as of June 30, 2018 and 2017 are the same as those used in the LACERS funding valuations as of June 30, 2018 and 2017, respectively.

Actuarial assumptions. The TPL as of June 30, 2018 was determined by an actuarial valuation as of June 30, 2018. The actuarial assumptions used in the June 30, 2018 valuation were based on the results of an experience study for the period from July 1, 2014 through June 30, 2017. They are the same as the assumptions used in the June 30, 2018 funding actuarial valuation for LACERS. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	Ranges from 10.00% to 3.90% based on years of service, including inflation
Investment rate of return	7.25%, net of pension plan investment expense and including inflation
Other assumptions	Same as those used in the June 30, 2018 actuarial valuation

The TPL as of June 30, 2017 was determined by an actuarial valuation as of June 30, 2017. The actuarial assumptions used in the June 30, 2017 valuation were based on the results of an experience study for the period from July 1, 2011 through June 30, 2014. They are the same as the assumptions used in the June 30, 2017 funding actuarial valuation for LACERS. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	Ranges from 10.00% to 3.90% based on years of service, including inflation
Investment rate of return	7.25%, net of pension plan investment expense and including inflation
Other assumptions	Same as those used in the June 30, 2017 actuarial valuation

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before deducting investment expenses are summarized in the following table. These values were used in the derivation of the long-term expected investment rate of return assumption for the actuarial valuation as of June 30, 2018. This information is subject to change every three years based on the actuarial experience study.

Asset Class	Target Allocation	Long-Term (Arithmetic) Expected Real Rate of Return
U.S. Large Cap Equity	14.00%	5.32%
U.S. Small Cap Equity	5.00%	6.07%
Developed International Large Cap Equity	17.00%	6.67%
Developed International Small Cap Equity	3.00%	7.14%
Emerging Market Equity	7.00%	8.87%
Core Bond	13.75%	1.04%
High Yield Bond	2.00%	3.09%
Bank Loan	2.00%	3.00%
TIPS	3.50%	0.97%
Emerging Market Debt (External)	4.50%	3.44%
Real Estate	7.00%	4.68%
Cash	1.00%	0.01%
Commodities	1.00%	3.36%
Additional Public Real Assets	1.00%	4.76%
Real Estate Investment Trust (REIT)	0.50%	5.91%
Private Debt	3.75%	5.50%
Private Equity	14.00%	8.97%
Total	100.00%	

Discount rate: The discount rate used to measure the Total Pension Liability was 7.25% as of June 30, 2018 and June 30, 2017. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. For this purpose, only employee and employer contributions that are intended to fund benefits for current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs for future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability as of both June 30, 2018 and June 30, 2017.

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the Net Pension Liability of LACERS as of June 30, 2018, calculated using the discount rate of 7.25%, as well as what LACERS' Net Pension Liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.25%) or 1-percentage-point higher (8.25%) than the current rate:

	1% Decrease (6.25%)	**Current Discount (7.25%)**	**1% Increase (8.25%)**
Net Pension Liability as of June 30, 2018	$8,449,878,967	$5,709,348,530	$3,451,002,831

EXHIBIT 3

Schedules of Changes in LACERS Net Pension Liability – Last Two Fiscal Years

	2018	2017
Total Pension Liability		
Service cost(1)	$352,282,612	$340,758,622
Interest	1,332,878,299	1,302,278,282
Change of benefit terms	25,173,222	0
Differences between expected and actual experience	144,224,403	-146,474,065
Changes of assumptions	483,717,164	340,717,846
Benefit payments, including refunds of employee contributions	-851,884,595	-804,089,061
Net change in Total Pension Liability	$1,486,391,105	$1,033,191,624
Total Pension Liability – beginning	18,458,187,953	17,424,996,329
Total Pension Liability – ending (a)	$19,944,579,058	$18,458,187,953
Plan Fiduciary Net Position		
Contributions – employer	$450,195,254	$453,356,059
Contributions – employee	230,756,920	221,828,781
Net investment income	1,243,817,173	1,517,544,363
Benefit payments, including refunds of employee contributions	-851,884,595	-804,089,061
Administrative expense	-17,698,803	-17,453,832
Other	-471,146(2)	0
Net change in Plan Fiduciary Net Position	$1,054,714,803	$1,371,186,310
Plan Fiduciary Net Position – beginning	13,180,515,725	11,809,329,415
Plan Fiduciary Net Position – ending (b)	$14,235,230,528	$13,180,515,725
System's Net Pension Liability – ending (a) – (b)	$5,709,348,530	$5,277,672,228
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	71.37%	71.41%
Covered payroll(3)	$2,057,565,478	$1,973,048,633
Plan Net Pension Liability as percentage of covered payroll	277.48%	267.49%

---

(1) *The service cost is based on the previous year's valuation, meaning the 2018 and 2017 values are based on the valuations as of June 30, 2017 and June 30, 2016, respectively. The 2018 service cost has been calculated using the assumptions shown in the 2017 column on page iii and the 2017 service cost has been calculated using the following assumptions:*

Key assumptions as of June 30, 2016:

Investment rate of return	*7.50%*
Inflation rate	*3.25%*
*Projected salary increases**	*Range from 10.50% to 4.40%, based on years of service*

**Includes inflation of 3.25% plus real across the board salary increases of 0.75% plus merit and promotional increases.*

(2) *Correction made by LACERS to beginning of year interest posted to member reserves.*

(3) *Covered payroll is defined as the payroll on which contributions to a pension plan are based.*

EXHIBIT 4

Schedule of Employer Contributions – Last Ten Fiscal Years

Year Ended June 30	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency / (Excess)	Covered Payroll[1]	Contributions as a Percentage of Covered Payroll
2009	$274,554,786	$274,554,786	$0	$1,832,795,577	14.98%
2010	258,642,795	258,642,795	0	1,827,864,283	14.15%
2011	303,560,953	303,560,953	0	1,678,059,440	18.09%
2012	308,539,905	308,539,905	0	1,715,197,133	17.99%
2013	346,180,852	346,180,852	0	1,736,112,598	19.94%
2014	357,649,232	357,649,232	0	1,802,931,195	19.84%
2015	381,140,923	381,140,923	0	1,835,637,409	20.76%
2016	440,546,011	440,546,011	0	1,876,946,179	23.47%
2017	453,356,059	453,356,059	0	1,973,048,633	22.98%
2018	450,195,254	450,195,254	0	2,057,565,478	21.88%

(1) *Covered payroll is defined as the payroll on which contributions to a pension plan are based.*

Notes to Exhibit 4

Methods and assumptions used to establish "actuarially determined contribution" (ADC) rates:	
Valuation date	Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported
Actuarial cost method	Entry Age Cost Method (individual basis)
Amortization method	Level percent of payroll
Amortization period	Multiple layers, closed amortization periods. Actuarial gains/losses are amortized over 15 years. Assumption or method changes are amortized over 20 years. Plan changes, including the 2009 ERIP, are amortized over 15 years. Future ERIPs will be amortized over 5 years. Actuarial surplus is amortized over 30 years. The existing layers on June 30, 2012, except those arising from the 2009 ERIP and the two GASB 25/27 layers, were combined and amortized over 30 years.
Asset valuation method	Market value of assets less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a seven-year period. The actuarial value of assets cannot be less than 60% or greater than 140% of the market value of assets.
Actuarial assumptions:	June 30, 2018 valuation date
Investment rate of return	7.25%
Inflation rate	3.00%
Real across-the-board salary increase	0.50%
Projected salary increases(1)	Ranges from 10.00% to 3.90%, based on years of service
Cost of living adjustments	3.00% for Tier 1; 2.00% for Tier 3 (actual increases are contingent upon CPI increases with a 3.00% maximum for Tier 1 and a 2.00% maximum for Tier 3)
Mortality	Healthy: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table (separate tables for males and females) projected generationally with the two-dimensional mortality improvement Scale MP-2017.
Other assumptions	Same as those used in the June 30, 2018 funding actuarial valuation

(1) *Includes inflation at 3.00% plus across the board salary increases of 0.50% plus merit and promotional increases.*

EXHIBIT 5

Projection of Pension Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2018

($ in millions)

Year Beginning July 1,	Projected Beginning Plan Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Plan Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2017	$13,181	$681	$852	$18	$1,243	$14,235
2018	14,235	757	991	19	1,019	15,000
2019	15,000	752	1,023	20	1,073	15,783
2020	15,783	750	1,085	21	1,127	16,553
2021	16,553	750	1,149	22	1,180	17,312
2022	17,312	750	1,214	23	1,232	18,057
2023	18,057	750	1,279	24	1,284	18,787
2024	18,787	704	1,347	25	1,332	19,452
2025	19,452	709	1,413	26	1,378	20,100
2044	27,268	115 *	2,404	37	1,883	26,826
2045	26,826	110 *	2,414	36	1,850	26,336
2046	26,336	105 *	2,421	35	1,814	25,799
2047	25,799	99 *	2,426	35	1,775	25,212
2048	25,212	93 *	2,429	34	1,732	24,573
2081	2,526	16 *	501	3	163	2,201
2082	2,201	15 *	450	3	142	1,904
2083	1,904	13 *	401	3	122	1,636
2084	1,636	12 *	355	2	105	1,395
2085	1,395	11 *	313	2	89	1,181
2101	22	1 *	10	0	1	14
2102	14	1 *	7	0	1	9
2103	9	1 *	5	0	0	6
2104	6	1 *	3	0	0	3
2105	3	0 *,**	2	0	0	2
2106	2	0 *,**	1	0	0	1
2107	1	0 *,**	1	0	0	0
2108	0	0 *,**	1	0	0	0
2109	0	0 *,**	0 **	0	0	0
2110	0	0 *,**	0 **	0	0	0
2111	0	0 *,**	0 **	0	0	0
2112	0	0 *,**	0 **	0	0	0
2113	0	0 *,**	0 **	0	0	0
2114	0	0 *,**	0 **	0	0	0
2115	0	0 *,**	0 **	0	0	0
2116	0	0 *,**	0 **	0	0	0

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* Mainly attributable to employer contributions to fund each year's annual administrative expenses.

** Less than $1 million, when rounded.

Note that in preparing the above projections, we have not taken into consideration the one-year delay between the date of the contribution rate calculation and the implementation.

EXHIBIT 5

Projection of Pension Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2018

($ in millions) – continued

Notes:

(1) Amounts may not total exactly due to rounding.

(2) Amounts shown for the year beginning July 1, 2017 row are actual amounts, based on the unaudited financial statements provided by LACERS.

(3) Years 2026-2043, 2049-2080, and 2086-2100 have been omitted from this table.

(4) Column (a): None of the projected beginning Plan Fiduciary Net Position amounts shown have been adjusted for the time value of money.

(5) Column (b): Projected total contributions include employee and employer normal cost contributions based on closed group projections (based on covered active members as of June 30, 2018); plus employer contributions to the unfunded actuarial accrued liability; plus contributions to fund each year's annual administrative expenses reflecting a 15-year amortization schedule. Contributions are assumed to occur halfway through the year, on average.

(6) Column (c): Projected benefit payments have been determined in accordance with paragraph 39 of GAS Statement No. 67, and are based on the closed group of active, inactive vested, retired members, and beneficiaries as of June 30, 2018. The projected benefit payments reflect the cost of living increase assumptions used in the June 30, 2018 funding valuation report. Benefit payments are assumed to occur halfway through the year, on average. In accordance with paragraph 31.b.(1)(e) of GASB Statement No. 67, the long-term expected rate of return on Plan investments of 7.25% was applied to all periods of projected benefit payments to determine the discount rate.

(7) Column (d): Projected administrative expenses are calculated as approximately 0.13% of the projected beginning Plan Fiduciary Net Position amount. The 0.13% portion was based on the actual fiscal year 2017 - 2018 administrative expenses as a percentage of the beginning Plan Fiduciary Net Position amount as of July 1, 2017. Administrative expenses are assumed to occur halfway through the year, on average.

(8) Column (e): Projected investment earnings are based on the assumed investment rate of return of 7.25% per annum.

(9) As illustrated in this Exhibit, the Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments for current Plan members. In other words, there is no projected 'cross-over date' when projected benefits are not covered by projected assets. Therefore, the long-term expected rate of return on Plan investments of 7.25% per annum was applied to all periods of projected benefit payments to determine the Total Pension Liability as of June 30, 2018 shown earlier in this report, pursuant to paragraph 44 of GASB Statement No. 67.

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Los Angeles City Employees' Retirement System

Governmental Accounting Standards (GAS) 74 Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2018

This report has been prepared at the request of the Board of Administration to assist in administering the Fund. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Administration and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Segal Consulting
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November 7, 2018

Board of Administration
Los Angeles City Employees' Retirement System
202 W. 1st Street, Suite 500
Los Angeles, CA 90012-4401

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards (GAS) 74 Actuarial Valuation as of June 30, 2018. It contains various information that will need to be disclosed in order to comply with GAS 74.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the System. The census and financial information on which our calculations were based was prepared by LACERS. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Thomas Bergman, ASA, MAAA, Enrolled Actuary and Andy Yeung ASA, MAAA, FCA, Enrolled Actuary. The health care trend and other related medical assumptions have been reviewed by Melissa Bissett, FSA, MAAA. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and expectations for the System.

We look forward to reviewing this report with you and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

Andy Yeung

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

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

JAC/bqb

SECTION 1

VALUATION SUMMARY

SECTION 2

GASB 74 INFORMATION

Purpose

This report has been prepared by Segal Consulting to present certain disclosure information required for "Other Postemployment Benefits (OPEB)" plans by Statement No. 74 of the Governmental Accounting Standards Board as of June 30, 2018. This valuation is based on:

- The benefit provisions of the OPEB Plan, as administered by the Board of Administration;
- The characteristics of covered active members, inactive vested members, and retired members and surviving spouses as of June 30, 2018, provided by LACERS;
- The assets of the Plan as of June 30, 2018, provided by LACERS;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other (health and non-health) actuarial assumptions, regarding employee terminations, retirement, death, health care trend and enrollment, etc. as of June 30, 2018.

General Observations on GAS 74 Actuarial Valuation

The following points should be considered when reviewing this GAS 74 report:

- The Governmental Accounting Standards Board (GASB) rules only define OPEB liability and expense for financial reporting purposes, and do not apply to contribution amounts for OPEB funding purposes. Employers and plans still develop and adopt funding policies under current practices.
- When measuring OPEB liability, GASB uses the same actuarial cost method (Entry Age) and, for benefits that are being fully funded on an actuarial basis, the same expected return on Plan assets as used for funding. This means that the Total OPEB Liability (TOL) measure for financial reporting shown in this report is determined on the same basis as the Actuarial Accrued Liability (AAL) measure for funding.
- The Net OPEB Liability (NOL) is equal to the difference between the TOL and the Plan's Fiduciary Net Position. The Plan's Fiduciary Net Position is equal to the market value of assets. The NOL reflects all investment gains and losses as of the measurement date.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The discount rate used in the valuation for financial disclosure purposes as of June 30, 2018 is the assumed investment return on Plan assets (e.g. 7.25% for the June 30, 2018 funding valuation). As contributions that are required to be made by the City to amortize the Unfunded Actuarial Accrued Liability in the funding valuation are determined on an actuarial basis, the future Actuarially Determined Contributions and current Plan assets, when projected in accordance with the method prescribed by GAS 74, are expected to be sufficient to make all benefit payments to current members.
- The NOL has increased from $566.9 million as of June 30, 2017 to $580.5 million as of June 30, 2018. This increase is primarily as a result of changes in actuarial assumptions and unfavorable demographic experience, offset to some degree by favorable investment and premium renewal experience.
- The NOLs measured as of June 30, 2018 and 2017 have been determined from the valuations as of June 30, 2018 and 2017, respectively.

Summary of Key Valuation Results

	2018	2017
Disclosure elements for fiscal year ending June 30:		
Service cost[(1)]	$74,610,881	$68,385,120
Total OPEB Liability	3,256,827,847	3,005,806,234
Plan Fiduciary Net Position	2,676,371,615	2,438,861,850
Net OPEB Liability	580,456,232	566,944,384
Schedule of contributions for fiscal year ending June 30:		
Actuarially determined contributions	$100,909,010	$97,457,455
Actual contributions	100,909,010	97,457,455
Contribution deficiency / (excess)	0	0
Demographic data for plan year ending June 30:		
Number of retired members and surviving spouses[(2)]	15,144	14,652
Number of vested terminated members	1,401	1,280
Number of active members	26,042	25,457
Key assumptions as of June 30:		
Discount rate	7.25%	7.25%
Health care premium trend rates		
Non-Medicare medical plan	Graded from 6.87% to ultimate 4.50% over 10 years[(3)]	Graded from 6.87% to ultimate 4.50% over 10 years
Medicare medical plan	Graded from 6.37% to ultimate 4.50% over 8 years[(3)]	Graded from 6.37% to ultimate 4.50% over 8 years
Dental and Medicare Part B	4.00%	4.50%

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(1) *The service cost is always based on the previous year's valuation, meaning the 2018 and 2017 values are based on the valuations as of June 30, 2017 and June 30, 2016, respectively. The key assumptions used in the June 30, 2016 valuation are as follows:*

Discount rate	*7.50%*
Health care premium trend rates	
Non-Medicare medical plan	*Graded from 6.38% to ultimate 5.00% over 6 years*
Medicare medical plan	*Graded from 6.38% to ultimate 5.00% over 6 years*
Dental and Medicare Part B	*5.00%*

(2) *The total number of participants, including married dependents, receiving benefits is 20,288 as of June 30, 2018 and 19,539 as of June 30, 2017.*

(3) *The 2020-2021 premium increases include additional estimated increases of 1.0% (non-Medicare) and 0.5% (Medicare) from the impact of the Health Insurance Tax (HIT).*

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of an OPEB plan. It is an estimated forecast – the actual cost of the plan will be determined by the benefits and expenses paid, not by the actuarial valuation.

In order to prepare an actuarial valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan description in this report to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to health care trends and member enrollment in retiree health benefits. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by the System.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of LACERS. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- If LACERS is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. LACERS should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of LACERS, it is not a fiduciary in its capacity as actuaries and consultants with respect to LACERS.

EXHIBIT 1

General Information – "Financial Statements", Note Disclosures and Required Supplementary Information for a Single-Employer OPEB Plan

Plan Description

Plan administration. The Los Angeles City Employees' Retirement System (LACERS) was established by City Charter in 1937. LACERS is a single employer public employee retirement system whose main function is to provide retirement benefits to the civilian employees of the City of Los Angeles.

Under the provisions of the City Charter, the Board of Administration (the "Board") has the responsibility and authority to administer the Plan and to invest its assets. The Board members serve as trustees and must act in the exclusive interest of the Plan's members and surviving spouses. The Board has seven members: four members, one of whom shall be a retired member of the system, shall be appointed by the Mayor subject to the approval of the Council; two members shall be active employee members of the system elected by the active employee members; one shall be a retired member of the system elected by the retired members of the system.

Plan membership. At June 30, 2018, OPEB plan membership consisted of the following:

Retired members or surviving spouses currently receiving benefits*(1)*	15,144
Vested terminated members entitled to, but not yet receiving benefits	1,401
Active members	26,042
Total	42,587

(1) The total number of participants, including married dependents, receiving benefits is 20,288.

Benefits provided. LACERS provides benefits to eligible employees.

Membership Eligibility:

Tier 1 (§4.1002(a))	All employees who became members of the Retirement System before July 1, 2013, and certain employees who became members of the Retirement System on or after July 1, 2013. In addition, pursuant to Ordinance No. 184134, all Tier 2 employees who became members of the Retirement System between July 1, 2013 and February 21, 2016 were transferred to Tier 1 effective February 21, 2016.

Tier 3 (§4.1080.2(a))	All employees who became members of the Retirement System on or after February 21, 2016, except as provided otherwise in Section 4.1080.2(b) of the Los Angeles Administrative Code.
Benefit Eligibility:	
Tier 1 (§4.1111(a)) *and Tier 3 (§4.1126(a))*	Retired age 55 or older with at least 10 years of service (including deferred vested members who terminate employment and receive a retirement benefit from LACERS), or if retirement date is between October 2, 1996, and September 30, 1999 at age 50 or older with at least 30 years of service. Benefits are also payable to spouses, domestic partners, or other qualified dependents while the retiree is alive. Please note that the health subsidy is not payable to a disabled retiree before the member reaches age 55.
Medical Subsidy for Members Not Subject to Cap:	
Under Age 65 or Over Age 65 Without Medicare Part A	
Tier 1 (§4.1111(d)) *and Tier 3 (§4.1126(c))*	The System will pay 4% of the maximum health subsidy (limited to actual premium) for each year of Service Credit, up to 100% of the maximum health subsidy. As of July 1, 2018, the maximum health subsidy is $1,790.80 per month; remaining unchanged in calendar year 2019. This amount includes coverage of dependent premium costs.
Over Age 65 and Enrolled in Both Medicare Parts A and B	
Tier 1 (§4.1111(e)) and *Tier 3 (§4.1126(d))*	For retirees, a maximum health subsidy shall be paid in the amount of the single-party monthly premium of the approved Medicare supplemental or coordinated plan in which the retiree is enrolled, subject to the following vesting schedule:

Completed Years of Service	Vested Percentage
1-14	75%
15-19	90%
20+	100%

Subsidy Cap for Tier 1:

(§4.1111(b))

As of the June 30, 2011 valuation, the retiree health benefits program was changed to cap the medical subsidy for non-retired members who do not contribute an additional 4% or 4.5% of employee contributions to the Pension Plan.

The capped subsidy is different for Medicare and non-Medicare retirees.

The cap applies to the medical subsidy limits at the 2011 calendar year level.

The cap does not apply to the dental subsidy or the Medicare Part B premium reimbursement.

Dependents:

Tier 1 (§4.1111(e)(4))
and Tier 3 (§4.1126(d)(4))

An additional amount is added for coverage of dependents which shall not exceed the amount provided to a retiree not enrolled in Medicare Parts A and B and covered by the same medical plan with the same years of service. The combined member and dependent subsidy shall not exceed the actual premium. This refers to dependents of retired members with Medicare Parts A and B. It does not apply to those without Medicare or Part B only.

Dental Subsidy for Members:

Tier 1 (§4.1114(b))
and Tier 3 (§4.1129(b))

The System will pay 4% of the maximum dental subsidy (limited to actual premium) for each year of Service Credit, up to 100% of the maximum dental subsidy. As of July 1, 2018, the maximum dental subsidy is $44.60 per month; remaining unchanged in calendar year 2019.

There is no subsidy available to spouses or domestic partners or for dependent coverage. There is also no reimbursement for dental plans not sponsored by the System.

Medicare Part B Reimbursement for Members:

Tier 1 (§4.1113) and
Tier 3 (§4.1128)

If a Retiree is covered by both Medicare Parts A and B, and enrolled in a LACERS medical plan or participates in the LACERS Retiree Medical Premium Reimbursement Program, LACERS will reimburse the retiree the basic Medicare Part B premium.

Surviving Spouse Medical Subsidy

Tier 1 (§4.1115) and
Tier 3 (§4.1129.1)

The surviving spouse or domestic partner will be entitled to a health subsidy based on the member's years of service and the surviving dependent's eligibility for Medicare.

Under Age 65 or Over Age 65
Without Medicare Part A

The maximum health subsidy available for survivors is the lowest cost plan available (currently Kaiser) single-party premium ($853.39 per month as of July 1, 2018; remaining unchanged in calendar year 2019).

Over Age 65 and Enrolled in Both Medicare Parts A and B For survivors, a maximum health subsidy limited to the single-party monthly premium of the plan in which the survivor is enrolled, is provided subject to the following vesting schedule:

Completed Years of Service	Vested Percentage
1-14	75%
15-19	90%
20+	100%

Note that a new Tier 1 Enhanced Plan providing a higher retirement benefit was adopted pursuant to Ordinance No. 184853. However, other than Segal applying higher retirement rate assumptions to anticipate somewhat earlier retirement, there are no differences between the retiree health benefits paid by LACERS to those members.

EXHIBIT 2

Net OPEB Liability

The components of the Net OPEB Liability of LACERS are as follows:

	June 30, 2018	**June 30,2017**
Total OPEB Liability	$3,256,827,847	$3,005,806,234
Plan Fiduciary Net Position	-2,676,371,615	-2,438,861,850
System's Net OPEB Liability	$580,456,232	$566,944,384
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	82.18%	81.14%

The Net OPEB Liability was measured as of June 30, 2018 and 2017. The Plan's Fiduciary Net Position (plan assets) was valued as of the measurement date, while the Total OPEB Liability was determined based upon the results of the actuarial valuations as of June 30, 2018 and 2017, respectively.

Plan provisions. The plan provisions used in the measurement of the NOL as of June 30, 2018 and 2017 are the same as those used in the LACERS funding valuations as of June 30, 2018 and 2017, respectively.

Actuarial assumptions. The Total OPEB Liabilities as of June 30, 2018 and June 30, 2017 were determined by actuarial valuations as of June 30, 2018 and June 30, 2017, respectively. The actuarial assumptions used in both the June 30, 2018 and June 30, 2017 valuations were based on the results of an economic actuarial assumptions study as of June 30, 2017. However, based on the results of an experience study for the period from July 1, 2014 through June 30, 2017, the demographic assumptions were changed for the 2018 valuation. The assumptions used in the June 30, 2018 funding actuarial valuation for LACERS were applied to all periods included in the measurement:

Investment rate of return	7.25%, net of OPEB plan investment expense and including inflation
Inflation	3.00%
Salary increases	Ranges from 10.00% to 3.90% based on years of service, including inflation
Other assumptions	Same as those used in the June 30, 2018 funding valuation

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before deducting investment expenses, are summarized in the following table. These values were used in the derivation of the long-term expected investment rate of return assumption for the actuarial valuation as of June 30, 2018. This information is subject to change every three years based on the actuarial experience study.

Asset Class	Target Allocation	Long-Term (Arithmetic) Expected Real Rate of Return
U.S. Large Cap Equity	14.00%	5.32%
U.S. Small Cap Equity	5.00%	6.07%
Developed International Large Cap Equity	17.00%	6.67%
Developed International Small Cap Equity	3.00%	7.14%
Emerging Market Equity	7.00%	8.87%
Core Bond	13.75%	1.04%
High Yield Bond	2.00%	3.09%
Bank Loan	2.00%	3.00%
TIPS	3.50%	0.97%
Emerging Market Debt (External)	4.50%	3.44%
Real Estate	7.00%	4.68%
Cash	1.00%	0.01%
Commodities	1.00%	3.36%
Additional Public Real Assets	1.00%	4.76%
Real Estate Investment Trust (REIT)	0.50%	5.91%
Private Debt	3.75%	5.50%
Private Equity	14.00%	8.97%
Total	100.00%	

Discount rate: The discount rate used to measure the Total OPEB Liability was 7.25% as of June 30, 2018 and June 30, 2017. As contributions that are required to be made by the City to amortize the Unfunded Actuarial Accrued Liability in the funding valuation are determined on an actuarial basis, the future Actuarially Determined Contributions and current Plan assets, when projected in accordance with the method prescribed by GAS 74, are expected to be sufficient to make all benefit payments to current members.

Sensitivity of the Net OPEB Liability to changes in the discount rate. The following presents the Net OPEB Liability of LACERS as of June 30, 2018, calculated using the discount rate of 7.25%, as well as what LACERS' Net OPEB Liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.25%) or 1-percentage-point higher (8.25%) than the current rate:

	1% Decrease (6.25%)	Current Discount (7.25%)	1% Increase (8.25%)
Net OPEB Liability as of June 30, 2018	$1,048,382,470	$580,456,232	$198,029,442

Sensitivity of the Net OPEB Liability to changes in the healthcare cost trend rate. The following presents the Net OPEB Liability of LACERS as of June 30, 2018, calculated using the trend rate as well as what LACERS' Net OPEB Liability would be if it were calculated using a trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate:

	1% Decrease*	Current Trend Rates*	1% Increase*
Net OPEB Liability as of June 30, 2018	$144,917,663	$580,456,232	$1,151,432,691

**Current trend rates: 6.87% graded down to 4.5% over 10 years for Non-Medicare medical plan costs and 6.37% graded down to 4.5% over 8 years for Medicare medical plan costs. The 2020-2021 premium increases include additional estimated increases of 1.0% (non-Medicare) and 0.5% (Medicare) from the impact of the Health Insurance Tax (HIT). 4.0% for all years for Dental and Medicare Part B subsidy cost.*

EXHIBIT 3

Schedules of Changes in LACERS Net OPEB Liability – Last Two Fiscal Years

	2018	2017
Total OPEB Liability		
Service cost[1]	$74,610,881	$68,385,120
Interest	218,687,305	210,169,949
Change of benefit terms (retirement rates adjusted for Enhanced Tier 1)	948,264	0
Differences between expected and actual experience[2]	-7,321,481	19,666,471
Changes of assumptions	92,177,641	33,511,927
Benefit payments	-128,080,997	-119,616,188
Net change in Total OPEB Liability	$251,021,613	$212,117,279
Total OPEB Liability – beginning	3,005,806,234	2,793,688,955
Total OPEB Liability – ending (a)	$3,256,827,847	$3,005,806,234
Plan Fiduciary Net Position		
Contributions – employer	$100,909,010	$97,457,455
Contributions – employee	0	0
Net investment income	269,065,074	330,707,601
Benefit payments	-128,080,997	-119,616,188
Administrative expense	-4,383,322	-4,564,135
Other	0	0
Net change in Plan Fiduciary Net Position	$237,509,765	$303,984,733
Plan Fiduciary Net Position – beginning	2,438,861,850	2,134,877,117
Plan Fiduciary Net Position – ending (b)	$2,676,371,615	$2,438,861,850
System's Net OPEB Liability – ending (a) – (b)	$580,456,232	$566,944,384
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	82.18%	81.14%
Covered payroll[3]	$2,057,565,478	$1,973,048,633
Plan Net OPEB Liability as percentage of covered payroll	28.21%	28.73%

[1] *The service cost is always based on the previous year's valuation, meaning the 2018 and 2017 values are based on the valuations as of June 30, 2017 and June 30, 2016, respectively.*

[2] *Includes a reallocation of liability between service cost and TOL as a result of adjustment to Entry Age cost methodology.*

[3] *Covered payroll is defined as the payroll on which contributions to an OPEB plan are based.*

EXHIBIT 4

Schedule of Employer Contributions – Last Ten Fiscal Years

Year Ended June 30	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency / (Excess)	Covered Payroll[1]	Contributions as a Percentage of Covered Payroll
2009	$95,122,090	$95,122,090	$0	$1,832,795,577	5.19%
2010	96,511,234	96,511,234	0	1,827,864,283	5.28%
2011	107,395,804	107,395,804	0	1,678,059,440	6.40%
2012	115,208,835	115,208,835	0	1,715,197,133	6.72%
2013	72,916,729	72,916,729	0	1,736,112,598	4.20%
2014	97,840,554	97,840,554	0	1,802,931,195	5.43%
2015	100,466,945	100,466,945	0	1,835,637,409	5.47%
2016	105,983,112	105,983,112	0	1,876,946,179	5.65%
2017	97,457,455	97,457,455	0	1,973,048,633	4.94%
2018	100,909,010	100,909,010	0	2,057,565,478	4.90%

(1) *Covered payroll is defined as the payroll on which contributions to an OPEB plan are based.*

Notes to Exhibit 4

Methods and assumptions used to establish "actuarially determined contribution" (ADC) rates:	
Valuation date	Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported
Actuarial cost method	Entry Age Cost Method (level percent of payroll)
Amortization method	Level percent of payroll
Amortization period	Multiple layers, closed amortization periods. The costs associated with the 2009 ERIP have been amortized over 15 years beginning with the June 30, 2009 valuation date. The unfunded actuarial accrued liability as of June 30, 2012 is amortized over a fixed period of 30 years beginning July 1, 2012. Assumption changes resulting from the triennial experience study will be amortized over 20 years. Health trend and premium assumption changes, plan changes, and gains and losses will be amortized over 15 years.
Asset valuation method	Market value of assets less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a seven-year period. The actuarial value of assets cannot be less than 60% or greater than 140% of the market value of assets.
Actuarial assumptions:	June 30, 2018 valuation date
Investment rate of return	7.25%
Inflation rate	3.00%
Real across-the-board salary increase	0.50%
Projected salary increases[(1)]	Ranges from 10.00% to 3.90%, based on years of service
Mortality	Healthy Post-Retirement: RP-2014 Healthy Annuitant Mortality Table projected generationally with two-dimensional Scale MP-2017
Other assumptions	Same as those used in the June 30, 2018 funding actuarial valuation

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(1) *Includes inflation at 3.00% plus across the board salary increases of 0.50% plus merit and promotional increases.*