City of Los Angeles Fire and Police Pension Plan

Actuarial Valuation and Review of Retirement and Other Postemployment Benefits (OPEB) as of June 30, 2019

(Revised to Reflect Updated Mortality Assumption Adopted on December 19, 2019)

Segal Consulting

This report has been prepared at the request of the Board of Commissioners 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 Commissioners and may only be provided to other parties in its entirety, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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January 8, 2020

Board of Fire and Police Pension Commissioners
City of Los Angeles Fire and Police Pension Plan
701 East 3rd Street, Suite 200
Los Angeles, CA 90013

Re: June 30, 2019 Actuarial Valuations

Dear Board Members:

Enclosed please find the June 30, 2019 actuarial valuations for the retirement and the health programs.

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

- Exhibit A - Summary of significant results for the two programs.
- Exhibit B - History of computed contribution rates for the two programs.

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

Sincerely,

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

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

EK/jl
Enclosures

5613389v8/07916.002

Exhibit A

City of Los Angeles Fire and Police Pension Plan
Summary of Significant Valuation Results

		June 30, 2019	June 30, 2018	Percent Change
I.	**Total Membership**			
	A. Current Active Members (includes DROP members)	13,535	13,442	0.69%
	B. Current Vested Former Members[1]	523	534	-2.06%
	C. Current Retirees, Beneficiaries, and Dependents	13,097	12,890	1.61%
II.	**Valuation Salary**			
	A. Total Projected Annual Payroll	$1,583,807,654	$1,546,042,972	2.44%
	B. Average Projected Monthly Salary	9,751	9,585	1.73%
III.	**Benefits to Current Retirees and Beneficiaries[2]**			
	A. Total Annual Benefits	$964,269,264	$916,461,228	5.22%
	B. Average Monthly Benefit Amount	6,135	5,925	3.54%
IV.	**Total Plan Assets[3]**			
	A. Actuarial Value	$23,053,912,894	$21,659,429,558	6.44%
	B. Market Value	23,299,916,660	22,360,370,203	4.20%
V.	**Unfunded Actuarial Accrued Liability (UAAL)**			
	A. Retirement Benefits	$1,436,414,318	$1,524,733,536	-5.79%
	B. Health Subsidy Benefits	1,573,820,964	1,728,417,122	-8.94%

(1) *The June 30, 2019 valuation includes 458 terminated members due only a refund of member contributions. The June 30, 2018 valuation included 484 such members.*

(2) *Includes July COLA.*

(3) *Includes all assets for Retirement and Health Subsidy Benefits.*

Exhibit A (continued)

City of Los Angeles Fire and Police Pension Plan
Summary of Significant Valuation Results

VI. Budget Items	FY 2020-2021[1] Beginning of Year	FY 2020-2021[1] July 15	FY 2019-2020 Beginning of Year	FY 2019-2020 July 15	Change Beginning of Year	Change July 15
A. Retirement Benefits						
1. Normal Cost as a Percent of Pay	19.31%	19.37%	18.69%	18.74%	0.62%	0.63%
2. Amortization of UAAL	13.56%	13.60%	14.38%	14.43%	-0.82%	-0.83%
3. Allocated amount for administrative expenses	1.12%	1.12%	1.12%	1.12%	0.00%	0.00%
4. Total Retirement Contribution	33.99%	34.09%	34.19%	34.29%	-0.20%	-0.20%
B. Health Subsidy Contribution						
1. Normal Cost as a Percent of Pay	4.86%	4.88%	4.69%	4.71%	0.17%	0.17%
2. Amortization of UAAL	7.52%	7.54%	8.08%	8.10%	-0.56%	-0.56%
3. Allocated amount for administrative expenses	0.09%	0.09%	0.09%	0.09%	0.00%	0.00%
4. Total Health Contribution	12.47%	12.51%	12.86%	12.90%	-0.39%	-0.39%
C. Total Contribution (A+B)	46.46%	46.60%	47.05%	47.19%	-0.59%	-0.59%

[1] *Alternative contribution payment date for FY 2020-2021:*	*Retirement*	*Health*	*Total*
End of Pay Period	*35.20%*	*12.92%*	*48.12%*

Exhibit A (continued)

City of Los Angeles Fire and Police Pension Plan
Summary of Significant Valuation Results

		June 30, 2019	June 30, 2018	Change
VII	**Funded Ratio**			
	(Based on Valuation Value of Assets)			
	A. Retirement Benefits	93.6%	92.9%	0.7%
	B. Health Subsidy Benefits	56.2%	51.3%	4.9%
	C. Total	88.5%	86.9%	1.6%

		June 30, 2019	June 30, 2018	Change
VIII	**Funded Ratio**			
	(Based on Market Value of Assets)			
	A. Retirement Benefits	94.6%	95.9%	-1.3%
	B. Health Subsidy Benefits	56.8%	52.9%	3.9%
	C. Total	89.4%	89.8%	-0.4%

Exhibit B

City of Los Angeles Fire and Police Pension Plan
Computed Contribution Rates[1] – Historical Comparison

Valuation Date	Retirement	Health	Total	Valuation Payroll (In Thousands)
06/30/2010	27.22%[3]	11.86%[4]	39.08%	$1,356,986
06/30/2011[2]	31.43%	10.96%	42.39%	1,343,963
06/30/2012[2]	34.72%	10.84%[5]	45.56%	1,341,914
06/30/2013	36.54%	11.30%	47.84%	1,367,237
06/30/2014	35.28%	11.13%	46.41%	1,402,715
06/30/2015	32.61%	11.83%	44.44%	1,405,171
06/30/2016	31.85%	12.31%	44.16%	1,400,808
06/30/2017	34.07%	12.66%	46.73%	1,475,539
06/30/2018	34.37%	12.82%	47.19%	1,546,043
06/30/2019	34.09%	12.51%	46.60%	1,583,808

(1) *All contributions provided in this year's Exhibit B are assumed to be made on July 15 (all contributions provided in last year's Exhibit B were assumed to be made at the end of the pay period).*

(2) *Before reflecting phase-in policy.*

(3) *Before reflecting the 2% additional employee contributions for unfrozen health subsidies.*

(4) *Before reflecting the freeze on the medical subsidy for certain employees retiring on or after July 15, 2011.*

(5) *After reflecting updated Tier 6 contribution rate as provided in Segal's letter dated February 27, 2013.*

5613389v8/07916.002

Segal Consulting

City of Los Angeles Fire and Police Pension Plan

Actuarial Valuation and Review as of June 30, 2019

(Revised to Reflect Updated Mortality Assumption Adopted on December 19, 2019)

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January 8, 2020

Board of Fire and Police Pension Commissioners
City of Los Angeles Fire and Police Pension Plan
701 East 3rd Street, Suite 200
Los Angeles, CA 90013

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of June 30, 2019. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for fiscal year 2020-2021.

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 information and financial information on which our calculations were based was prepared by Los Angeles Fire & Police Pensions (LAFPP). That assistance is gratefully acknowledged.

The actuarial calculations were directed under the supervision of Andy Yeung, ASA, MAAA, FCA and 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, EA, MAAA, FCA
Senior Vice President and Actuary

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

EK/jl

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Section 1: Actuarial Valuation Summary

Purpose and Basis

This report was prepared by Segal Consulting ("Segal") to present a valuation of the City of Los Angeles Fire and Police Pension Plan ("the Plan") as of June 30, 2019. The valuation was performed to determine whether the assets and contribution rates are sufficient to provide the prescribed benefits. The measurements shown in this actuarial valuation may not be applicable for other purposes. In particular, the measures herein are not necessarily appropriate for assessing the sufficiency of current Plan assets to cover the estimated cost of settling the Plan's accrued benefit obligations.

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; and changes in plan provisions or applicable law.

The contribution requirements presented in this report are based on:

- The benefit provisions of the pension plan, as administered by the Board of Commissioners;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of June 30, 2019, provided by LAFPP;
- The assets of the Plan as of June 30, 2019, provided by LAFPP;
- Economic assumptions regarding future salary increases and investment earnings;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. and
- The funding policy adopted by the Board of Commissioners.

One of the general goals of an actuarial valuation is to establish contributions which fully fund the Plan's liabilities, and which, as a percentage of payroll, remain as level as possible for each generation of active members. Annual actuarial valuations measure the progress toward this goal, as well as test the adequacy of the contribution rates.

In preparing this valuation, we have employed generally accepted actuarial methods and assumptions to evaluate the Plan's liabilities and future contribution requirements. Our calculations are based upon member data and financial information provided to us by LAFPP. This information has not been audited by us, but it has been reviewed and found to be consistent, both internally and with prior year's information.

The contribution requirements are determined as a percentage of payroll. The employer contribution rates provided in this report have been developed assuming that they will be made by the City at either: (1) the beginning of the fiscal year, (2) on July 15, or (3) throughout the year (i.e., the City will pay contributions at the end of every pay period). The Plan's employer rates provide for both Normal Cost and a contribution to amortize any unfunded or overfunded actuarial accrued liabilities. In this valuation, we have applied the funding policy adopted by the Board on September 6, 2012, and most recently amended on September 20, 2018. Details of the funding policy are provided in *Section 4, Exhibit I on page 89*.

A schedule of current amortization balances and payments may be found in *Section 3, Exhibit G on pages 67 to 76*. A graphical projection of the Unfunded Actuarial Accrued Liability (UAAL) amortization balances and payments has been included in *Section 3, Exhibit H on pages 77 and 78.*

The rates calculated in this report may be adopted by the Board for the fiscal year that extends from July 1, 2020 through June 30, 2021.

Significant Issues

Ref: Pg. 100

1. Ordinance 185935 was adopted by the City Council and amended the Deferred Retirement Option Plan (DROP) provisions of the Plan. For members who enter the DROP on or after February 1, 2019 their participation in DROP will be suspended for any calendar month in which they do not spend at least 112 hours on active duty status, with eligibility to extend DROP participation for a maximum of 30 additional months. The results of this valuation reflect this Plan amendment[1]. This Plan amendment resulted in a decrease in the average employer rate of 0.44% of payroll. Of the 0.44% decrease in the employer rate, 0.17% is due to a decrease in the Normal Cost and 0.27% is due to a decrease in the UAAL rate.

Ref: Pg. 85

2. The results of this valuation reflect changes in the actuarial assumptions as recommended by Segal and adopted by the Board for the June 30, 2019 valuation. These changes were documented in our Mortality Experience Study During the Period July 1, 2010 through June 30, 2019 report dated December 12, 2019 and are also outlined in *Section 4, Exhibit I* of this report. These assumption changes resulted in an increase in the average employer rate of 2.31% of payroll, payable at the beginning of the year. Of the 2.31% increase in the employer rate, 0.92% is due to an increase in the Normal Cost and 1.39% is due to an increase in the UAAL rate. There is also an increase in the UAAL by $321.6 million associated with the updated mortality assumption.

Ref: Pgs. 38, 27

Ref: Pgs. 67-78

3. The ratio of the Valuation Value of Assets to Actuarial Accrued Liabilities increased from 92.9% to 93.6%. On a Market Value of Assets basis, the funded ratio decreased from 95.9% to 94.6%. The Unfunded Actuarial Accrued Liability (UAAL) decreased from $1.525 billion to $1.436 billion. The increase in funded ratio (on a valuation value basis) and the decrease in the UAAL are primarily the results of (i) higher than expected return on the valuation value of assets (after smoothing), (ii) lower than expected salary increases for continuing active members and (iii) change in Plan Provisions, partially offset by (iv) the change in mortality assumption, (v) loss due to actual contributions less than expected[2] and (vi) other experience losses. A complete reconciliation of the Plan's UAAL is provided in *Section 2, Subsection E*. A schedule of the current UAAL amortization amounts is provided in *Section 3, Exhibit G* and a graphical projection of the UAAL balance and payments is shown in *Section 3, Exhibit H*.

Ref: Pg. 29

4. The aggregate beginning-of-year employer rate calculated in this valuation has decreased from 34.19% of payroll to 33.99% of payroll. Using a projected annual payroll of $1.583 billion as of June 30, 2019, there would be a decrease in contributions from $542 million to $538 million. The decrease was primarily due to: (i) higher than expected return on the valuation value of assets (after smoothing), (ii) lower than expected salary increases for continuing active members, (iii) loss layers from the June 30, 2004 valuation being fully amortized, and (iv) change in Plan Provisions, partially offset by (v) the change in

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[1] As noted in DROP Modification Cost Study prepared in conjunction with the adoption of the above Ordinance, we have only included the projected cost savings associated with the suspension of DROP payments. We have excluded the projected cost savings associated with members potentially delaying their retirement to make up for the suspension of DROP payments until such actual experience becomes available.

[2] The actual contributions were less than expected due to the scheduled one-year lag in implementing the higher contribution rates calculated in the June 30, 2018 valuation for Fiscal Year 2020.

mortality assumption, (vi) loss due to actual contributions less than expected, (vii) amortizing the prior year's UAAL over a smaller than expected projected total payroll and (viii) other experience losses. A complete reconciliation of the aggregate employer contribution is provided in *Section 2, Subsection F*.

Ref: Pg. 19

5. As indicated in *Section 2, Subsection B* of this report, the total net unrecognized investment gain as of June 30, 2019 is $246.0 million for the assets for Retirement and Health Subsidy Benefits. This investment gain will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years. For comparison purposes, the total net unrecognized investment gain as of June 30, 2018 was $700.9 million.

   The net unrecognized investment gains represent about 1.1% of the Market Value of Assets. Unless offset by future investment losses or other unfavorable experience, the recognition of the $246.0 million market gains is expected to have an impact on the Plan's future funded ratio and the aggregate employer contributions. This potential impact may be illustrated as follows:

   a. If the net deferred gains for the Retirement Plan were recognized immediately in the Valuation Value of Assets, the funded percentage would increase from 93.6% to 94.6%.

      For comparison purposes, if all the net deferred gains for the Retirement Plan in the June 30, 2018 valuation had been recognized immediately in the June 30, 2018 valuation, the funded percentage would have increased from 92.9% to 95.9%.

   b. If the net deferred gains for the Retirement Plan were recognized immediately in the Valuation Value of Assets, the aggregate beginning-of-year employer contribution rate would decrease from 33.99% of payroll to 33.02% of payroll.

      For comparison purposes, if all the net deferred gains for the Retirement Plan in the June 30, 2018 valuation had been recognized immediately in the June 30, 2018 valuation, the aggregate beginning-of-year employer contribution rate would have decreased from 34.27% of payroll to 31.42% of payroll.

6. The actuarial valuation report as of June 30, 2019 is based on financial and demographic information as of that date. Changes 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.

Ref: Pg. 41

7. The Actuarial Standards Board approved a new Actuarial Standard of Practice No. 51 (ASOP 51) regarding risk assessment. ASOP 51 is effective with LAFPP's June 30, 2019 actuarial valuation. ASOP 51 requires actuaries to identify and assess risks that "may reasonably be anticipated to significantly affect the plan's future financial condition". Examples of key risks listed that are particularly relevant to LAFPP are asset/liability mismatch risk, investment risk, and longevity risk. The standard also requires an actuary to consider if there is any ongoing contribution risk to the plan, however it does not require the actuary to evaluate the particular ability or willingness 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 initial assessment can be strictly a qualitative discussion about potential adverse experience and the possible effect on future results, but it may also include quantitative numerical demonstrations where informative. The actuary is also encouraged to consider a recommendation as to whether a more detailed assessment or risk report would be significantly beneficial for the intended user in order to examine particular financial risks. When making that recommendation, the actuary will take into account such factors as the plan's design, risk profile, maturity, size, funded status, asset allocation, cash flow, possible insolvency and current market conditions.

Since the actuarial valuation results are dependent on a fixed set of assumptions and data as of a specific date, there is risk that emerging results may differ significantly as actual experience is fluid and will not completely track current assumptions. This potential divergence may have a significant impact on the future financial condition of the plan. We are in discussion with the Plan's staff regarding specific content for a more detailed analysis of the potential range of the impact of risk relative to the Plan's future financial condition to be provided later in a stand-alone report. Therefore, in this report we have only included a brief discussion of some key risks that may affect the Plan in *Section 2, Subsection J*. A more detailed assessment of the risks tailored to specific interests or concerns of the Board will provide the Board with a better understanding of the inherent risks and is recommended. This assessment will further discuss and highlight information and risks particular to the Plan such as detailed historical experience and key events, growing plan maturity, heightened contribution sensitivity to asset and liability changes, and projected sensitivity to potential future investment returns through selected scenario or stress test projections.

Summary of Key Valuation Results

		June 30, 2019	June 30, 2018
Employer Contribution Rate:[1]	• At the beginning of year	33.99%	34.19%
	• On July 15	34.09%	34.29%
	• At the end of each biweekly pay period	35.20%	35.41%
Actuarial Accrued Liability as of June 30:	• Retired members and beneficiaries	$12,467,859,989	$11,899,136,569
	• Inactive vested members[2]	53,098,066	39,997,203
	• Active members not currently in DROP	6,947,882,378	6,965,022,590
	• Active members currently in DROP[3]	3,005,284,975	2,460,647,257
	• Total Actuarial Accrued Liability	$22,474,125,408	$21,364,803,619
	• Normal Cost for plan year beginning June 30[4]	$460,138,588	$451,305,282
Assets as of June 30:	• Market Value of Retirement Assets	$21,262,200,363	$20,482,132,769
	• Valuation Value of Retirement Assets (VVA)	21,037,711,090	19,840,070,083
	• VVA as a percentage of Market Value of Retirement Assets	98.9%	96.9%
Funded status as of June 30:	• Unfunded Actuarial Accrued Liability on Market Value of Retirement Assets basis	$1,211,925,045	$882,670,850
	• Funded percentage on MVA basis	94.6%	95.9%
	• Unfunded Actuarial Accrued Liability on Valuation Value of Retirement Assets basis	$1,436,414,318	$1,524,733,536
	• Funded percentage on VVA basis[5]	93.6%	92.9%
Key assumptions:	• Net investment return	7.25%	7.25%
	• Price Inflation	3.00%	3.00%
	• Payroll growth	3.50%	3.50%

(1) Recommended employer contribution rate is shown as a percent of pay and there is a 12-month delay until the rate is effective. Rates as of June 30, 2018 are recalculated to reflect payroll of active members enrolled in the various tiers as of June 30, 2019. There is a change in the total aggregate rate determined in the June 30, 2018 valuation calculated using the 2018 projected payroll by tier compared to the total aggregate rate recalculated above using the 2019 projected payroll by tier as a result of new members entering Tier 6 and active members leaving the other Tiers.

(2) Includes inactive members due a refund of member contributions.

(3) Includes $332,592,779 and $299,626,972 attributable to the value of the DROP account balances as of June 30, 2019 and June 30, 2018, respectively.

(4) Normal Cost as of June 30, 2018 is recalculated to reflect payroll of active members enrolled in the various tiers as of June 30, 2019, as described above.

(5) The funded ratios on VVA basis excluding Harbor Port Police and Airport Police Officers are 93.6% and 92.9% for 2019 and 2018, respectively.

Summary of Key Valuation Results (continued)

		June 30, 2019	June 30, 2018	Change From Prior Year
Demographic data as of June 30:	**Active Members:**			
	• Number of members[1]	13,535	13,442	0.7%
	• Average age	42.2	42.3	-0.1
	• Average years of service	15.2	15.3	-0.1
	• Total projected compensation	$1,583,807,654	$1,546,042,972	2.4%
	• Average projected compensation	$117,016	$115,016	1.7%
	Retired Members and Beneficiaries:			
	• Number of members:			
	– Service retired	8,811	8,623	2.2%
	– Disability retired	1,821	1,883	-3.3%
	– Beneficiaries	2,465	2,384	3.4%
	– Total	13,097	12,890	1.6%
	• Average age	71.5	71.3	0.2
	• Average monthly benefit	$6,135	$5,925	3.5%
	Inactive Vested Members:			
	• Number of members[2]	523	534	-2.1%
	• Average Age[3]	47.7	47.2	0.5
	Total Members:	27,155	26,866	1.1%

(1) Includes DROP members.

(2) Includes 65 members as of June 30, 2019 and 50 members as of June 30, 2018 with a vested right to a deferred or immediate vested benefit. The rest of the inactive members are due a refund of member contributions.

(3) Excludes inactive members due a refund of member contributions.

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 a 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 LAFPP. 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	The valuation is based on the Market Value of Assets as of the valuation date, as provided by LAFPP. The Plan uses a “Valuation 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, 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 LAFPP. 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. Future contribution requirements may differ from those determined in the valuation because of:
  - Differences between actual experience and anticipated experience;
  - Changes in actuarial assumptions or methods;
  - Changes in statutory provisions; and
  - Differences between the contribution rates determined by the valuation and those adopted by the Board.
- If LAFPP 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 LAFPP 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 Plan.

Actuarial Certification

January 8, 2020

This is to certify that Segal Consulting has conducted an actuarial valuation of the City of Los Angeles Fire and Police Pension Plan retirement program as of June 30, 2019, 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 as of June 30, 2018. 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 summarized in *Section 4, Exhibit II* and on participant and financial data provided by LAFPP. Segal did not audit LAFPP's financial statements, but we conducted an examination of the participant data for reasonableness and we concluded that it was reasonable and consistent with the prior year's data.

The actuarial computations made are for funding plan benefits. Accordingly, additional determinations may 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). A listing of the supporting schedules Segal prepared for inclusion in the financial section as Supplementary Information required by GASB is provided below:

- Schedule of Net Pension Liability
- Schedule of Changes in Net Pension Liability and Related Ratios
- Schedule of Contribution History

LAFPP's 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 meets the qualifications to provide the actuarial opinion herein.

By: Andy Yeung

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

Section 2: Actuarial Valuation Results

A. Member Data

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, 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.*

MEMBER POPULATION: 2010 – 2019

Year Ended June 30	Active Members[1]	DROP Members[2]	Inactive Vested Members[3]	Retired Members and Beneficiaries[4]	Total Non-Actives	Ratio of Non-Actives to Actives	Ratio of Retired Members and Beneficiaries to Actives
2010	13,654	1,089	58	12,348	12,406	0.91	0.90
2011	13,432	1,314	59	12,392	12,451	0.93	0.92
2012	13,396	1,193	62	12,380	12,442	0.93	0.92
2013	13,224	1,191	133	12,432	12,565	0.95	0.94
2014	13,097	1,277	131	12,502	12,633	0.96	0.95
2015	13,068	1,359	112	12,593	12,705	0.97	0.96
2016	13,050	1,243	128	12,819	12,947	0.99	0.98
2017	13,327	1,303	374	12,836	13,210	0.99	0.96
2018	13,442	1,442	534	12,890	13,424	1.00	0.96
2019	13,535	1,665	523	13,097	13,620	1.01	0.97

(1) Includes DROP members provided in the next column.

(2) Count shown for June 30, 2011 includes 113 members who made an election to participate in the DROP during the period July 1, 2011 to July 14, 2011.

(3) Includes inactive members due a refund of member contributions (beginning with the June 30, 2013 valuation). Counts shown for June 30, 2017 and June 30, 2018 includes 179 and 110 inactive members, respectively, due a refund of member contributions that were not included in the membership data provided for the prior valuations.

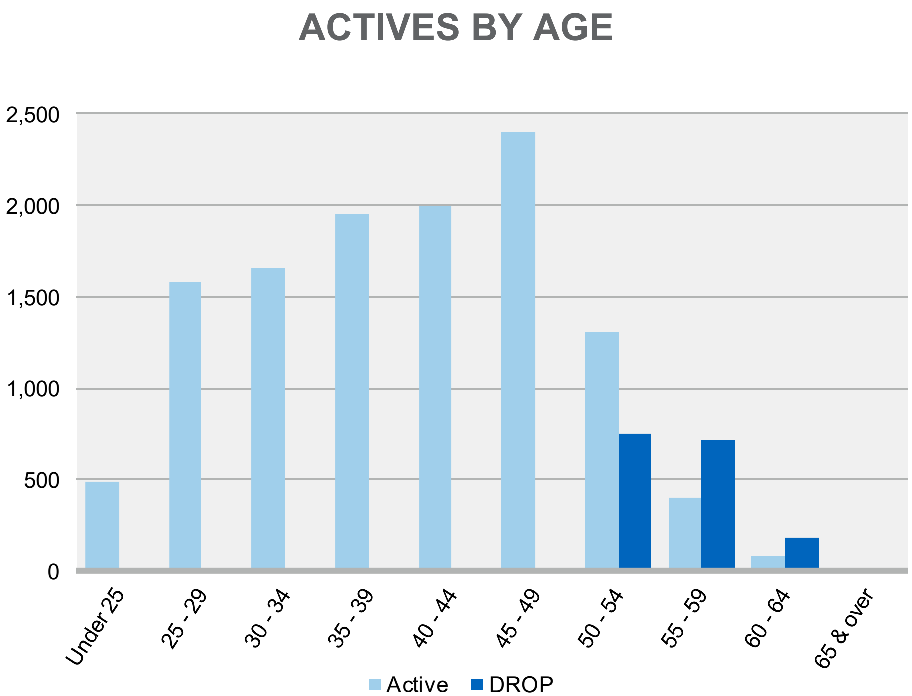
(4) Count shown for June 30, 2011 includes 13 new retirees during the period July 1, 2011 to July 14, 2011.

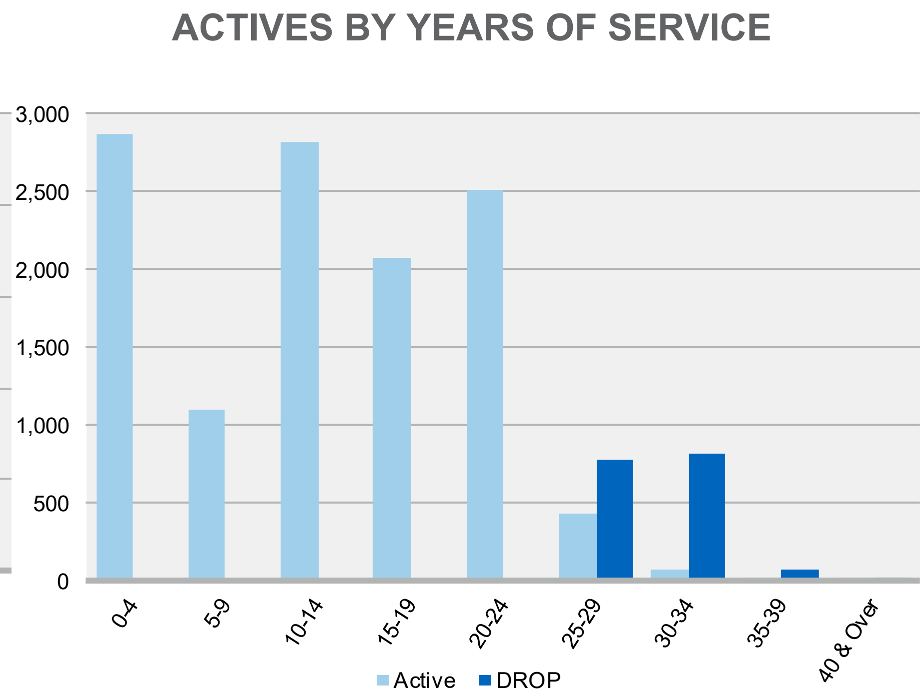
Active Members (Including DROP Members)

Plan costs are affected by the age, years of service and compensation of active members. In this year's valuation, there were 13,535 active members with an average age of 42.2, average years of service of 15.2 years and average compensation of $117,016. The 13,442 active members in the prior valuation had an average age of 42.3, average service of 15.3 years and average compensation of $115,016.

Among the active members, there were none with unknown age information.

Distribution of Active Members (Including DROP Members) as of June 30, 2019





Inactive Members

In this year's valuation, there were 65 members with a vested right to a deferred or immediate vested benefit versus 50 in the prior valuation. In addition, there were 458 members entitled to a return of their member contributions versus 484 in the prior valuation.

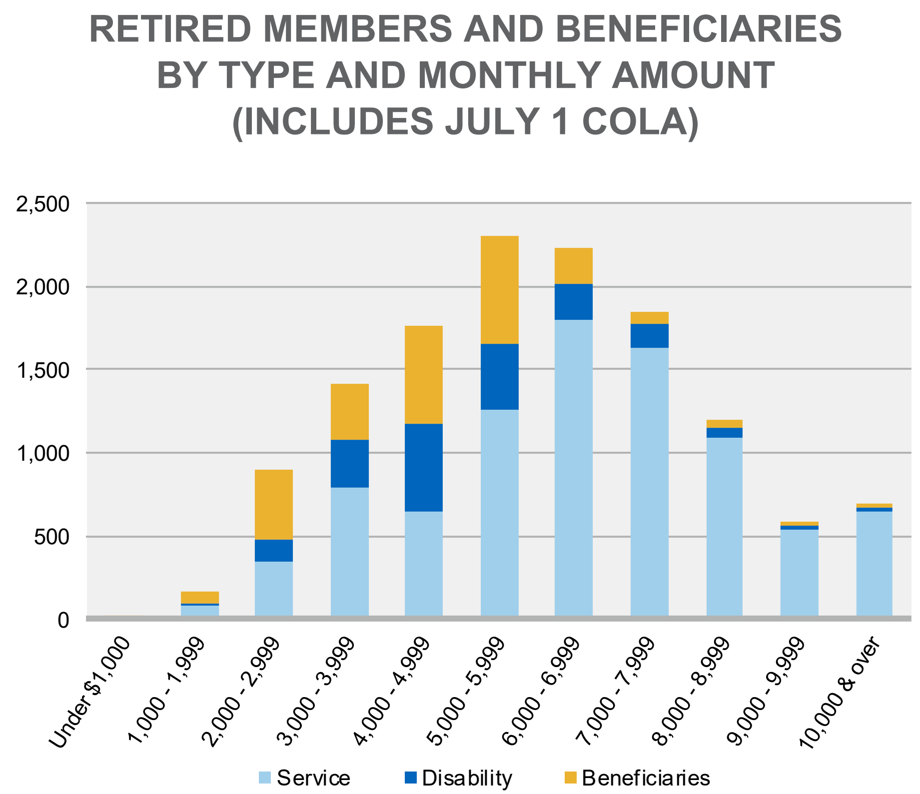
Retired Members and Beneficiaries

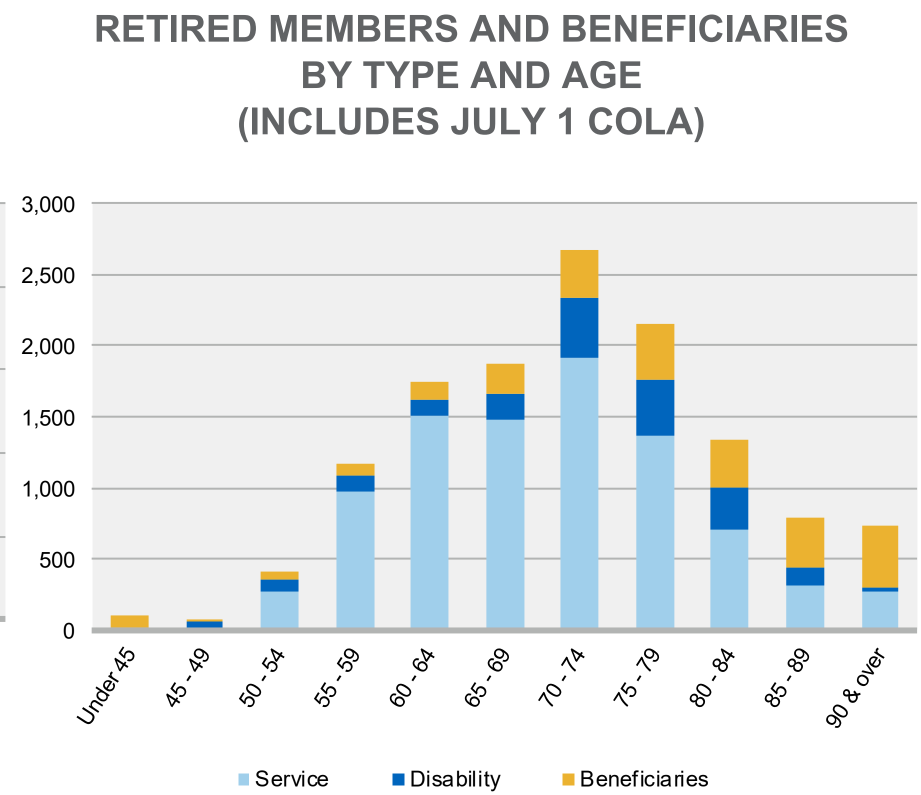
As of June 30, 2019, 10,632 retired members and 2,465 beneficiaries were receiving total monthly benefits of $80,355,772. For comparison, in the previous valuation, there were 10,506 retired members and 2,384 beneficiaries receiving monthly benefits of $76,371,769.

The monthly benefits provided have been adjusted for the COLA granted effective for the month of July.

As of June 30, 2019, the average monthly benefit for retired members and beneficiaries is $6,135, compared to $5,925 in the previous valuation. The average age for retired members and beneficiaries is 71.5 in the current valuation, compared with 71.3 in the prior valuation.

Distribution of Retired Members and Beneficiaries as of June 30, 2019





Historical Plan Population

The chart below demonstrates the changes of the active population over the last ten years. The chart also shows the aging among the retired population over the same time period.

MEMBER STATISTICS: 2010 – 2019

	Active Participants[1]			Retired Members and Beneficiaries		
Year Ended June 30	Count	Average Age	Average Service	Count	Average Age	Average Monthly Amount
2010	13,654	40.6	13.6	12,348	70.0	$4,692
2011	13,432	41.2	14.2	12,392	70.2	4,852
2012	13,396	41.5	14.5	12,380	70.4	5,011
2013	13,224	41.9	15.0	12,432	70.7	5,170
2014	13,097	42.4	15.4	12,502	70.8	5,247
2015	13,068	42.5	15.5	12,593	71.0	5,309
2016	13,050	42.3	15.3	12,819	71.0	5,500
2017	13,327	42.3	15.3	12,836	71.2	5,686
2018	13,442	42.3	15.3	12,890	71.3	5,925
2019	13,535	42.2	15.2	13,097	71.5	6,135

(1) Includes DROP members.

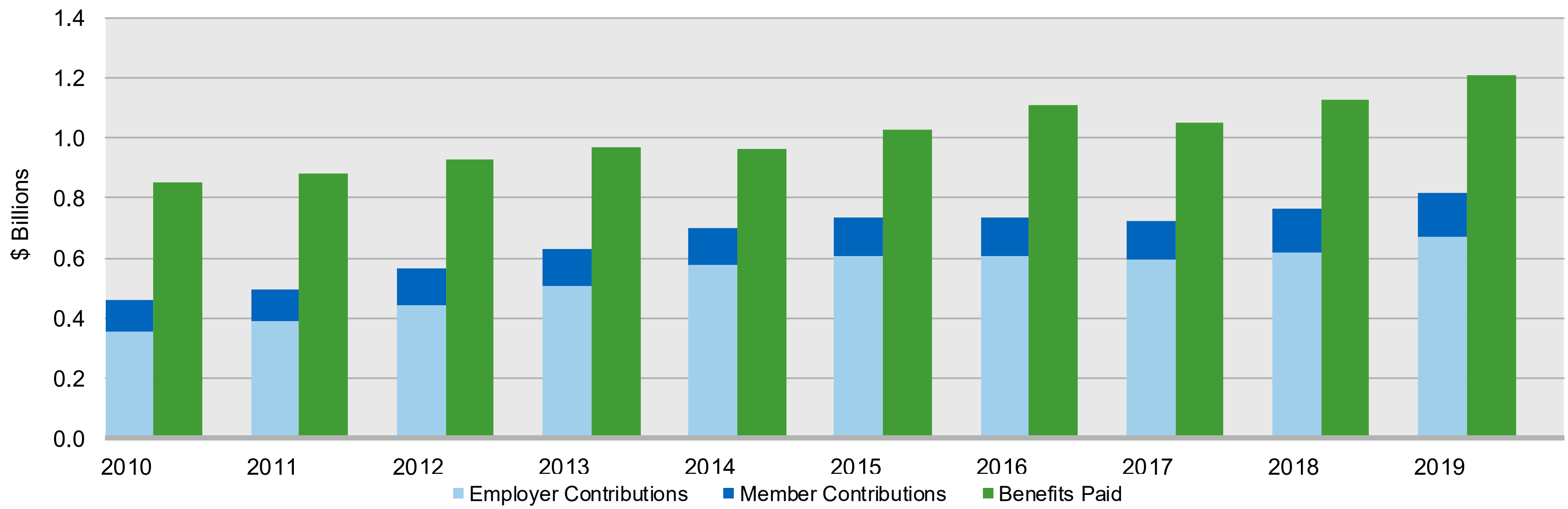
B. Financial Information

Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) 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 transactions for the valuation year, is presented in *Section 3, Exhibits D, E, and F*.

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board of Commissioners 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 valuation 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.

COMPARISON OF CONTRIBUTIONS WITH BENEFITS FOR YEARS ENDED JUNE 30, 2010 – 2019



Note: Starting in 2015, employer contributions are shown net of the administrative expenses.

DETERMINATION OF ACTUARIAL VALUE OF ASSETS

		Expected Return	Actual Return	Original Amount	Percent Deferred	Unrecognized Amount
1	**Market Value of Assets (for Retirement and Health Subsidy Benefits)**					**$23,299,916,660**
2	Calculation of unrecognized return[1]					
a)	Combined Net Deferred Gains as of June 30, 2013[2]			$77,259,408	0/6	$0
b)	Year ended June 30, 2014	$1,230,977,359	$2,802,796,015	1,571,818,656	1/7	224,545,522
c)	Year ended June 30, 2015	1,382,456,639	739,009,040	(643,447,599)	2/7	(183,842,171)
d)	Year ended June 30, 2016	1,413,037,722	172,083,839	(1,240,953,883)	3/7	(531,837,378)
e)	Year ended June 30, 2017	1,399,514,735	2,449,549,638	1,050,034,903	4/7	600,019,945
f)	Year ended June 30, 2018	1,506,111,379	2,058,910,553	552,799,174	5/7	394,856,553
g)	Year ended June 30, 2019	1,630,021,712	1,329,326,557	(300,695,155)	6/7	(257,738,705)
h)	Total unrecognized return[3]					$246,003,766
3	Preliminary Actuarial Value of Assets 1 – 2h					$23,053,912,894
4	Adjustment to be within 40% corridor					0
5	**Final Actuarial Value of Assets** 3 + 4					**$23,053,912,894**
6	Actuarial Value of Assets as a percentage of Market Value of Assets					98.9%
7	Market Value of Retirement Assets					$21,262,200,363
8	**Valuation Value of Retirement Assets** 5 ÷ 1 x 7					**$21,037,711,090**

(1) Total return minus expected return on a market value basis. Effective with the calculation for period ended June 30, 2015, both actual and expected returns on market value have been adjusted to exclude administrative expense paid during the plan year.

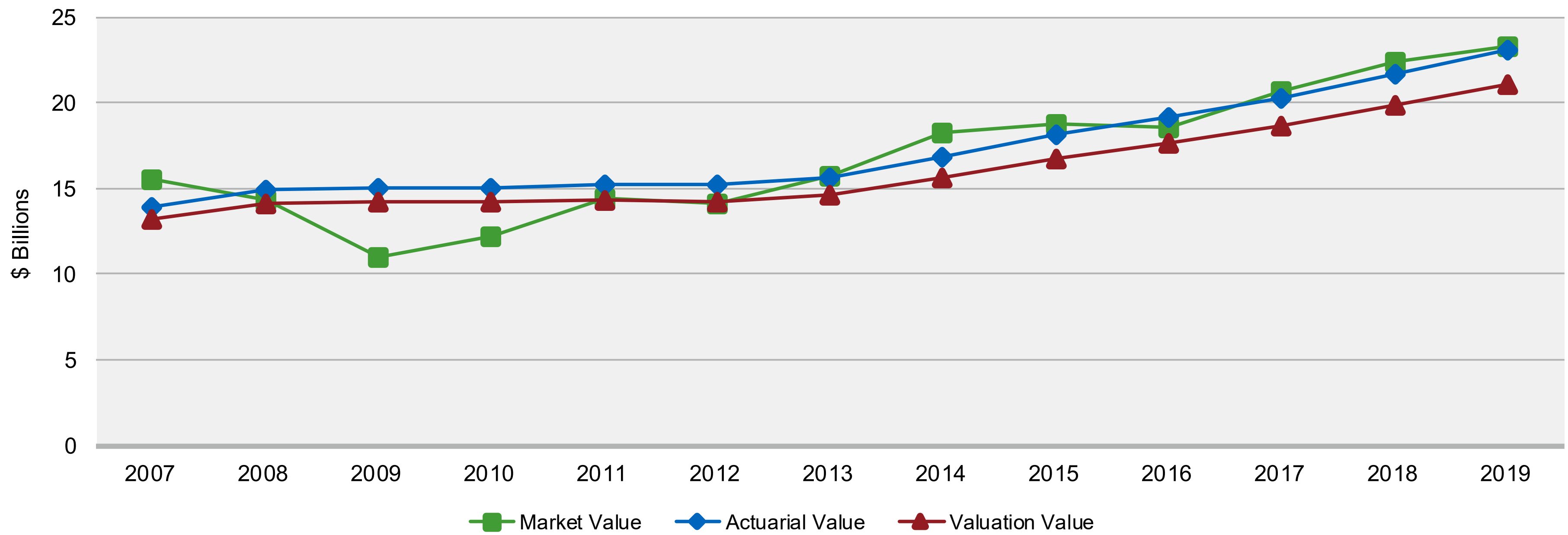
(2) Net deferred unrecognized investment gains as of June 30, 2013 have been combined into a single layer to be recognized over a six-year period effective July 1, 2013. This is fully recognized as of June 30, 2019.

(3) Deferred return as of June 30, 2019 recognized in each of the next six years (for Retirement and Health Subsidy Benefits):

(a) Amount recognized on June 30, 2020	$141,365,156
(b) Amount recognized on June 30, 2021	(83,180,365)
(c) Amount recognized on June 30, 2022	8,740,720
(d) Amount recognized on June 30, 2023	186,019,847
(e) Amount recognized on June 30, 2024	36,014,858
(f) Amount recognized on June 30, 2025	(42,956,450)
(g) Total unrecognized return as of June 30, 2019	$246,003,766

The Market Value, Actuarial Value and Valuation Value of Assets are representations of the Plan's 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 multiplying the total Actuarial Value of Assets by the ratio of Market Value of Retirement Assets to the market value of both retirement and health assets, is shown as the Valuation Value of Assets. The Valuation Value of Assets is significant because the Plan's 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.

MARKET(1) VALUE, ACTUARIAL(1) VALUE, AND VALUATION(2) VALUE OF ASSETS AS OF JUNE 30, 2007 – 2019



(1) Includes all assets for Retirement and Health Subsidy Benefits.

(2) Assets for Retirement only.

C. Actuarial Experience

To calculate any actuarially determined 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 actuarially determined contribution will decrease from the previous year. On the other hand, the actuarially determined contribution 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. There are no assumption changes reflected in this report, except to reflect the Plan amendments to the DROP provision.

The total gain is $231.6 million, which includes $196.4 million from investment gains, a loss of $28.3 million from employer contribution experience and $63.6 in gains from all other sources. The net experience variation from individual sources other than investments and contributions was 0.3% of the Actuarial Accrued Liability. A discussion of the major components of the actuarial experience is on the following pages.

ACTUARIAL EXPERIENCE FOR YEAR ENDED JUNE 30, 2019

1	Net gain from investments[1]	$(196,409,666)
2	Net loss from employer contribution experience	28,340,258
3	Net gain from other experience[2]	(63,576,448)
4	**Net experience gain:** 1 + 2 + 3	**$(231,645,856)**

[1] Details on next page.

[2] See *Section 2, Subsection E* for further details. Does not include the effect of plan or assumption changes, if any.

Investment Experience

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 the Plan's investment policy. The rate of return on the Market Value of Assets was 5.91% for the year ended June 30, 2019.

For valuation purposes, the assumed rate of return on the Actuarial Value of Assets is 7.25%. The actual rate of return on an actuarial basis for the 2018/2019 plan year was 8.19%. Since the actual return for the year was more than the assumed return, the Plan experienced an actuarial gain during the year ended June 30, 2019 with regard to its investments.

INVESTMENT EXPERIENCE FOR YEAR ENDED JUNE 30, 2019

		Market Value[1]	Actuarial Value[1]	Valuation Value[2]
1	Net investment income	$1,329,326,557	$1,784,263,436	$1,635,711,352
2	Average value of assets	22,483,058,090	21,782,117,445	19,852,437,052
3	Rate of return: 1 ÷ 2	5.91%	8.19%	8.24%
4	Assumed rate of return	7.25%	7.25%	7.25%
5	Expected investment income: 2 x 4	$1,630,021,712	$1,579,203,515	$1,439,301,686
6	**Actuarial gain/(loss): 1 – 5**	**$(300,695,155)**	**$205,059,921**	**$196,409,666**

(1) Includes all assets for Retirement and Health Subsidy Benefits.

(2) Assets for Retirement Only.

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 actual market value investment return for the last ten years, including averages over select time periods.

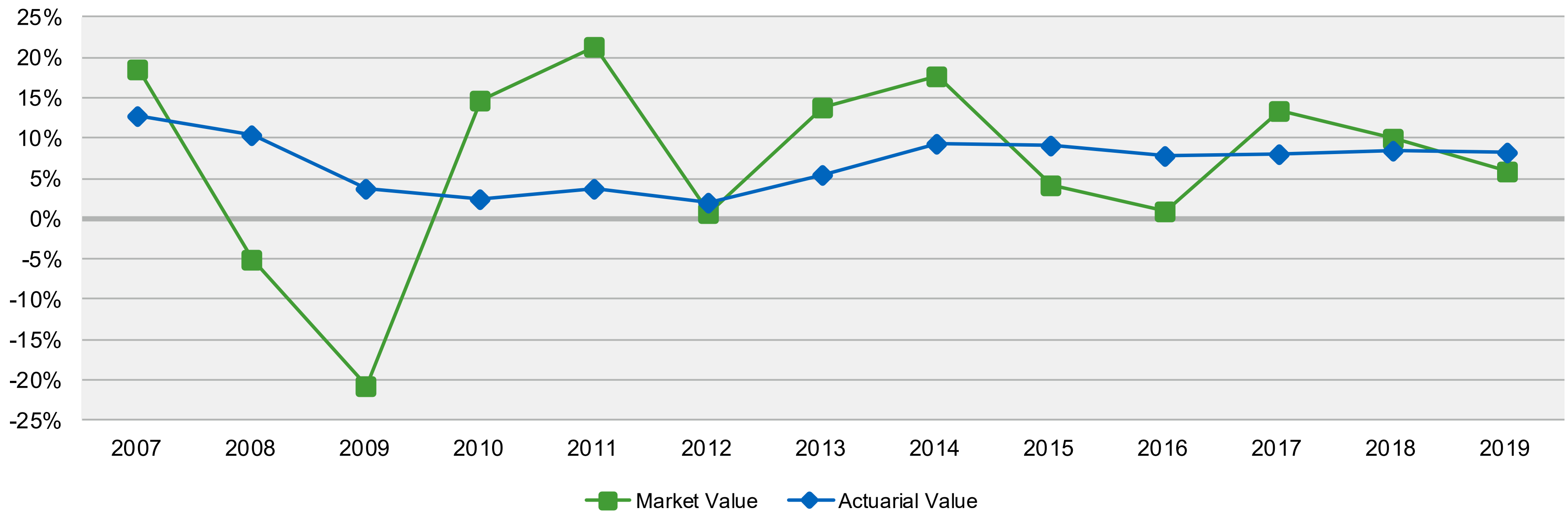
INVESTMENT RETURN[1] – MARKET VALUE AND ACTUARIAL VALUE: 2010 – 2019

Year Ended June 30	Market Value Investment Return		Actuarial Value Investment Return	
	Amount	Percent	Amount	Percent
2010	$1,612,772,227	14.74%	$360,741,904	2.40%
2011	2,585,948,784	21.22%	568,411,044	3.78%
2012	93,546,777	0.65%	320,400,668	2.10%
2013	1,952,254,466	13.75%	827,790,619	5.43%
2014	2,802,796,015	17.65%	1,468,399,449	9.29%
2015	739,009,040	4.01%	1,527,957,644	8.98%
2016	172,083,839	0.91%	1,381,259,601	7.58%
2017	2,449,549,638	13.13%	1,517,741,599	7.89%
2018	2,058,910,553	9.91%	1,703,309,555	8.34%
2019	1,329,326,557	5.91%	1,784,263,436	8.19%
Most recent five-year geometric average return		**6.69%**		**8.19%**
Most recent ten-year geometric average return		**9.98%**		**6.37%**

(1) Includes all assets for Retirement and Health Subsidy Benefits.

Subsection B described the actuarial asset valuation method that gradually recognizes fluctuations in the market value rate of return. The goal of this is to stabilize the actuarial rate of return and to produce more level pension plan costs.

MARKET AND ACTUARIAL RATES OF RETURN FOR YEARS ENDED JUNE 30, 2007 – 2019



Contributions

Employer contributions for the year ended June 30, 2019 totaled $504.9 million, compared to the projected amount of $529.9 million. This resulted in a loss of $28.3 million for the year, when adjusted for timing.

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 participants,
- retirement experience (earlier or later than projected),
- mortality (more or fewer deaths than projected),
- the number of disability retirements (more or fewer than projected),
- salary increases (greater or smaller than projected),
- cost-of-living adjustments (COLAs) higher or lower than anticipated, and
- administrative expenses different than assumed.

The net gain from this other experience for the year ended June 30, 2019 amounted to $63.6 million, which is 0.3% of the Actuarial Accrued Liability. This gain was mainly due to lower than expected individual salary increases for actives. See *Section 2, Subsection E* for a detailed development of the Unfunded Actuarial Accrued Liability.

D. Other Changes in the Actuarial Accrued Liability

The Actuarial Accrued Liability as of June 30, 2019 is $22.5 billion, an increase of $1.1 billion, or 5.2%, from the Actuarial Accrued Liability as of the prior valuation date. The liability is expected to grow each year with Normal Cost and interest, and to decline due to benefit payments made. Additional fluctuations can occur due to actual experience that differs from expected (as discussed in the previous subsection).

Actuarial Assumptions

- The assumption changes reflected in this report were based on the Mortality Experience Study During the Period July 1, 2010 through June 30, 2019 report dated December 12, 2019.
  - This change increased the Actuarial Accrued Liability by about $321.6 million (or a 1.5% increase) and increased the total Normal Cost by 0.92% of payroll (an increase of about 3.3%). The average employer contribution rate increase as a result of the assumption changes was 2.31% of payroll payable at the beginning of the year.
- There was also a new assumption introduced as a result of the Plan amendments to the DROP provisions.
- Details on actuarial assumptions and methods are in *Section 4, Exhibit I*.

Plan Provisions

- The following change in Plan provisions has been recognized since the prior valuation:
  - Ordinance 185935 was adopted by the City Council and amended the Deferred Retirement Option Plan (DROP) provisions of the Plan. For members who enter the DROP on or after February 1, 2019, their participation in DROP will be suspended for any calendar month in which they do not spend at least 112 hours on active duty status. If participation is suspended, the member is eligible to participate in DROP for a maximum of 30 additional months beyond the original participation period.
- A summary of plan provisions is in *Section 4, Exhibit II*.

E. Development of Unfunded Actuarial Accrued Liability

DEVELOPMENT FOR YEAR ENDED JUNE 30, 2019

1	**Unfunded Actuarial Accrued Liability at beginning of year**		**$1,524,733,536**
2	Total Normal Cost at beginning of year		$441,593,887
3	Expected administrative expenses at beginning of year		17,317,329
4	Expected employer and member contributions at beginning of year		(680,953,181)
5	Interest		94,445,139
6	Expected Unfunded Actuarial Accrued Liability at end of year		$1,397,136,710
7	Changes due to:		
	a) Investment return greater than expected (after "smoothing")	$(196,409,666)	
	b) Actual employer contributions less than expected[1]	28,340,258	
	c) Individual salary increases lower than expected	(76,751,541)	
	d) COLA increases lower than expected	(26,771,028)	
	e) Administrative expenses more than expected	2,404,962	
	f) Other experience loss	37,541,159	
	g) Change in Plan Provisions	(50,642,956)	
	h) Change in mortality assumption	321,566,420	
	Total changes		$39,277,608
8	**Unfunded Actuarial Accrued Liability at end of year**		**$1,436,414,318**

Note: The sum of items 7c through 7f equals the "Net gain from other experience" shown in *Section 2, Subsection C*.

[1] The actual contributions were less than expected due to the scheduled one-year lag in implementing the higher contribution rates calculated in the June 30, 2018 valuation for Fiscal Year 2020. (The actual contributions would have been greater than expected due to the one-year lag if lower contribution rates had been calculated in the June 30, 2018 valuation.)

F. Recommended Contribution

The recommended contribution is equal to the employer Normal Cost payment, a payment on the Unfunded Actuarial Accrued Liability and payment for administrative expenses. As of June 30, 2019, the average recommended employer contribution is 33.99% of compensation if paid at the beginning of the year. The calculated employer normal cost is 19.31% payroll, and the explicit contribution rate for administrative expense is 1.12% of payroll. The remaining contribution of 13.56% of payroll will amortize the Unfunded Actuarial Accrued Liability over an equivalent single amortization period of about 7.5 years.

The Board sets the funding policy used to calculate the recommended contribution based on layered amortization periods. See *Section 4, Exhibit I* for further details on the funding policy.

The contribution requirement as of June 30, 2019 is based on the data previously described, the actuarial assumptions and Plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

AVERAGE RECOMMENDED EMPLOYER CONTRIBUTION FOR YEAR ENDING JUNE 30

	All Tiers Combined	2019		2018	
		Amount	% of Projected Compensation	Amount	% of Projected Compensation
1	Total Normal Cost	$460,138,588	29.05%	$441,593,887	28.56%
2	Expected member contributions, discounted to beginning of year	(154,298,907)	(9.74%)	(151,073,352)	(9.77%)
3	Employer Normal Cost: 1 + 2	$305,839,681	19.31%	$290,520,535	18.79%
4	Actuarial Accrued Liability	22,474,125,408		21,364,803,619	
5	Valuation Value of Assets	21,037,711,090		19,840,070,083	
6	Unfunded Actuarial Accrued Liability: 4 – 5	$1,436,414,318		$1,524,733,536	
7	Payment on Unfunded Actuarial Accrued Liability	214,812,167	13.56%	222,041,965	14.36%
8	Payment for administrative expenses	17,740,333	1.12%	17,317,329	1.12%
9	Projected compensation	1,583,807,653		1,546,042,972	
10	**Total average recommended employer contribution: 3 + 7 + 8**	**$538,392,181**	**33.99%**	**$529,879,829**	**34.27%**
11	**Total average recommended contribution, payable July 15**	**$539,964,613**	**34.09%**	**$531,427,399**	**34.37%**
12	**Total average recommended contribution, payable biweekly**	**$557,567,426**	**35.20%**	**$548,751,900**	**35.49%**

Note: Contributions are assumed to be paid at the beginning of the year, unless otherwise noted.

Reconciliation of Average Recommended Employer Contribution Rate

The chart below details the changes in the average recommended employer contribution from the prior valuation to the current year's valuation.

RECONCILIATION OF AVERAGE RECOMMENDED EMPLOYER CONTRIBUTION RATE FROM JUNE 30, 2018 TO JUNE 30, 2019

	Contribution Rate	Estimated Annual Dollar Amount[1]
Average Recommended Employer Contribution as of June 30, 2018	**34.19%**	**$541,512,348**
• Effect of investment return greater than expected (after "smoothing")	(0.85%)	(13,462,365)
• Effect of actual contributions less than expected	0.12%	1,900,569
• Effect of individual salary increases lower than expected	(0.33%)	(5,226,565)
• Effect of COLA increases lower than expected	(0.12%)	(1,900,569)
• Effect of amortizing prior year's UAAL over a smaller than expected projected total payroll	0.15%	2,375,711
• Effect of loss layers from June 30, 2004 valuation being fully amortized	(1.06%)	(16,788,361)
• Effect of other losses	0.02%	302,144
• Effect of change in Plan Provisions	(0.44%)	(6,985,760)
• Effect of change in mortality assumption	2.31%	36,665,029
Total change	(0.20%)	$(3,120,167)
Average Recommended Employer Contribution as of June 30, 2019	**33.99%**	**$538,392,181**

Note: Contributions are assumed to be paid at the beginning of the year, unless otherwise noted.

(1) Based on June 30, 2019 projected compensation.

Recommended Employer Contribution Rates

		June 30, 2019 Actuarial Valuation		June 30, 2018 Actuarial Valuation	
		Amount	% of Projected Compensation	Amount[1]	% of Projected Compensation
Tier 1 Members					
1	Total Normal Cost	$0	N/A	$0	N/A
2	Expected member contributions, discounted to beginning of year	0	N/A	0	N/A
3	Employer Normal Cost: 1 + 2	$0	N/A	$0	N/A
4	Actuarial Accrued Liability	72,228,079		81,546,620	
5	Valuation Value of Assets	(77,269,426)		(76,418,204)	
6	Unfunded Actuarial Accrued Liability: 4 – 5	$149,497,505		$157,964,824	
7	Payment on Unfunded Actuarial Accrued Liability	14,108,325	N/A	14,518,696	N/A
8	Payment for administrative expenses	0	N/A	0	N/A
9	Projected compensation	0		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$14,108,325**	**N/A**	**$14,518,696**	**N/A**
11	**Total recommended contribution, payable July 15**	**$14,149,530**	**N/A**	**$14,561,099**	**N/A**
12	**Total recommended contribution, payable biweekly**	**$14,610,804**	**N/A**	**$15,035,790**	**N/A**
Tier 2 Members					
1	Total Normal Cost	$234,027	25.56%	$236,456	25.83%
2	Expected member contributions, discounted to beginning of year	(7,333)	(0.80%)	(9,704)	(1.06%)
3	Employer Normal Cost: 1 + 2	$226,694	24.76%	$226,752	24.77%
4	Actuarial Accrued Liability	4,860,917,456		5,047,062,918	
5	Valuation Value of Assets	5,251,749,930		5,272,798,516	
6	Unfunded Actuarial Accrued Liability:[2] 4 – 5	$(390,832,474)		$(225,735,598)	
7	Payment on Unfunded Actuarial Accrued Liability[3]	5,387,701	0.34%	14,371,538	0.92%
8	Payment for administrative expenses	10,254	1.12%	10,253	1.12%
9	Projected compensation	915,430		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$5,624,649**	**N/A**	**$14,608,543**	**N/A**
11	**Total recommended contribution, payable July 15**	**$5,641,076**	**N/A**	**$14,651,209**	**N/A**
12	**Total recommended contribution, payable biweekly**	**$5,824,975**	**N/A**	**$15,128,837**	**N/A**

Note: Contributions are assumed to be paid at the beginning of the year, unless otherwise noted.

(1) Amounts shown for Tier 2 are revised to reflect payroll as of June 30, 2019.

(2) Even though the total UAAL for Tier 2 is negative, we have not applied the surplus amortization provisions of the LAFPP funding policy because the Plan as a whole does not have an actuarial surplus.

(3) UAAL rate is calculated using the City's total payroll of $1,562,123,727.

Recommended Employer Contribution Rates (continued)

		June 30, 2019 Actuarial Valuation		June 30, 2018 Actuarial Valuation	
		Amount	% of Projected Compensation	Amount[1]	% of Projected Compensation
Tier 3 Members					
1	Total Normal Cost	$21,839,788	25.81%	$21,716,673	25.66%
2	Expected member contributions, discounted to beginning of year	(6,877,861)	(8.13%)	(7,295,313)	(8.62%)
3	Employer Normal Cost: 1 + 2	$14,961,927	17.68%	$14,421,360	17.04%
4	Actuarial Accrued Liability	1,286,901,317		1,196,618,561	
5	Valuation Value of Assets	1,298,882,459		1,188,032,215	
6	Unfunded Actuarial Accrued Liability:[2] 4 – 5	$(11,981,142)		$8,586,346	
7	Payment on Unfunded Actuarial Accrued Liability[3]	(542,956)	(0.03%)	0	0.00%
8	Payment for administrative expenses	947,973	1.12%	947,883	1.12%
9	Projected compensation	84,632,397		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$15,366,944**	**N/A**	**$15,369,243**	**N/A**
11	**Total recommended contribution, payable July 15**	**$15,411,825**	**N/A**	**$15,414,130**	**N/A**
12	**Total recommended contribution, payable biweekly**	**$15,914,249**	**N/A**	**$15,916,630**	**N/A**
Tier 4 Members					
1	Total Normal Cost	$8,544,246	26.64%	$8,425,007	26.27%
2	Expected member contributions, discounted to beginning of year	(2,270,148)	(7.08%)	(2,418,141)	(7.54%)
3	Employer Normal Cost: 1 + 2	$6,274,098	19.56%	$6,006,866	18.73%
4	Actuarial Accrued Liability	622,449,464		586,559,573	
5	Valuation Value of Assets	556,746,014		511,844,044	
6	Unfunded Actuarial Accrued Liability: 4 – 5	$65,703,450		$74,715,529	
7	Payment on Unfunded Actuarial Accrued Liability[3]	7,173,014	0.46%	8,123,043	0.52%
8	Payment for administrative expenses	359,227	1.12%	359,193	1.12%
9	Projected compensation	32,070,830		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$13,806,339**	**N/A**	**$14,489,102**	**N/A**
11	**Total recommended contribution, payable July 15**	**$13,846,662**	**N/A**	**$14,531,419**	**N/A**
12	**Total recommended contribution, payable biweekly**	**$14,298,062**	**N/A**	**$15,005,143**	**N/A**

Note: Contributions are assumed to be paid at the beginning of the year, unless otherwise noted.

(1) Amounts are revised to reflect payroll as of June 30, 2019.

(2) Even though the total UAAL for Tier 3 is negative, we have not applied the surplus amortization provisions of the LAFPP funding policy because the Plan as a whole does not have an actuarial surplus.

(3) UAAL rate is calculated using the City's total payroll of $1,562,123,727.

Recommended Employer Contribution Rates (continued)

		June 30, 2019 Actuarial Valuation		June 30, 2018 Actuarial Valuation	
		Amount	% of Projected Compensation	Amount[1]	% of Projected Compensation
Tier 5 Members (without Harbor Port Police)					
1	Total Normal Cost	$339,852,639	29.74%	$334,024,914	29.23%
2	Expected member contributions, discounted to beginning of year	(110,820,411)	(9.70%)	(111,303,546)	(9.74%)
3	Employer Normal Cost: 1 + 2	$229,032,228	20.04%	$222,721,368	19.49%
4	Actuarial Accrued Liability[2]	15,543,632,684		14,376,827,698	
5	Valuation Value of Assets[2]	13,925,252,725		12,872,909,998	
6	Unfunded Actuarial Accrued Liability:[2] 4 – 5	$1,618,379,959		$1,503,917,700	
7	Payment on Unfunded Actuarial Accrued Liability[3]	148,468,912	12.99%	150,156,940	13.14%
8	Payment for administrative expenses	12,799,983	1.12%	12,798,765	1.12%
9	Projected compensation	1,142,746,882		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$390,301,123**	**34.15%**	**$385,677,073**	**33.75%**
11	**Total recommended contribution, payable July 15**	**$391,441,039**	**34.25%**	**$386,803,484**	**33.85%**
12	**Total recommended contribution, payable biweekly**	**$404,201,994**	**35.37%**	**$399,413,255**	**34.95%**
Tier 6 Members (without Harbor Port Police and Airport Police)					
1	Total Normal Cost	$83,288,043	27.60%	$80,690,139	26.74%
2	Expected member contributions, discounted to beginning of year	(32,051,850)	(10.62%)	(32,046,720)	(10.62%)
3	Employer Normal Cost: 1 + 2	$51,236,193	16.98%	$48,643,419	16.12%
4	Actuarial Accrued Liability[2]	15,543,632,684		14,376,827,698	
5	Valuation Value of Assets[2]	13,925,252,725		12,872,909,998	
6	Unfunded Actuarial Accrued Liability:[2] 4 – 5	$1,618,379,959		$1,503,917,700	
7	Payment on Unfunded Actuarial Accrued Liability[3]	39,205,278	12.99%	39,651,026	13.14%
8	Payment for administrative expenses	3,380,013	1.12%	3,379,692	1.12%
9	Projected compensation	301,758,188		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$93,821,484**	**31.09%**	**$91,674,137**	**30.38%**
11	**Total recommended contribution, payable July 15**	**$94,095,500**	**31.18%**	**$91,941,881**	**30.46%**
12	**Total recommended contribution, payable biweekly**	**$97,163,007**	**32.20%**	**$94,939,181**	**31.46%**

Note: Contributions are assumed to be paid at the beginning of the year, unless otherwise noted.

(1) Amounts are revised to reflect payroll as of June 30, 2019.

(2) For Tiers 5 and 6, the Unfunded Actuarial Accrued Liability is amortized as a percent of combined payroll for these tiers from the respective employer (i.e., City). As of June 30, 2019, the combined payroll is $1,444,505,070. Amounts shown for the Actuarial Accrued Liability, Valuation Value of Assets, and the Unfunded Actuarial Accrued Liability include both Tier 5 and Tier 6 (without Harbor Port Police and Airport Police).

(3) The total payment on Unfunded Actuarial Accrued Liability for Tiers 5 and 6 (without Harbor Port Police and Airport Police) combined is $187,674,190 as of June 30, 2019 and $189,807,966 as of June 30, 2018.

Recommended Employer Contribution Rates (continued)

		June 30, 2019 Actuarial Valuation		June 30, 2018 Actuarial Valuation	
		Amount	% of Projected Compensation	Amount[1]	% of Projected Compensation
All Tiers Combined (without Harbor Port Police and Airport Police)					
1	Total Normal Cost	$453,758,743	29.04%	$445,093,189	28.49%
2	Expected member contributions, discounted to beginning of year	(152,027,603)	(9.73%)	(153,073,424)	(9.80%)
3	Employer Normal Cost: 1 + 2	$301,731,140	19.31%	$292,019,765	18.69%
4	Actuarial Accrued Liability	22,386,129,000		21,288,615,370	
5	Valuation Value of Assets	20,955,361,702		19,769,166,569	
6	Unfunded Actuarial Accrued Liability: 4 – 5	$1,430,767,298		$1,519,448,801	
7	Payment on Unfunded Actuarial Accrued Liability	213,800,274	13.69%	226,821,243	14.52%
8	Payment for administrative expenses	17,497,450	1.12%	17,495,786	1.12%
9	Projected compensation	1,562,123,727		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$533,028,864**	**34.12%**	**$536,336,794**	**34.33%**
11	**Total recommended contribution, payable July 15**	**$534,585,632**	**34.22%**	**$537,903,222**	**34.43%**
12	**Total recommended contribution, payable biweekly**	**$552,013,091**	**35.34%**	**$555,438,836**	**35.56%**

Note: Contributions are assumed to be paid at the beginning of the year, unless otherwise noted.

[1] Amounts are recalculated to reflect payroll of active members enrolled in the different tiers as of June 30, 2019. There is a change in the total aggregate rate determined in the June 30, 2018 valuation calculated using the 2018 projected payroll by tier compared to the total aggregate rate recalculated above using the 2019 projected payroll by tier as a result of new members entering Tier 6 and active members leaving the other Tiers. This shows that even if the contribution rate for each tier were to remain unchanged, the aggregate rate (which is the weighted average of the rates by tier) would change over time as the proportion of non-Tier 6 payroll decreases and the proportion of Tier 6 payroll increases. In our June 30, 2018 valuation report, the aggregate rate (all Tiers combined without Harbor Port Police and Airport Police) is 34.39% payable July 1, based on June 30, 2018 projected payroll. Since the Tier 6 contribution rate is in general lower than non-Tier 6 contribution rates and the proportion of Tier 6 payroll as of June 30, 2019 has increased, the total aggregate rate is decreased slightly to 34.33%, payable July 1, using the June 30, 2019 projected payroll.

Recommended Employer Contribution Rates (continued)

		June 30, 2019 Actuarial Valuation		June 30, 2018 Actuarial Valuation	
		Amount	% of Projected Compensation	Amount[1]	% of Projected Compensation
Harbor Port Police – Tier 5 Members					
1	Total Normal Cost	$3,702,120	30.88%	$3,619,770	30.18%
2	Expected member contributions, discounted to beginning of year	(1,242,063)	(10.36%)	(1,243,771)	(10.37%)
3	Employer Normal Cost: 1 + 2	$2,460,057	20.52%	$2,375,999	19.81%
4	Actuarial Accrued Liability[2]	80,453,000		70,770,807	
5	Valuation Value of Assets[2]	76,332,924		66,863,513	
6	Unfunded Actuarial Accrued Liability:[2] 4 – 5	$4,120,076		$3,907,294	
7	Payment on Unfunded Actuarial Accrued Liability[3]	747,808	6.23%	705,243	5.88%
8	Payment for administrative expenses	134,345	1.12%	134,332	1.12%
9	Projected compensation	11,993,936		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$3,342,210**	**27.87%**	**$3,215,574**	**26.81%**
11	**Total recommended contribution, payable July 15**	**$3,351,971**	**27.95%**	**$3,224,965**	**26.88%**
12	**Total recommended contribution, payable biweekly**	**$3,461,245**	**28.86%**	**$3,330,099**	**27.76%**
Harbor Port Police – Tier 6 Members					
1	Total Normal Cost	$684,728	27.31%	$670,925	26.76%
2	Expected member contributions, discounted to beginning of year	(266,306)	(10.62%)	(266,264)	(10.62%)
3	Employer Normal Cost: 1 + 2	$418,422	16.69%	$404,661	16.14%
4	Actuarial Accrued Liability[2]	80,453,000		70,770,807	
5	Valuation Value of Assets[2]	76,332,924		66,863,513	
6	Unfunded Actuarial Accrued Liability:[2] 4 – 5	$4,120,076		$3,907,294	
7	Payment on Unfunded Actuarial Accrued Liability[3]	156,321	6.23%	147,423	5.88%
8	Payment for administrative expenses	28,083	1.12%	28,081	1.12%
9	Projected compensation	2,507,195		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$602,826**	**24.04%**	**$580,165**	**23.14%**
11	**Total recommended contribution, payable July 15**	**$604,587**	**24.11%**	**$581,859**	**23.21%**
12	**Total recommended contribution, payable biweekly**	**$624,296**	**24.90%**	**$600,828**	**23.97%**

Note: Contributions are assumed to be paid at the beginning of the year, unless otherwise noted.

(1) Amounts are revised to reflect payroll as of June 30, 2019.

(2) For Tiers 5 and 6, the Unfunded Actuarial Accrued Liability is amortized as a percent of combined payroll for these tiers from the respective employer (i.e., Harbor Port Police). As of June 30, 2019, the combined payroll is $14,501,131. Amounts shown for the Actuarial Accrued Liability, Valuation Value of Assets, and the Unfunded Actuarial Accrued Liability include both Harbor Port Police Tier 5 and Tier 6.

(3) The total payment on Unfunded Actuarial Accrued Liability for Harbor Port Police Tiers 5 and 6 combined is $904,129 as of June 30, 2019 and $852,666 as of June 30, 2018.

Recommended Employer Contribution Rates (continued)

		June 30, 2019 Actuarial Valuation		June 30, 2018 Actuarial Valuation	
		Amount	% of Projected Compensation	Amount[1]	% of Projected Compensation
Harbor Port Police All Tiers Combined					
1	Total Normal Cost	$4,386,848	30.25%	$4,290,695	29.59%
2	Expected member contributions, discounted to beginning of year	(1,508,369)	(10.40%)	(1,510,035)	(10.41%)
3	Employer Normal Cost: 1 + 2	$2,878,479	19.85%	$2,780,660	19.18%
4	Actuarial Accrued Liability	80,453,000		70,770,807	
5	Valuation Value of Assets	76,332,924		66,863,513	
6	Unfunded Actuarial Accrued Liability: 4 – 5	$4,120,076		$3,907,294	
7	Payment on Unfunded Actuarial Accrued Liability	904,129	6.23%	852,666	5.88%
8	Payment for administrative expenses	162,428	1.12%	162,413	1.12%
9	Projected compensation	14,501,131		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$3,945,036**	**27.20%**	**$3,795,739**	**26.18%**
11	**Total recommended contribution, payable July 15**	**$3,956,558**	**27.28%**	**$3,806,824**	**26.25%**
12	**Total recommended contribution, payable biweekly**	**$4,085,541**	**28.17%**	**$3,930,927**	**27.11%**

Note: Contributions are assumed to be paid at the beginning of the year, unless otherwise noted.

(1) Amounts are revised to reflect payroll as of June 30, 2019.

Recommended Employer Contribution Rates (continued)

		June 30, 2019 Actuarial Valuation		June 30, 2018 Actuarial Valuation	
		Amount	% of Projected Compensation	Amount[1]	% of Projected Compensation
Airport Police – Tier 6 Members					
1	Total Normal Cost	$1,992,997	27.75%	$1,921,398	26.75%
2	Expected member contributions, discounted to beginning of year	(762,935)	(10.62%)	(762,813)	(10.62%)
3	Employer Normal Cost: 1 + 2	$1,230,062	17.13%	$1,158,585	16.13%
4	Actuarial Accrued Liability	7,543,408		5,417,442	
5	Valuation Value of Assets	6,016,464		4,040,001	
6	Unfunded Actuarial Accrued Liability: 4 – 5	$1,526,944		$1,377,441	
7	Payment on Unfunded Actuarial Accrued Liability	107,764	1.50%	140,783	1.96%
8	Payment for administrative expenses	80,455	1.12%	80,447	1.12%
9	Projected compensation	7,182,795		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$1,418,281**	**19.75%**	**$1,379,815**	**19.21%**
11	**Total recommended contribution, payable July 15**	**$1,422,423**	**19.80%**	**$1,383,845**	**19.27%**
12	**Total recommended contribution, payable biweekly**	**$1,468,794**	**20.45%**	**$1,428,958**	**19.90%**
All Tiers Combined					
1	Total Normal Cost	$460,138,588	29.05%	$451,305,282	28.50%
2	Expected member contributions, discounted to beginning of year	(154,298,907)	(9.74%)	(155,346,272)	(9.81%)
3	Employer Normal Cost: 1 + 2	$305,839,681	19.31%	$295,959,010	18.69%
4	Actuarial Accrued Liability	22,474,125,408		21,364,803,619	
5	Valuation Value of Assets	21,037,711,090		19,840,070,083	
6	Unfunded Actuarial Accrued Liability: 4 – 5	$1,436,414,318		$1,524,733,536	
7	Payment on Unfunded Actuarial Accrued Liability	214,812,167	13.56%	227,814,692	14.38%
8	Payment for administrative expenses	17,740,333	1.12%	17,738,646	1.12%
9	Projected compensation	1,583,807,653		N/A	
10	**Total recommended employer contribution:** 3 + 7 + 8	**$538,392,181**	**33.99%**	**$541,512,348**	**34.19%**
11	**Total recommended contribution, payable July 15**	**$539,964,613**	**34.09%**	**$543,093,891**	**34.29%**
12	**Total recommended contribution, payable biweekly**	**$557,567,426**	**35.20%**	**$560,798,721**	**35.41%**

Note: Contributions are assumed to be paid at the beginning of the year, unless otherwise noted.

(1) Amounts are revised to reflect payroll as of June 30, 2019.

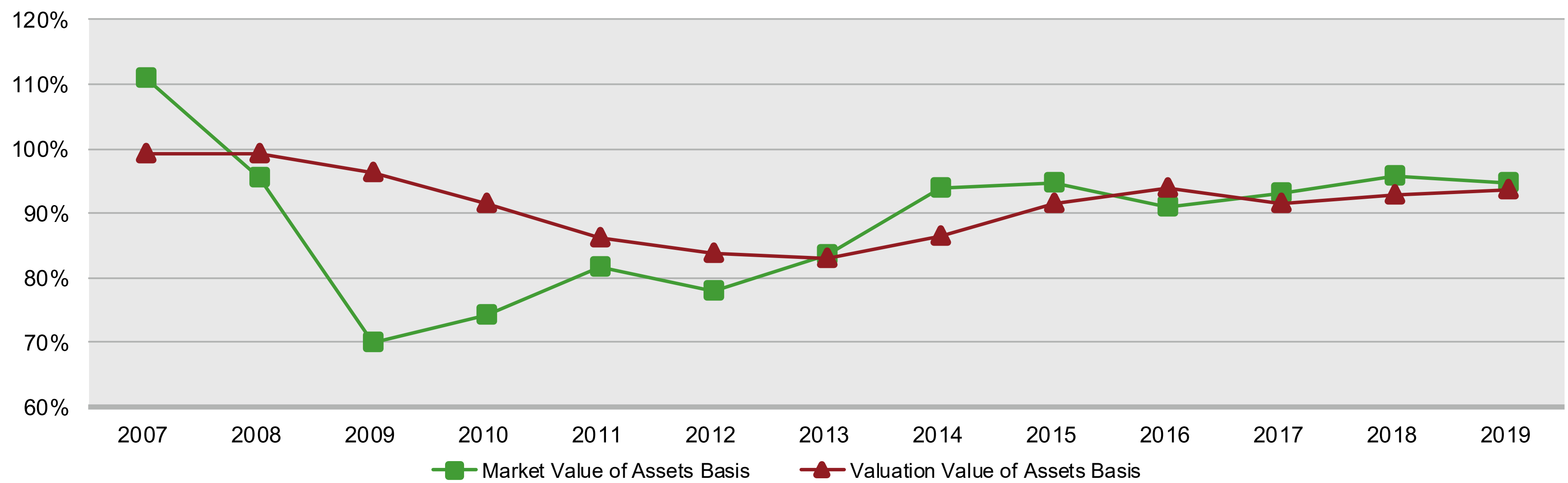
G. Funded Status

A commonly reported piece of information regarding the Plan's financial status is the funded ratio. These ratios compare the Market and Valuation Value of Assets to the Actuarial Accrued Liability of the Plan. Higher ratios indicate a relatively well-funded plan, while lower ratios may indicate recent changes to actuarial assumptions, benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other causes.

The chart below depicts a history of the funded ratio for the Plan. The chart on the next page shows the Plan's schedule of funding progress for the last ten years.

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.

FUNDED RATIO FOR YEARS ENDED JUNE 30, 2007 – 2019



SCHEDULE OF FUNDING PROGRESS FOR YEARS ENDED JUNE 30, 2010 – 2019
($ IN ‘000s)

Actuarial Valuation Date as of June 30,	Valuation Value of Assets[1] (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)
2010	$14,219,581	$15,520,625	$1,301,044	91.6%	$1,356,986	95.9%
2011	14,337,669	16,616,476	2,278,807	86.3	1,343,963	169.6
2012	14,251,913	17,030,833	2,778,920	83.7	1,341,914	207.1
2013	14,657,713	17,632,425	2,974,712	83.1	1,367,237	217.6
2014	15,678,480	18,114,229	2,435,749	86.6	1,402,715	173.6
2015	16,770,060	18,337,507	1,567,447	91.5	1,405,171	111.5
2016	17,645,338	18,798,510	1,153,172	93.9	1,400,808	82.3
2017	18,679,221	20,411,024	1,731,803	91.5	1,475,539	117.4
2018	19,840,070	21,364,804	1,524,734	92.9	1,546,043	98.6
2019	21,037,711	22,474,125	1,436,414	93.6	1,583,808	90.7

[1] Assets for Retirement Only.

H. Actuarial Balance Sheet

An overview of the Plan's funding is given by an Actuarial Balance Sheet. In this approach, first the amount and timing of all future payments that will be made by the Plan for current participants is determined. Then these payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value, referred to as the Actuarial Present Value of Future Benefits of the Plan.

Second, this Actuarial Present Value of Future Benefits is compared to the assets. The "assets" for this purpose include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future employer Normal Cost contributions, and the present value of future employer amortization payments for the Unfunded Actuarial Accrued Liability.

ACTUARIAL BALANCE SHEET[1]

	Year Ended	
	June 30, 2019	June 30, 2018
Actuarial Present Value of Future Benefits		
• Present value of benefits for retired members and beneficiaries	$12,467,859,989	$11,899,136,569
• Present value of benefits for inactive vested members	53,098,066	39,997,203
• Present value of benefits for active members not currently in DROP	11,531,626,037	11,346,158,136
• Present value of benefits for active members currently in DROP	3,202,238,455	2,617,081,097
Total Actuarial Present Value of Future Benefits	**$27,254,822,547**	**$25,902,373,005**
Current and future assets		
• Total Valuation Value of Assets	$21,037,711,090	$19,840,070,083
• Present value of future contributions by members	1,578,087,464	1,525,926,997
• Present value of future employer contributions for:		
» Entry age Normal Cost	3,202,609,675	3,011,642,389
» Unfunded Actuarial Accrued Liability	1,436,414,318	1,524,733,536
Total of current and future assets	**$27,254,822,547**	**$25,902,373,005**

(1) Assets for Retirement Only

I. 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 measurement since it is based on the current level of assets.

The current AVR is about 13.4. This means that a 1% asset gain or loss (relative to the assumed investment return) translates to about 13.4% of one-year's payroll. Since actuarial gains and losses are amortized over 20 years, there would be a 0.9% 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.

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. The current LVR is about 14.2. This is about 6% higher than the AVR. Therefore, we would expect that contribution volatility will increase over the long term.

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

VOLATILITY RATIOS FOR YEARS ENDED JUNE 30, 2010 – 2019

Year Ended June 30	Asset Volatility Ratio	Liability Volatility Ratio
2010	8.5	11.4
2011	10.1	12.4
2012	9.9	12.7
2013	10.8	12.9
2014	12.1	12.9

Year Ended June 30	Asset Volatility Ratio	Liability Volatility Ratio
2015	12.3	13.1
2016	12.2	13.4
2017	12.9	13.8
2018	13.2	13.8
2019	13.4	14.2

J. Risk Assessment

Since the actuarial valuation results are dependent on a fixed set of assumptions and data as of a specific date, there is risk that emerging results may differ, perhaps significantly, as actual experience is fluid and will not exactly track current assumptions. This potential divergence may have a significant impact on the future financial condition of the plan.

This report does not contain a detailed analysis of the potential range of future measurements, but does include a concise discussion of some of the primary risks that may affect the Plan's future financial condition. We recommend a more detailed assessment of the risks to provide the Board with a better understanding of the risks inherent in the Plan that can inform both financial preparation and future decision making. This assessment would enable us to work with the Board to highlight and illustrate particular risks or potential future outcomes they may be interested in discussing and could include scenario testing, sensitivity testing, stress testing and stochastic modeling. As noted in the significant issues section of this report, we are in discussion with LAFPP Staff regarding specific content for a detailed analysis of the potential range of the impact of risk relative to LAFPP's future financial condition and to provide the results later in a stand-alone report.

This section provides descriptions and basic assessments of the primary risks that are likely to have an ongoing influence on the Plan's financial health, as well as a discussion of historical trends and maturity measures:

Risk Assessments

- Asset/Liability Mismatch Risk (the potential that future plan experience does not affect asset and liability values in the same way, causing them to diverge)

  The most significant asset/liability mismatch risk to the Plan is investment risk, as discussed below. In fact, investment risk has the potential to impact asset/liability mismatch in two ways. The first mismatch is evident in annual valuations: when asset values deviate from assumptions they are typically independent from liability changes. The second mismatch can be caused when systemic asset deviations from assumptions may signal the need for an assumption change, which causes liability values and contribution rates to move in the opposite direction from any change in the expected experience of asset growth rates.

  Asset/liability mismatch can also be caused by demographic assumption risk such as longevity, which affects liabilities but have no impact on asset levels. This risk is also discussed below.

- Investment Risk (the risk that investment returns will be different than expected)

  The investment return assumption is a long-term, static assumption for valuation purposes even though in reality market experience can be quite volatile in any given year. That volatility can cause significant changes in the financial condition of the Plan, affecting both funded status and contribution rates. The inherent year-to-year volatility is reduced by smoothing through the Actuarial Value of Assets, however investment experience can still have a sizable impact. As discussed in *Section 2, Subsection I, Volatility Ratios*, on page 40, a 1% asset gain or loss (relative to the assumed investment return) translates to about 13.4% of one-year's payroll. Since actuarial gains and losses are amortized over 20 years, there would be a 0.9% of payroll decrease/(increase) in the required contribution for each 1% asset gain/(loss).

The year-by-year market value rate of return over the last 10 years has ranged from a low of 0.65% to a high of 21.22%.

- Longevity Risk (the risk that mortality experience will be different than expected)

  The actuarial valuation includes current life expectancy assumptions and an expectation of future improvement in life expectancy, which are significant assumptions given the relatively long duration of liabilities for pension plans. Emerging plan experience that does not match these expectations will result in increases or decreases in the actuarially determined contribution over time. This risk can be reduced by using tables appropriate for the Plan (public experience tables) that are weighted by benefit levels, and by using generational mortality projections. Effective with this valuation, the Board has adopted benefit weighted mortality tables with the generational mortality projections.

- Other Risks

  In addition to longevity, the valuation includes a variety of other assumptions that are unlikely to match future experience exactly. One example is projected salary scales over time. As salary is central to the determination of benefits paid in retirement, deviations from the projected salary scales could have a material impact on the benefits anticipated for each member. Examples of demographic assumptions include retirement, termination and disability assumptions.

Some plans also carry significant contribution risk, defined as the potential for actual future contributions deviating from expected future contributions. However, the employer has a proven track-record of making the Actuarially Determined Contributions based on the Board of Commissioner's Actuarial Funding Policy, so contribution risk is minimal.

Evaluation of Historical Trends

Past experience can help demonstrate the sensitivity of key results to the Plan's actual experience. Over the past ten years:

- The funded percentage on the Valuation Value of Assets has increased from 91.6% to 93.6%. This is primarily due to contributions made to amortize the UAAL (i.e., amortizing each gain/loss layer of UAAL over 20 years) and average investment returns over recent years higher than the assumption on a smoothed basis. For a more detailed history see *Section 2, Subsection G, Funded Status* starting on page 37.
- The geometric average investment return on the Actuarial Value of Assets over the last 10 years was 6.37%. This includes a high of 9.29% return and a low of 2.10%. The average over the last 5 years was 8.19%. For more details see the Investment Return table in *Section 2, Subsection C* on page 23.
- Beyond investment losses, the primary source of new UAAL was the strengthening of assumptions through multiple assumption changes. For example, the assumption changes in 2011 added $628 million in unfunded liability. The assumption changes in 2017

changed the discount rate from 7.50% to 7.25% (as well as various other changes) adding $761 million in unfunded liability. The mortality assumption change in 2019 updated mortality tables, adding $322 million in unfunded liability. For more details on unfunded liability changes see *Section 3, Exhibit G , Table of Amortization Bases* starting on page 67. A graphical representation of historical changes in UAAL by source will be included in the stand-alone risk assessment report.

- The plan's funding policy effectively deals with these unfunded liabilities over time. This can be seen most clearly in the *Section 3, Exhibit H , Projection of UAAL Balances and Payments* provided on pages 77 and 78.

Maturity Measures

In the last 10 years the ratio of members in pay status to active participants has increased from 0.90 to 0.97. An increased ratio indicates that the plan has grown in maturity over time. This is to be expected, but is also informative to understanding plan sensitivity to particular risks. For more details see *Section 2, Subsection A, Member Data* on page 14.

As pension plans mature, the cash needed to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the Plan's asset allocation is aligned to meet emerging pension liabilities. For the prior year, benefits paid were $368 million more than contributions received. Plans with high levels of negative cash flows may have a need for a larger allocation to income generating assets, which can create a drag on investment return. However, the plan currently has a relatively low level of negative cash flow and is relatively well funded (at a 93.6% funded ratio). For more details on historical cash flows see the Comparison of Contributions with Benefits in *Section 2, Subsection B* on page 18.

A further discussion of plan maturity measures and how they relate to changes in assets and liabilities is included in *Section 2, Subsection I, Volatility Ratios* starting on page 40.

Section 3: Supplemental Information

EXHIBIT A – TABLE OF PLAN COVERAGE
TOTAL PLAN

Category	Year Ended June 30		Change From Prior Year
	2019	2018	
Active members in valuation:			
• Number	13,535	13,442	0.7%
• Average age	42.2	42.3	-0.1
• Average years of service	15.2	15.3	-0.1
• Total projected compensation	$1,583,807,654	$1,546,042,972	2.4%
• Average projected compensation	$117,016	$115,016	1.7%
• Account balances	$2,086,263,829	$1,995,703,585	4.5%
• Total active vested members	4,692	4,716	-0.6%
Inactive vested members:			
• Number[(1)]	523	534	-2.1%
• Average age[(2)]	47.7	47.2	0.5
• Average monthly benefit at age 50[(2)]	$3,445	$2,945	17.0%
Retired members:			
• Number in pay status	8,811	8,623	2.2%
• Average age at retirement	52.1	52.0	0.1
• Average age	69.9	69.9	0.0
• Average monthly benefit (includes July COLA)	$6,758	$6,512	3.8%
Disabled members:			
• Number in pay status	1,821	1,883	-3.3%
• Average age at retirement	43.7	43.8	-0.1
• Average age	71.9	71.3	0.6
• Average monthly benefit (includes July COLA)	$5,141	$5,015	2.5%
Beneficiaries:			
• Number in pay status	2,465	2,384	3.4%
• Average age	76.6	76.4	0.2
• Average monthly benefit (includes July COLA)	$4,646	$4,518	2.8%

(1) Includes inactive members due a refund of member contributions.

(2) Excludes inactive members due a refund of member contributions.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
TIER 1

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	0	0	N/A
• Average age	N/A	N/A	N/A
• Average years of service	N/A	N/A	N/A
• Total projected compensation	N/A	N/A	N/A
• Average projected compensation	N/A	N/A	N/A
• Account balances	N/A	N/A	N/A
• Total active vested members	N/A	N/A	N/A
Inactive vested members:			
• Number	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit at age 50	N/A	N/A	N/A
Retired members:			
• Number in pay status	39	46	-15.2%
• Average age at retirement	47.4	47.1	0.3
• Average age	84.8	85.7	-0.9
• Average monthly benefit (includes July COLA)	$2,831	$2,694	5.1%
Disabled members:			
• Number in pay status	41	52	-21.2%
• Average age at retirement	35.7	35.9	-0.2
• Average age	83.8	83.6	0.2
• Average monthly benefit (includes July COLA)	$3,573	$3,444	3.7%
Beneficiaries:			
• Number in pay status	184	208	-11.5%
• Average age	84.2	84.6	-0.4
• Average monthly benefit (includes July COLA)	$2,967	$2,854	4.0%

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
TIER 2

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	7	8	-12.5%
• Average age	65.4	63.9	1.5
• Average years of service	41.1	39.9	1.2
• Total projected compensation	$915,430	$1,159,950	-21.1%
• Average projected compensation	$130,776	$144,994	-9.8%
• Account balances	$1,949,655	$2,206,562	-11.6%
• Total active vested members	7	8	-12.5%
Inactive vested members:			
• Number	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit at age 50	N/A	N/A	N/A
Retired members:			
• Number in pay status	3,869	4,057	-4.6%
• Average age at retirement	50.2	50.2	0.0
• Average age	76.9	76.3	0.6
• Average monthly benefit (includes July COLA)	$5,677	$5,519	2.9%
Disabled members:			
• Number in pay status	1,335	1,387	-3.7%
• Average age at retirement	44.7	44.8	-0.1
• Average age	76.4	75.6	0.8
• Average monthly benefit (includes July COLA)	$5,416	$5,286	2.5%
Beneficiaries:			
• Number in pay status	1,881	1,818	3.5%
• Average age	80.3	79.7	0.6
• Average monthly benefit (includes July COLA)	$4,780	$4,674	2.3%

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
TIER 3

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	664	712	-6.7%
• Average age	51.8	51.0	0.8
• Average years of service	24.8	23.9	0.9
• Total projected compensation	$84,632,397	$88,391,987	-4.3%
• Average projected compensation	$127,458	$124,146	2.7%
• Account balances	$154,860,840	$152,919,769	1.3%
• Total active vested members	664	712	-6.7%
Inactive vested members:			
• Number(1)	49	56	-12.5%
• Average age(2)	48.1	47.1	1.0
• Average monthly benefit at age 50(2)	$2,660	$2,474	7.5%
Retired members:			
• Number in pay status	383	331	15.7%
• Average age at retirement	53.3	53.2	0.1
• Average age	61.1	60.9	0.2
• Average monthly benefit (includes July COLA)	$3,941	$3,649	8.0%
Disabled members:			
• Number in pay status	252	251	0.4%
• Average age at retirement	40.0	40.1	-0.1
• Average age	59.7	58.7	1.0
• Average monthly benefit (includes July COLA)	$3,951	$3,851	2.6%
Beneficiaries:			
• Number in pay status	96	94	2.1%
• Average age	55.5	55.3	0.2
• Average monthly benefit (includes July COLA)	$3,526	$3,481	1.3%

(1) Includes inactive members due a refund of member contributions.

(2) Excludes inactive members due a refund of member contributions.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
TIER 4

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	250	265	-5.7%
• Average age	48.1	47.3	0.8
• Average years of service	22.9	22.1	0.8
• Total projected compensation	$32,070,830	$33,303,205	-3.7%
• Average projected compensation	$128,283	$125,672	2.1%
• Account balances	$52,913,867	$52,592,292	0.6%
• Total active vested members	138	115	20.0%
Inactive vested members:			
• Number	0	0	N/A
• Average age	N/A	N/A	N/A
• Average monthly benefit at age 50	N/A	N/A	N/A
Retired members:			
• Number in pay status	264	251	5.2%
• Average age at retirement	47.3	47.1	0.2
• Average age	57.7	56.9	0.8
• Average monthly benefit (includes July COLA)	$5,576	$5,371	3.8%
Disabled members:			
• Number in pay status	46	47	-2.1%
• Average age at retirement	42.2	42.2	0.0
• Average age	56.5	55.5	1.0
• Average monthly benefit (includes July COLA)	$4,949	$4,831	2.4%
Beneficiaries:			
• Number in pay status	11	10	10.0%
• Average age	48.1	46.2	1.9
• Average monthly benefit (includes July COLA)	$3,680	$3,654	0.7%

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
TIER 5 (WITHOUT HARBOR PORT POLICE)

Category	Year Ended June 30		Change From Prior Year
	2019	2018	
Active members in valuation:			
• Number	9,029	9,427	-4.2%
• Average age	46.0	45.5	0.5
• Average years of service	19.1	18.5	0.6
• Total projected compensation	$1,142,746,882	$1,160,998,876	-1.6%
• Average projected compensation	$126,564	$123,157	2.8%
• Account balances	$1,773,531,540	$1,715,208,893	3.4%
• Total active vested members	3,873	3,876	-0.1%
Inactive vested members:			
• Number[1]	273	296	-7.8%
• Average age[2]	47.2	47.5	-0.3
• Average monthly benefit at age 50[2]	$4,550	$4,045	12.5%
Retired members:			
• Number in pay status	4,243	3,926	8.1%
• Average age at retirement	53.9	54.0	-0.1
• Average age	65.0	64.7	0.3
• Average monthly benefit (includes July COLA)	$8,104	$7,895	2.6%
Disabled members:			
• Number in pay status	144	143	0.7%
• Average age at retirement	43.6	43.7	-0.1
• Average age	53.4	52.7	0.7
• Average monthly benefit (includes July COLA)	$5,188	$5,077	2.2%
Beneficiaries:			
• Number in pay status	289	253	14.2%
• Average age	56.6	55.9	0.7
• Average monthly benefit (includes July COLA)	$5,275	$5,182	1.8%

(1) Includes inactive members due a refund of member contributions.

(2) Excludes inactive members due a refund of member contributions.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
TIER 6 (WITHOUT HARBOR PORT POLICE AND AIRPORT POLICE)

Category	Year Ended June 30		Change From Prior Year
	2019	2018	
Active members in valuation:			
• Number	3,375	2,851	18.4%
• Average age	29.8	29.4	0.4
• Average years of service	2.8	2.4	0.4
• Total projected compensation	$301,758,188	$243,367,301	24.0%
• Average projected compensation	$89,410	$85,362	4.7%
• Account balances	$85,087,064	$56,957,147	49.4%
• Total active vested members	1	0	N/A
Inactive vested members:			
• Number[1]	189	173	9.2%
• Average age[2]	N/A	N/A	N/A
• Average monthly benefit at age 50[2]	N/A	N/A	N/A
Retired members:			
• Number in pay status	0	0	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 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	1	1	0.0%
• Average age	32.5	31.5	1.0
• Average monthly benefit (includes July COLA)	$7,019	$6,855	2.4%

(1) Includes inactive members due a refund of member contributions.

(2) Excludes inactive members due a refund of member contributions.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
HARBOR PORT POLICE – TIER 5

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	97	99	-2.0%
• Average age	42.6	41.8	0.8
• Average years of service	13.2	12.4	0.8
• Total projected compensation	$11,993,936	$11,948,161	0.4%
• Average projected compensation	$123,649	$120,688	2.5%
• Account balances	$13,486,693	$12,146,303	11.0%
• Total active vested members	7	5	40.0%
Inactive vested members:			
• Number[1]	4	4	0.0%
• Average age[2]	N/A	N/A	N/A
• Average monthly benefit at age 50[2]	N/A	N/A	N/A
Retired members:			
• Number in pay status	13	12	8.3%
• Average age at retirement	54.7	55.1	-0.4
• Average age	62.9	62.5	0.4
• Average monthly benefit (includes July COLA)	$7,872	$7,351	7.1%
Disabled members:			
• Number in pay status	3	3	0.0%
• Average age at retirement	40.1	40.1	0.0
• Average age	51.2	50.2	1.0
• Average monthly benefit (includes July COLA)	$4,873	$4,731	3.0%
Beneficiaries:			
• Number in pay status	3	0	N/A
• Average age	27.0	N/A	N/A
• Average monthly benefit (includes July COLA)	$1,784	N/A	N/A

(1) Includes inactive members due a refund of member contributions.

(2) Excludes inactive members due a refund of member contributions.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
HARBOR PORT POLICE – TIER 6

Category	Year Ended June 30		Change From Prior Year
	2019	2018	
Active members in valuation:			
• Number	26	22	18.2%
• Average age	32.0	31.5	0.5
• Average years of service	2.7	2.2	0.5
• Total projected compensation	$2,507,195	$2,053,615	22.1%
• Average projected compensation	$96,431	$93,346	3.3%
• Account balances	$679,030	$437,341	55.3%
• Total active vested members	0	0	N/A
Inactive vested members:			
• Number[1]	6	5	20.0%
• Average age[2]	N/A	N/A	N/A
• Average monthly benefit at age 50[2]	N/A	N/A	N/A
Retired members:			
• Number in pay status	0	0	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 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

(1) Includes inactive members due a refund of member contributions.

(2) Excludes inactive members due a refund of member contributions.

EXHIBIT A – TABLE OF PLAN COVERAGE (CONTINUED)
AIRPORT POLICE – TIER 6

Category	Year Ended June 30 2019	Year Ended June 30 2018	Change From Prior Year
Active members in valuation:			
• Number	87	58	50.0%
• Average age	31.1	30.9	0.2
• Average years of service[1]	2.7	3.3	-0.6
• Total projected compensation	$7,182,795	$4,819,877	49.0%
• Average projected compensation	$82,561	$83,101	-0.6%
• Account balances[1]	$3,755,140	$3,235,280	16.1%
• Total active vested members	2	2	0.0%
Inactive vested members:			
• Number[2]	2	0	N/A
• Average age[3]	N/A	N/A	N/A
• Average monthly benefit at age 50[3]	N/A	N/A	N/A
Retired members:			
• Number in pay status	0	0	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 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

(1) Includes all prior service transferred from Los Angeles City Employees' Retirement System (LACERS) even though some of that service may not have been fully purchased by the member. The associated purchase cost is also included in the account balances.

(2) Includes inactive members due a refund of member contributions.

(3) Excludes inactive members due a refund of member contributions.

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
TOTAL PLAN

		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	486	486	- -	- -	- -	- -	- -	- -	- -	- -
	$73,443	$73,443	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,583	1,430	153	- -	- -	- -	- -	- -	- -	- -
	$87,092	$85,012	$106,537	- -	- -	- -	- -	- -	- -	- -
30 - 34	1,662	662	550	450	- -	- -	- -	- -	- -	- -
	$103,306	$90,661	$108,005	$116,164	- -	- -	- -	- -	- -	- -
35 - 39	1,954	213	273	1,261	207	- -	- -	- -	- -	- -
	$114,540	$93,642	$107,855	$117,638	$125,987	- -	- -	- -	- -	- -
40 - 44	1,998	51	81	727	910	229	- -	- -	- -	- -
	$121,696	$89,759	$109,612	$117,114	$126,291	$129,372	- -	- -	- -	- -
45 - 49	2,403	16	32	264	663	1,291	137	- -	- -	- -
	$128,082	$94,254	$108,311	$116,468	$125,619	$131,032	$143,144	- -	- -	- -
50 - 54	2,056	5	12	94	229	721	646	349	- -	- -
	$132,832	$115,108	$108,780	$114,181	$124,880	$130,230	$137,200	$141,446	- -	- -
55 - 59	1,113	2	1	16	51	211	351	441	39	1
	$137,577	$181,849	$114,103	$113,324	$124,410	$127,118	$134,154	$145,769	$155,337	$234,742
60 - 64	254	1	- -	1	7	54	61	91	35	4
	$134,297	$249,063	- -	$107,736	$127,898	$124,208	$127,984	$138,880	$146,563	$144,357
65 - 69	25	- -	- -	- -	1	6	1	6	5	6
	$133,844	- -	- -	- -	$137,442	$120,608	$137,442	$138,837	$125,950	$147,468
70 & over	1	- -	- -	- -	- -	- -	- -	- -	- -	1
	$130,198	- -	- -	- -	- -	- -	- -	- -	- -	$130,198
Total	**13,535**	**2,866**	**1,102**	**2,813**	**2,068**	**2,512**	**1,196**	**887**	**79**	**12**
	$117,016	**$85,310**	**$107,905**	**$117,013**	**$125,853**	**$130,150**	**$136,517**	**$143,314**	**$149,590**	**$152,264**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
TIER 2

		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	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
35 - 39	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
40 - 44	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
45 - 49	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
50 - 54	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
55 - 59	1	- -	- -	- -	- -	- -	- -	- -	1	- -
	$141,064	- -	- -	- -	- -	- -	- -	- -	$141,064	- -
60 - 64	3	- -	- -	- -	- -	- -	- -	- -	2	1
	$126,782	- -	- -	- -	- -	- -	- -	- -	$128,539	$123,269
65 - 69	2	- -	- -	- -	- -	- -	- -	- -	1	1
	$131,911	- -	- -	- -	- -	- -	- -	- -	$119,081	$144,740
70 & over	1	- -	- -	- -	- -	- -	- -	- -	- -	1
	$130,198	- -	- -	- -	- -	- -	- -	- -	- -	$130,198
Total	**7**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**4**	**3**
	$130,776	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**$129,306**	**$132,736**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
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	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
35 - 39	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
40 - 44	21	- -	- -	- -	1	20	- -	- -	- -	- -
	$126,963	- -	- -	- -	$119,893	$127,317	- -	- -	- -	- -
45 - 49	245	- -	- -	- -	3	225	17	- -	- -	- -
	$127,000	- -	- -	- -	$109,220	$126,576	$135,747	- -	- -	- -
50 - 54	255	- -	- -	- -	- -	135	92	28	- -	- -
	$128,540	- -	- -	- -	- -	$126,441	$131,493	$128,957	- -	- -
55 - 59	101	- -	- -	2	- -	32	46	20	1	- -
	$128,019	- -	- -	$104,674	- -	$129,518	$127,192	$128,599	$153,148	- -
60 - 64	37	- -	- -	- -	- -	21	14	2	- -	- -
	$122,584	- -	- -	- -	- -	$121,864	$121,941	$134,648	- -	- -
65 - 69	5	- -	- -	- -	- -	4	- -	1	- -	- -
	$121,604	- -	- -	- -	- -	$118,586	- -	$133,674	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	**664**	**- -**	**- -**	**2**	**4**	**437**	**169**	**51**	**1**	**- -**
	$127,458	**- -**	**- -**	**$104,674**	**$111,888**	**$126,484**	**$129,959**	**$129,132**	**$153,148**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
TIER 4

		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	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
35 - 39	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
40 - 44	97	- -	- -	- -	73	24	- -	- -	- -	- -
	$124,017	- -	- -	- -	$123,719	$124,924	- -	- -	- -	- -
45 - 49	60	- -	- -	- -	26	31	3	- -	- -	- -
	$123,350	- -	- -	- -	$121,218	$123,731	$137,899	- -	- -	- -
50 - 54	66	- -	- -	- -	10	6	18	32	- -	- -
	$135,990	- -	- -	- -	$128,195	$124,054	$142,515	$136,993	- -	- -
55 - 59	25	- -	- -	- -	3	4	1	13	4	- -
	$136,525	- -	- -	- -	$121,108	$124,109	$136,071	$140,457	$147,837	- -
60 - 64	2	- -	- -	- -	- -	- -	- -	- -	2	- -
	$125,847	- -	- -	- -	- -	- -	- -	- -	$125,847	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	**250**	**- -**	**- -**	**- -**	**112**	**65**	**22**	**45**	**6**	**- -**
	$128,283	**- -**	**- -**	**- -**	**$123,468**	**$124,225**	**$141,593**	**$137,994**	**$140,507**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
TIER 5 (WITHOUT HARBOR PORT POLICE)

		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	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	3	- -	3	- -	- -	- -	- -	- -	- -	- -
	$105,131	- -	$105,131	- -	- -	- -	- -	- -	- -	- -
30 - 34	676	- -	238	438	- -	- -	- -	- -	- -	- -
	$113,653	- -	$108,758	$116,312	- -	- -	- -	- -	- -	- -
35 - 39	1,609	- -	178	1,226	205	- -	- -	- -	- -	- -
	$117,614	- -	$108,498	$117,587	$125,689	- -	- -	- -	- -	- -
40 - 44	1,771	- -	50	702	834	185	- -	- -	- -	- -
	$122,813	- -	$110,369	$117,291	$126,576	$130,171	- -	- -	- -	- -
45 - 49	2,048	- -	24	250	624	1,034	116	- -	- -	- -
	$128,726	- -	$108,323	$116,252	$125,774	$132,235	$144,431	- -	- -	- -
50 - 54	1,715	- -	8	91	216	576	535	289	- -	- -
	$133,430	- -	$107,521	$113,702	$124,730	$131,099	$137,944	$143,149	- -	- -
55 - 59	980	1	- -	13	46	174	304	408	33	1
	$138,336	$83,699	- -	$108,750	$122,061	$126,794	$135,201	$146,779	$156,745	$234,742
60 - 64	209	- -	- -	1	7	32	46	89	31	3
	$135,668	- -	- -	$107,736	$127,898	$124,143	$129,027	$138,975	$149,062	$151,386
65 - 69	18	- -	- -	- -	1	2	1	5	4	5
	$137,459	- -	- -	- -	$137,442	$124,650	$137,442	$139,870	$127,668	$148,013
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	**9,029**	**1**	**501**	**2,721**	**1,933**	**2,003**	**1,002**	**791**	**68**	**9**
	$126,564	**$83,699**	**$108,764**	**$117,007**	**$125,919**	**$131,108**	**$137,453**	**$144,531**	**$151,532**	**$158,774**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
TIER 6 (WITHOUT HARBOR PORT POLICE AND AIRPORT POLICE)

		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	479	479	- -	- -	- -	- -	- -	- -	- -	- -
	$73,546	$73,546	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,527	1,378	149	- -	- -	- -	- -	- -	- -	- -
	$87,323	$85,250	$106,497	- -	- -	- -	- -	- -	- -	- -
30 - 34	946	635	307	4	- -	- -	- -	- -	- -	- -
	$96,485	$91,092	$107,452	$110,881	- -	- -	- -	- -	- -	- -
35 - 39	299	203	94	2	- -	- -	- -	- -	- -	- -
	$98,394	$94,467	$106,694	$106,849	- -	- -	- -	- -	- -	- -
40 - 44	83	50	28	4	1	- -	- -	- -	- -	- -
	$97,590	$90,219	$107,915	$114,271	$110,315	- -	- -	- -	- -	- -
45 - 49	30	16	8	2	3	1	- -	- -	- -	- -
	$102,597	$94,254	$108,274	$107,736	$123,803	$116,775	- -	- -	- -	- -
50 - 54	9	3	4	- -	2	- -	- -	- -	- -	- -
	$105,793	$87,584	$111,297	- -	$122,100	- -	- -	- -	- -	- -
55 - 59	1	- -	1	- -	- -	- -	- -	- -	- -	- -
	$114,103	- -	$114,103	- -	- -	- -	- -	- -	- -	- -
60 - 64	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	$249,063	$249,063	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	**3,375**	**2,765**	**591**	**12**	**6**	**1**	**- -**	**- -**	**- -**	**- -**
	$89,410	**$85,444**	**$107,161**	**$110,815**	**$120,988**	**$116,775**	**- -**	**- -**	**- -**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
HARBOR PORT POLICE – TIER 5

		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	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	8	- -	- -	8	- -	- -	- -	- -	- -	- -
	$110,678	- -	- -	$110,678	- -	- -	- -	- -	- -	- -
35 - 39	35	- -	- -	33	2	- -	- -	- -	- -	- -
	$122,268	- -	- -	$120,192	$156,520	- -	- -	- -	- -	- -
40 - 44	23	- -	1	21	1	- -	- -	- -	- -	- -
	$111,371	- -	$115,831	$111,738	$99,198	- -	- -	- -	- -	- -
45 - 49	17	- -	- -	12	5	- -	- -	- -	- -	- -
	$125,514	- -	- -	$122,412	$132,957	- -	- -	- -	- -	- -
50 - 54	8	- -	- -	3	1	3	1	- -	- -	- -
	$139,775	- -	- -	$128,721	$129,866	$144,450	$168,821	- -	- -	- -
55 - 59	4	- -	- -	1	2	1	- -	- -	- -	- -
	$168,902	- -	- -	$190,084	$183,397	$118,729	- -	- -	- -	- -
60 - 64	2	- -	- -	- -	- -	1	1	- -	- -	- -
	$170,029	- -	- -	- -	- -	$175,468	$164,591	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	**97**	**- -**	**1**	**78**	**11**	**5**	**2**	**- -**	**- -**	**- -**
	$123,649	**- -**	**$115,831**	**$118,506**	**$143,062**	**$145,509**	**$166,706**	**- -**	**- -**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
HARBOR PORT POLICE – TIER 6

	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	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	$62,050	$62,050	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	14	14	- -	- -	- -	- -	- -	- -	- -	- -
	$82,612	$82,612	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	5	3	2	- -	- -	- -	- -	- -	- -	- -
	$92,304	$84,389	$104,178	- -	- -	- -	- -	- -	- -	- -
35 - 39	3	3	- -	- -	- -	- -	- -	- -	- -	- -
	$71,561	$71,561	- -	- -	- -	- -	- -	- -	- -	- -
40 - 44	1	- -	1	- -	- -	- -	- -	- -	- -	- -
	$106,198	- -	$106,198	- -	- -	- -	- -	- -	- -	- -
45 - 49	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
50 - 54	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	$226,172	$226,172	- -	- -	- -	- -	- -	- -	- -	- -
55 - 59	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	$280,000	$280,000	- -	- -	- -	- -	- -	- -	- -	- -
60 - 64	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	**26**	**23**	**3**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**
	$96,431	**$95,332**	**$104,851**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**	**- -**

EXHIBIT B – MEMBERS IN ACTIVE SERVICE AS OF JUNE 30, 2019 (CONTINUED)
BY AGE, YEARS OF SERVICE, AND AVERAGE PROJECTED COMPENSATION
AIRPORT POLICE – TIER 6

	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	6	6	- -	- -	- -	- -	- -	- -	- -	- -
	$67,068	$67,068	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	39	38	1	- -	- -	- -	- -	- -	- -	- -
	$78,289	$77,275	$116,815	- -	- -	- -	- -	- -	- -	- -
30 - 34	27	24	3	- -	- -	- -	- -	- -	- -	- -
	$83,067	$80,032	$107,347	- -	- -	- -	- -	- -	- -	- -
35 - 39	8	7	1	- -	- -	- -	- -	- -	- -	- -
	$82,105	$79,179	$102,582	- -	- -	- -	- -	- -	- -	- -
40 - 44	2	1	1	- -	- -	- -	- -	- -	- -	- -
	$91,641	$66,764	$116,518	- -	- -	- -	- -	- -	- -	- -
45 - 49	3	- -	- -	- -	2	- -	1	- -	- -	- -
	$140,741	- -	- -	- -	$143,446	- -	$135,330	- -	- -	- -
50 - 54	2	1	- -	- -	- -	1	- -	- -	- -	- -
	$110,975	$86,620	- -	- -	- -	$135,330	- -	- -	- -	- -
55 - 59	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
60 - 64	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	**87**	**77**	**6**	**- -**	**2**	**1**	**1**	**- -**	**- -**	**- -**
	$82,561	**$77,497**	**$109,659**	**- -**	**$143,446**	**$135,330**	**$135,330**	**- -**	**- -**	**- -**

Note: Includes all prior service transferred from Los Angeles City Employees' Retirement System (LACERS) even though some of that service may not have been fully purchased by the member.

EXHIBIT C – RECONCILIATION OF MEMBER DATA

	Active Members[1]	Inactive Vested Members[2]	Retired Members	Disabled Members	Beneficiaries	Total
Number as of June 30, 2018	**13,442**	**534**	**8,623**	**1,883**	**2,384**	**26,866**
• New members	649	0	0	0	208	857
• Terminations – with vested rights	(90)	90	0	0	0	0
• Contribution refunds	(51)	(81)	0	0	0	(132)
• Retirements	(415)	(10)	425	0	0	0
• New disabilities	(3)	0	0	3	0	0
• Return to work	8	(8)	0	0	0	0
• Died with or without beneficiary	(5)	(2)	(238)	(67)	(115)	(427)
• Certain period expired	0	0	0	0	(12)	(12)
• Data adjustments	0	0	1	2	0	3
Number as of June 30, 2019	**13,535**	**523**	**8,811**	**1,821**	**2,465**	**27,155**

(1) Includes DROP members.

(2) Includes 484 and 458 inactive members due a refund of member contributions as of June 30, 2018 and June 30, 2019, respectively.

EXHIBIT D – SUMMARY STATEMENT OF INCOME AND EXPENSES ON A MARKET VALUE BASIS
ALL ASSETS FOR RETIREMENT AND HEALTH SUBSIDY BENEFITS

	Year Ended June 30, 2019		Year Ended June 30, 2018	
Net assets at market value at the beginning of the year		**$22,360,370,203**		**$20,662,406,596**
Contribution income:				
• Employer contributions	$692,897,316		$639,945,905	
• Member contributions	147,752,497		146,282,682	
Net contribution income		$840,649,813		$786,228,587
Investment income:				
• Interest, dividends and other income	$1,506,893,160		$1,743,935,819	
• Recognition of capital appreciation	(63,115,216)		410,192,186	
• Less investment fees	(114,451,387)		(95,217,452)	
Net investment income		$1,329,326,557		$2,058,910,553
Total income available for benefits		**$2,169,976,370**		**$2,845,139,140**
Less benefit payments		$(1,208,330,043)		$(1,125,521,496)
Less administrative expenses		(22,099,870)		(21,654,037)
Change in net assets at market value		**$939,546,457**		**$1,697,963,607**
Net assets at market value at the end of the year		**$23,299,916,660**		**$22,360,370,203**

Note: Results may not add due to rounding.

EXHIBIT E – SUMMARY STATEMENT OF PLAN ASSETS
ALL ASSETS FOR RETIREMENT AND HEALTH SUBSIDY BENEFITS

	Year Ended June 30, 2019		Year Ended June 30, 2018	
Cash equivalents		$3,030,085		$1,907,884
Accounts receivable:				
• Accrued interest and dividends	$84,549,708		$74,516,264	
• Contributions	8,340,007		8,560,537	
• Due from brokers	428,898,729		120,224,468	
Total accounts receivable		$521,788,444		$203,301,269
Investments:				
• Equities	$14,893,471,207		$14,486,973,615	
• Fixed income investments	7,306,404,108		6,704,268,155	
• Real estate	1,476,898,794		1,417,018,290	
Total investments at market value		$23,676,774,109		$22,608,260,060
Total assets		$24,201,592,638		$22,813,469,213
Accounts payable:				
• Accounts payable and benefits in process	$(37,753,098)		$(34,428,662)	
• Due to brokers	(685,323,718)		(244,400,114)	
• Mortgage payable	(178,599,162)		(174,270,234)	
Total accounts payable		$(901,675,978)		$(453,099,010)
Net assets at market value		**$23,299,916,660**		**$22,360,370,203**
Net assets at actuarial value		**$23,053,912,894**		**$21,659,429,558**
Net assets at valuation value		**$21,037,711,090**		**$19,840,070,083**

Note: Results may be slightly off due to rounding.

EXHIBIT F – DEVELOPMENT OF THE FUND THROUGH JUNE 30, 2019
ALL ASSETS FOR RETIREMENT AND HEALTH SUBSIDY BENEFITS

Year Ended June 30	Employer Contributions	Member Contributions	Administrative Expenses	Net Investment Return[1]	Benefit Payments	Market Value of Assets at Year-End	Actuarial Value of Assets at Year-End	Actuarial Value as a Percent of Market Value
2010	$357,165,140	$106,411,630	-	$1,612,772,272	$853,749,429	$12,198,968,351	$15,036,856,639	123.3%
2011	388,773,459	105,471,264	-	2,585,948,784	878,952,809	14,400,209,049	15,220,559,597	105.7%
2012	444,565,284	120,099,124	-	93,546,777	926,349,506	14,132,070,728	15,179,275,167	107.4%
2013	508,387,283	121,777,655	-	1,952,254,466	966,118,502	15,748,371,630	15,671,112,222	99.5%
2014	578,805,107	124,394,889	-	2,802,796,015	963,356,954	18,291,010,687	16,879,354,713	92.3%
2015	628,808,763	126,770,882	$19,178,885	739,009,040	1,029,319,785	18,737,100,702	18,114,393,332	96.7%
2016	628,700,812	129,733,559	20,897,310	172,083,839	1,107,041,622	18,539,679,980	19,126,148,372	103.2%
2017	619,479,274	128,900,736	22,563,327	2,449,549,638	1,052,639,705	20,662,406,596	20,317,066,949	98.3%
2018	639,945,905	146,282,682	21,654,037	2,058,910,553	1,125,521,496	22,360,370,203	21,659,429,558	96.9%
2019	692,897,316	147,752,497	22,099,870	1,329,326,557	1,208,330,043	23,299,916,660	23,053,912,894	98.9%

[1] Net of investment fees and administrative expenses prior to 2015. Starting in 2015, administrative expenses are shown separately.

EXHIBIT G – TABLE OF AMORTIZATION BASES

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Tier 1						
Unfunded Actuarial Accrued Liability	June 30, 2019	$149,497,505	18	$149,497,505	18	$14,108,325
Subtotal				**$149,497,505**		**$14,108,325**

Note: Results may not add due to rounding.

(1) Level dollar amortization.

EXHIBIT G – TABLE OF AMORTIZATION BASES (CONTINUED)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Tier 2						
Unfunded Actuarial Accrued Liability	June 30, 2008	$(632,245,519)	29	$(713,821,130)	18	$(52,762,142)
Experience Loss	June 30, 2009	53,442,825	15	31,003,014	5	6,649,635
Experience Loss	June 30, 2010	210,742,926	15	138,351,862	6	25,157,888
Assumption Change	June 30, 2010	1,450,331	27	1,571,071	18	116,126
Experience Loss	June 30, 2011	203,104,597	15	146,857,107	7	23,284,564
Assumption Change	June 30, 2011	344,553,091	26	366,573,722	18	27,095,324
Experience Loss	June 30, 2012	238,453,071	20	225,989,781	13	21,332,569
Experience Loss	June 30, 2013	73,947,281	20	71,295,829	14	6,352,516
Experience Gain	June 30, 2014	(212,930,921)	20	(207,804,196)	15	(17,564,645)
Assumption Change	June 30, 2014	(65,152,628)	25	(67,662,346)	20	(4,645,694)
Experience Gain	June 30, 2015	(288,914,220)	20	(284,834,270)	16	(22,938,767)
Experience Gain	June 30, 2016	(82,781,971)	20	(82,130,826)	17	(6,326,033)
Experience Gain	June 30, 2017	(51,873,536)	20	(51,617,517)	18	(3,815,313)
Assumption Change	June 30, 2017	218,182,660	20	217,105,833	18	16,047,394
Experience Gain	June 30, 2018	(48,125,276)	20	(48,070,518)	19	(3,419,930)
Experience Gain	June 30, 2019	(81,664,819)	20	(81,664,819)	20	(5,607,104)
Plan Amendment	June 30, 2019	(5,128)	15	(5,128)	15	(433)
Assumption Change	June 30, 2019	(51,969,943)	20	(51,969,943)	20	(3,568,254)
Subtotal[2]				**$(390,832,474)**		**$5,387,701**

Note: Results may not add due to rounding.

(1) Level percentage of payroll amortization.

(2) Even though the total UAAL for Tier 2 is negative, we have not applied the surplus amortization provisions of the LAFPP funding policy because the Plan as a whole does not have an actuarial surplus.

EXHIBIT G – TABLE OF AMORTIZATION BASES (CONTINUED)

Type	Date Established	Initial Amount(2)	Initial Period(2)	Outstanding Balance	Years Remaining	Annual Payment(1)
Tier 3						
Assumption Change	June 30, 1989	$(15,977,993)	14	$0	0	$0
Plan Amendment	June 30, 1990	279,608	15	41,310	1	41,310
Assumption Change	June 30, 1990	(6,281,127)	15	(927,979)	1	(927,979)
Assumption Change	June 30, 1992	2,454,735	17	957,411	3	330,560
Assumption Change	June 30, 1995	(20,329,471)	20	(13,425,175)	6	(2,441,232)
Plan Amendment	June 30, 1996	2,832,341	21	2,075,465	7	329,070
Asset Method Change	June 30, 1996	(18,309,076)	21	(13,416,412)	7	(2,127,206)
Plan Amendment	June 30, 1998	5,510,715	23	4,727,745	9	603,125
Assumption Change	June 30, 1998	9,268,417	23	7,951,544	9	1,014,389
Plan Amendment	June 30, 2000	949,873	25	913,890	11	98,637
Assumption Change	June 30, 2001	(29,148,684)	26	(29,378,284)	12	(2,955,191)
Experience Loss	June 30, 2004	10,104,562	14	0	0	0
Assumption Change	June 30, 2004	(8,698,728)	29	(9,786,517)	15	(827,205)
Experience Loss	June 30, 2005	21,605,884	15	3,192,069	1	3,192,069
Assumption Change	June 30, 2005	27,253,819	30	31,574,359	16	2,542,801
Experience Loss	June 30, 2006	16,400,257	15	4,540,323	2	2,310,556
Assumption Change	June 30, 2006	29,340,123	30	33,883,389	17	2,609,829
Experience Gain	June 30, 2007	(20,934,587)	21	(17,441,734)	9	(2,225,065)
Assumption Change	June 30, 2007	(5,027,630)	30	(5,804,753)	18	(429,059)
Experience Gain	June 30, 2008	(18,292,189)	17	(11,890,530)	6	(2,162,173)
Assumption Change	June 30, 2008	8,034,472	30	9,246,453	19	657,830
Experience Loss	June 30, 2009	10,158,177	15	5,892,918	5	1,263,934
Experience Loss	June 30, 2010	2,144,522	15	1,407,870	6	256,007
Assumption Change	June 30, 2010	25,997,606	30	29,497,205	21	1,959,260

Note: Results may not add due to rounding.

(1) Level percentage of payroll amortization.

(2) The initial amount and initial period for bases established on or before June 30, 2005 are values shown as of June 30, 2005 (i.e., the year before Segal was appointed as the actuary starting with the June 30, 2006 valuation).

EXHIBIT G – TABLE OF AMORTIZATION BASES (CONTINUED)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Tier 3 (continued)						
Plan Amendment[2]	June 30, 2011	$(18,044)	30	$(20,275)	22	$(1,306)
Experience Loss	June 30, 2011	1,095,451	15	792,078	7	125,586
Assumption Change	June 30, 2011	25,593,931	30	28,758,754	22	1,851,954
Experience Loss	June 30, 2012	10,983,184	20	10,409,121	13	982,581
Experience Loss	June 30, 2013	6,011,719	20	5,796,163	14	516,443
Experience Gain	June 30, 2014	(15,610,972)	20	(15,235,108)	15	(1,287,747)
Assumption Change	June 30, 2014	(3,528,915)	25	(3,664,852)	20	(251,629)
Experience Gain	June 30, 2015	(46,361,062)	20	(45,706,366)	16	(3,680,904)
Experience Gain	June 30, 2016	(18,410,183)	20	(18,265,372)	17	(1,406,869)
Experience Loss	June 30, 2017	4,575,201	20	4,552,621	18	336,507
Assumption Change	June 30, 2017	39,171,149	20	38,977,822	18	2,881,049
Experience Gain	June 30, 2018	(31,108,341)	20	(31,072,945)	19	(2,210,654)
Experience Gain	June 30, 2019	(42,402,037)	20	(42,402,037)	20	(2,911,322)
Plan Amendment	June 30, 2019	(3,858,774)	15	(3,858,774)	15	(326,163)
Assumption Change	June 30, 2019	25,127,463	20	25,127,463	20	1,725,251
Subtotal[3]				**$(11,981,142)**		**$(542,956)**

Note: Results may not add due to rounding.

(1) Level percentage of payroll amortization.

(2) Gain due to new retirees from non-DROP status and new DROP members during July 1, 2011 – July 14, 2011.

(3) Even though the total UAAL for Tier 3 is negative, we have not applied the surplus amortization provisions of the LAFPP funding policy because the Plan as a whole does not have an actuarial surplus.

EXHIBIT G – TABLE OF AMORTIZATION BASES (CONTINUED)

Type	Date Established	Initial Amount[2]	Initial Period[2]	Outstanding Balance	Years Remaining	Annual Payment[1]
Tier 4						
Assumption Change	June 30, 1989	$(6,262,457)	14	$0	0	$0
Plan Amendment	June 30, 1990	109,592	15	16,191	1	16,191
Assumption Change	June 30, 1990	(2,461,841)	15	(363,714)	1	(363,714)
Assumption Change	June 30, 1992	962,115	17	375,250	3	129,561
Assumption Change	June 30, 1995	(7,967,987)	20	(5,261,897)	6	(956,823)
Plan Amendment	June 30, 1996	1,110,115	21	813,466	7	128,977
Asset Method Change	June 30, 1996	(7,176,108)	21	(5,258,465)	7	(833,743)
Plan Amendment	June 30, 1998	2,159,884	23	1,853,005	9	236,390
Assumption Change	June 30, 1998	3,632,689	23	3,116,551	9	397,583
Plan Amendment	June 30, 2000	370,129	25	356,108	11	38,435
Assumption Change	June 30, 2001	(4,878,745)	26	(4,917,174)	12	(494,623)
Experience Loss	June 30, 2004	10,147,466	14	0	0	0
Assumption Change	June 30, 2004	(5,220,974)	29	(5,873,868)	15	(496,489)
Experience Loss	June 30, 2005	13,244,413	15	1,956,739	1	1,956,739
Assumption Change	June 30, 2005	14,033,320	30	16,258,018	16	1,309,319
Experience Loss	June 30, 2006	6,063,600	15	1,678,676	2	854,273
Assumption Change	June 30, 2006	14,561,746	30	16,816,606	17	1,295,280
Experience Gain	June 30, 2007	(8,926,309)	21	(7,436,990)	9	(948,747)
Assumption Change	June 30, 2007	(3,015,790)	30	(3,481,942)	18	(257,368)
Experience Gain	June 30, 2008	(4,429,445)	17	(2,879,286)	6	(523,569)
Assumption Change	June 30, 2008	10,599,393	30	12,198,284	19	867,835
Experience Loss	June 30, 2009	11,924,683	15	6,917,695	5	1,483,732
Experience Loss	June 30, 2010	4,794,050	15	3,147,275	6	572,300
Assumption Change	June 30, 2010	12,948,180	30	14,691,164	21	975,815

Note: Results may not add due to rounding.

(1) Level percentage of payroll amortization.

(2) The initial amount and initial period for bases established on or before June 30, 2005 are values shown as of June 30, 2005 (i.e., the year before Segal was appointed as the actuary starting with the June 30, 2006 valuation).

EXHIBIT G – TABLE OF AMORTIZATION BASES (CONTINUED)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Tier 4 (continued)						
Plan Amendment[2]	June 30, 2011	$1,483,135	30	$1,666,532	22	$107,318
Experience Loss	June 30, 2011	5,867,945	15	4,242,886	7	672,720
Assumption Change	June 30, 2011	12,753,767	30	14,330,837	22	922,851
Experience Loss	June 30, 2012	9,377,426	20	8,887,293	13	838,926
Experience Loss	June 30, 2013	6,625,380	20	6,387,819	14	569,160
Experience Gain	June 30, 2014	(11,060,872)	20	(10,794,560)	15	(912,410)
Assumption Change	June 30, 2014	9,988,189	25	10,372,939	20	712,206
Experience Gain	June 30, 2015	(16,640,244)	20	(16,405,256)	16	(1,321,176)
Experience Gain	June 30, 2016	(3,718,134)	20	(3,688,888)	17	(284,132)
Experience Gain	June 30, 2017	(2,332,922)	20	(2,321,408)	18	(171,587)
Assumption Change	June 30, 2017	20,682,003	20	20,579,928	18	1,521,167
Experience Gain	June 30, 2018	(6,347,869)	20	(6,340,647)	19	(451,099)
Experience Gain	June 30, 2019	(17,836,793)	20	(17,836,793)	20	(1,224,674)
Plan Amendment	June 30, 2019	(676,805)	15	(676,805)	15	(57,207)
Assumption Change	June 30, 2019	12,577,879	20	12,577,879	20	863,597
Subtotal				**$65,703,450**		**$7,173,014**

Note: Results may not add due to rounding.

[1] Level percentage of payroll amortization.

[2] Gain due to new retirees from non-DROP status and new DROP members during July 1, 2011 – July 14, 2011.

EXHIBIT G – TABLE OF AMORTIZATION BASES (CONTINUED)

Type	Date Established	Initial Amount[2]	Initial Period[2]	Outstanding Balance	Years Remaining	Annual Payment[1]
Tier 5 & Tier 6 (without Harbor Port Police and Airport Police)						
Original Base	June 30, 2002	$(157,564,364)	27	$(165,448,305)	13	$(15,617,685)
Experience Loss	June 30, 2004	106,500,938	14	0	0	0
Assumption Change	June 30, 2004	(242,147,820)	29	(272,428,761)	15	(23,027,035)
Experience Loss	June 30, 2005	241,854,245	15	35,731,723	1	35,731,723
Assumption Change	June 30, 2005	421,011,169	30	487,753,951	16	39,280,646
Experience Loss	June 30, 2006	64,026,458	15	17,725,382	2	9,020,390
Assumption Change	June 30, 2006	291,388,037	30	336,508,952	17	25,919,217
Experience Gain	June 30, 2007	(200,979,530)	21	(167,446,891)	9	(21,361,424)
Assumption Change	June 30, 2007	(71,262,522)	30	(82,277,613)	18	(6,081,556)
Experience Gain	June 30, 2008	(79,435,149)	17	(51,635,479)	6	(9,389,390)
Assumption Change	June 30, 2008	312,669,142	30	359,834,442	19	25,600,066
Experience Loss	June 30, 2009	357,256,711	15	207,250,181	5	44,451,748
Experience Loss	June 30, 2010	207,594,800	15	136,285,130	6	24,782,074
Assumption Change	June 30, 2010	277,673,454	30	315,051,723	21	20,926,329
Plan Amendment[3]	June 30, 2011	5,693,576	30	6,397,619	22	411,982
Experience Loss	June 30, 2011	125,215,079	15	90,538,199	7	14,355,059
Assumption Change	June 30, 2011	244,615,700	30	274,863,727	22	17,700,175
Experience Loss	June 30, 2012	248,617,082	20	235,622,548	13	22,241,865
Experience Loss	June 30, 2013	115,390,840	20	111,253,390	14	9,912,766
Experience Gain	June 30, 2014	(246,417,577)	20	(240,484,598)	15	(20,326,955)
Assumption Change	June 30, 2014	35,896,722	25	37,279,484	20	2,559,608
Experience Gain	June 30, 2015	(458,582,182)	20	(452,106,237)	16	(36,409,802)
Experience Gain	June 30, 2016	(228,076,007)	20	(226,282,012)	17	(17,429,113)
Experience Gain	June 30, 2017	(34,033,779)	20	(33,865,807)	18	(2,503,194)

Note: Results may not add due to rounding.

(1) Level percentage of payroll amortization.

(2) The initial amount and initial period for bases established on or before June 30, 2005 are values shown as of June 30, 2005 (i.e., the year before Segal was appointed as the actuary starting with the June 30, 2006 valuation).

(3) Gain due to new retirees from non-DROP status and new DROP members during July 1, 2011 – July 14, 2011.

EXHIBIT G – TABLE OF AMORTIZATION BASES (CONTINUED)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Tier 5 & Tier 6 (without Harbor Port Police and Airport Police) (continued)						
Assumption Change	June 30, 2017	$481,534,488	20	$479,157,904	18	$35,416,992
Experience Gain	June 30, 2018	(24,297,763)	20	(24,270,116)	19	(1,726,673)
Experience Gain	June 30, 2019	(85,236,777)	20	(85,236,777)	20	(5,852,354)
Plan Amendment	June 30, 2019	(45,830,239)	15	(45,830,239)	15	(3,873,800)
Assumption Change	June 30, 2019	334,438,436	20	334,438,436	20	22,962,531
Subtotal				**$ 1,618,379,959**		**$187,674,190**

Note: Results may not add due to rounding.

[1] Level percentage of payroll amortization.

EXHIBIT G – TABLE OF AMORTIZATION BASES (CONTINUED)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Harbor Port Police – Tier 5 & Tier 6						
Experience Gain	June 30, 2008	$(169,104)	17	$(109,923)	6	$(19,988)
Assumption Change	June 30, 2008	126,433	30	145,505	19	10,352
Experience Loss	June 30, 2009	6,588,231	15	3,821,936	5	819,742
Experience Loss	June 30, 2010	1,742,728	15	1,144,093	6	208,042
Assumption Change	June 30, 2010	1,043,633	30	1,184,120	21	78,651
Plan Amendment[2]	June 30, 2011	41,208	30	46,304	22	2,982
Experience Gain	June 30, 2011	(447,574)	15	(323,622)	7	(51,311)
Assumption Change	June 30, 2011	734,993	30	825,880	22	53,184
Experience Loss	June 30, 2012	1,311,840	20	1,243,272	13	117,360
Experience Loss	June 30, 2013	1,253,385	20	1,208,444	14	107,673
Experience Gain	June 30, 2014	(2,336,763)	20	(2,280,500)	15	(192,759)
Assumption Change	June 30, 2014	(476,026)	25	(494,364)	20	(33,943)
Experience Gain	June 30, 2015	(2,306,059)	20	(2,273,494)	16	(183,093)
Experience Gain	June 30, 2016	(1,753,214)	20	(1,739,424)	17	(133,977)
Experience Loss	June 30, 2017	104,388	20	103,873	18	7,678
Assumption Change	June 30, 2017	1,547,341	20	1,539,704	18	113,807
Experience Gain	June 30, 2018	(735,107)	20	(734,271)	19	(52,239)
Experience Gain	June 30, 2019	(1,396,129)	20	(1,396,129)	20	(95,858)
Plan Amendment	June 30, 2019	(240,874)	15	(240,874)	15	(20,360)
Assumption Change	June 30, 2019	2,449,545	20	2,449,545	20	168,186
Subtotal				**$4,120,076**		**$904,129**

Note: Results may not add due to rounding.

[1] Level percentage of payroll amortization.

[2] Gain due to new retirees from non-DROP status and new DROP members during July 1, 2011 – July 14, 2011.

EXHIBIT G – TABLE OF AMORTIZATION BASES (CONTINUED)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Airport Police – Tier 6						
Experience Loss	June 30, 2018	$1,377,441	20	$1,375,874	19	$97,885
Experience Gain	June 30, 2019	(135,237)	20	(135,237)	20	(9,285)
Plan Amendment	June 30, 2019	(31,136)	15	(31,136)	15	(2,632)
Assumption Change	June 30, 2019	317,443	20	317,443	20	21,796
Subtotal				**$1,526,944**		**$107,764**
Grand Total – All Tiers Combined				**$1,436,414,318**		**$214,812,167**

Note: Results may not add due to rounding.

(1) Level percentage of payroll amortization.

EXHIBIT H – PROJECTION OF UAAL BALANCES AND PAYMENTS

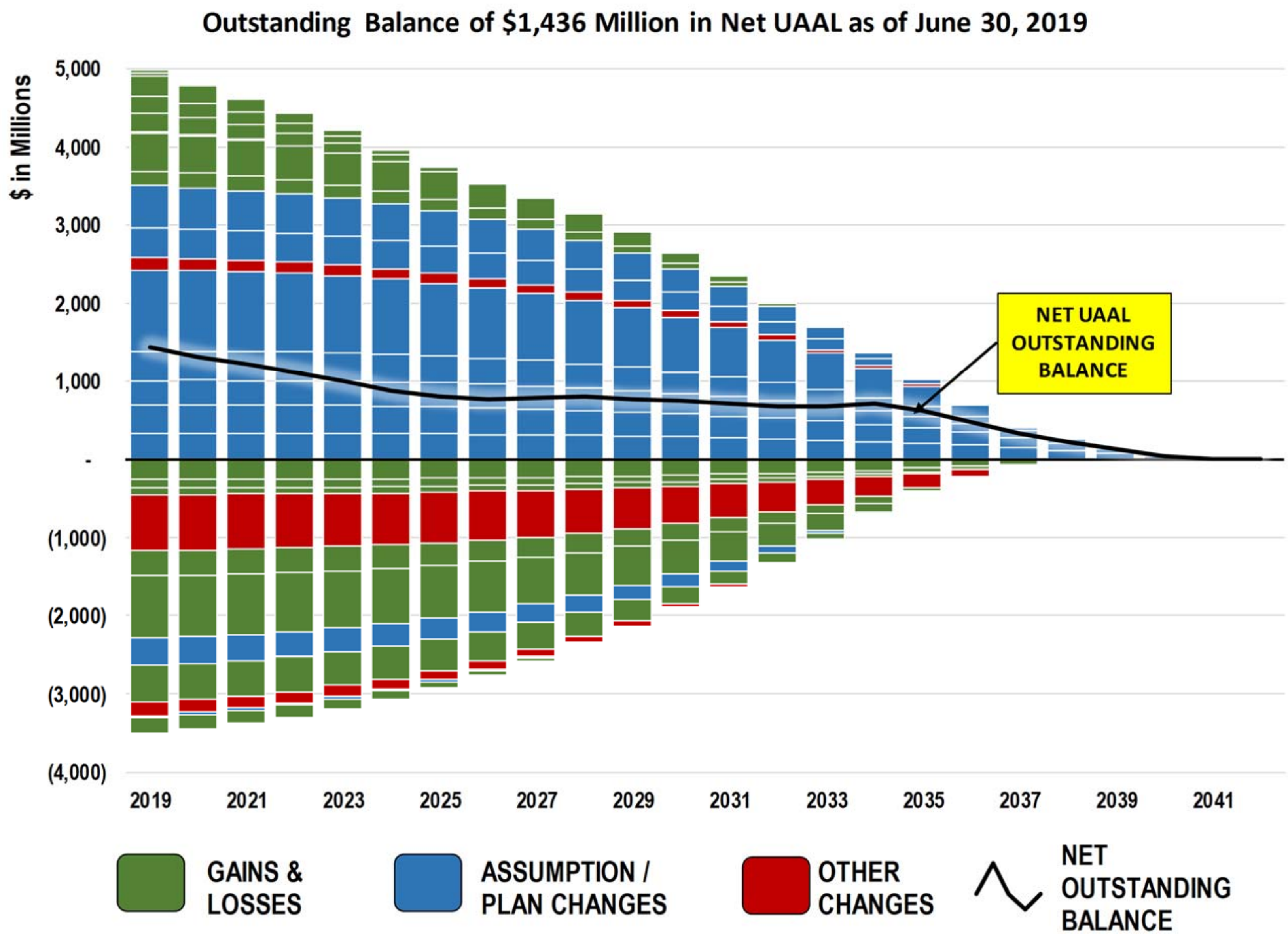


EXHIBIT H – PROJECTION OF UAAL BALANCES AND PAYMENTS (CONTINUED)

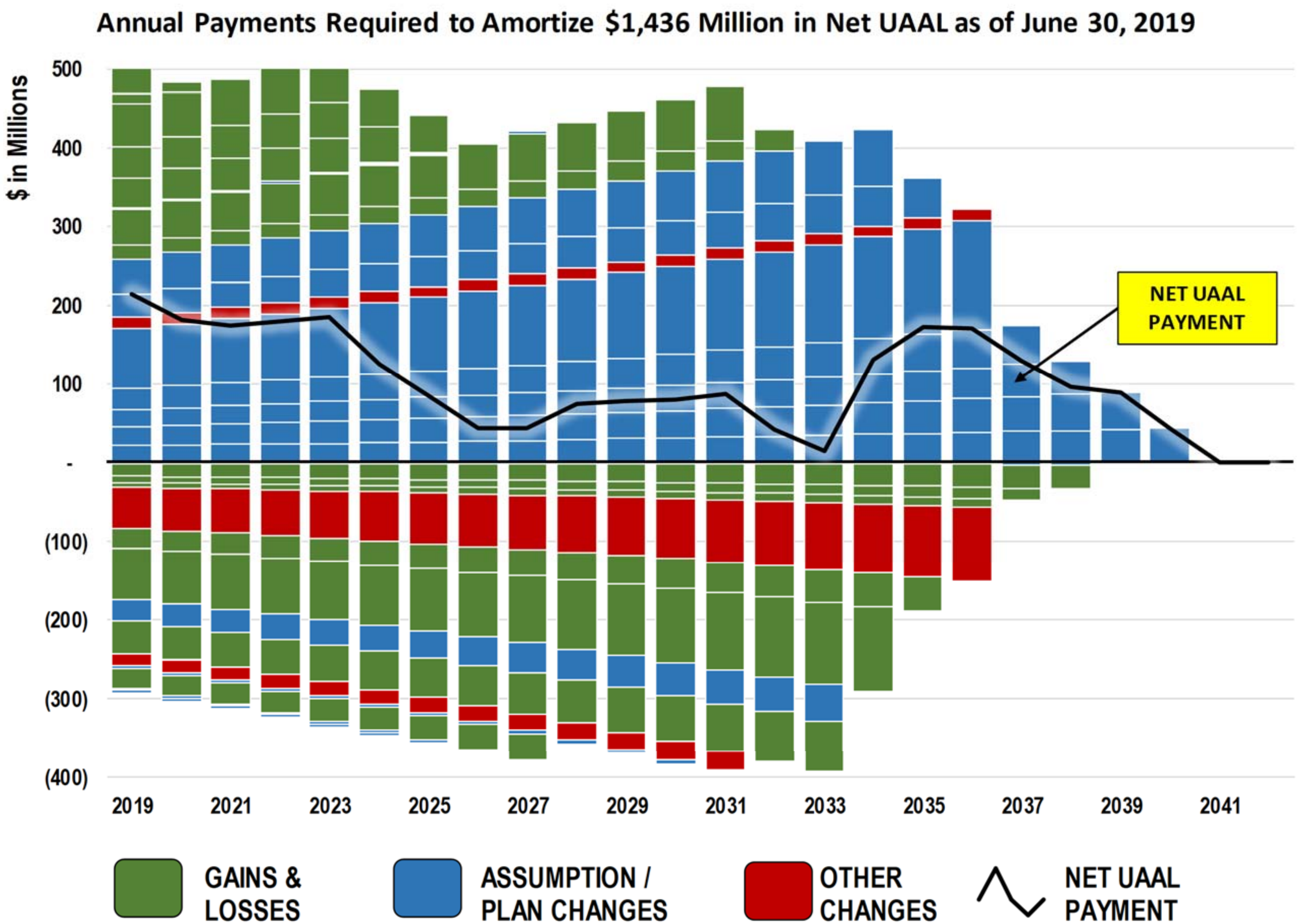


EXHIBIT I – DEFINITION OF PENSION TERMS

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

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 and Beneficiaries:	Actuarial Present Value of lifetime benefits to existing pensioners and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Cost Method:	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the recommended contribution.
Actuarial Gain or Loss:	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield actuarial liabilities that are larger than projected.
Actuarially Equivalent:	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV):	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Benefits:	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund of member contributions or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation:	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan, as well as Actuarially Determined Contributions.
Actuarial Value of Assets (AVA):	The value of the Plan's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the Actuarially Determined Contribution.
Actuarially Determined:	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the Plan.
Actuarially Determined Contribution (ADC):	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the employer Normal Cost and the Amortization Payment.
Amortization Method:	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the Unfunded Actuarial Accrued Liability. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the Unfunded Actuarial Accrued Liability. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is intended to pay off the Unfunded Actuarial Accrued Liability.

Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Plan is calculated, including: Investment return - the rate of investment yield that the Plan will earn over the long-term future; Mortality rates - the rate or probability of death at a given age for employees and pensioners; Retirement rates - the rate or probability of retirement at a given age or service; Disability rates – the rate or probability of disability retirement at a given age; Termination rates - the rate or probability at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; Salary increase rates - the rates of salary increase due to inflation, real wage growth and merit and promotion increases.
Closed Amortization Period:	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 20 years, it is 19 years at the end of one year, 18 years at the end of two years, etc. See Open Amortization Period.
Decrements:	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.
Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula based on the member's compensation, age and/or years of service.
Defined Contribution Plan:	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.
Experience Study:	A periodic review and analysis of the actual experience of the Plan that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified based on recommendations from the Actuary.
Funded Ratio:	The ratio of the Valuation Value of Assets (VVA) to the Actuarial Accrued Liability (AAL). Plans sometimes also calculate a market funded ratio, using the Market Value of Assets (MVA), rather than the VVA.
Investment Return:	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.
Normal Cost:	The portion of the Actuarial Present Value of Future Benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment with respect to an Unfunded Actuarial Accrued Liability is not part of the Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of member contributions and employer Normal Cost unless otherwise specifically stated.

Open Amortization Period:	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in each future year in determining the Amortization Period.
Unfunded Actuarial Accrued Liability:	The excess of the Actuarial Accrued Liability over the Valuation Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus or an Overfunded Actuarial Accrued Liability.
Valuation Date or Actuarial Valuation Date:	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Benefits is determined. The expected benefits to be paid in the future are discounted to this date.
Valuation Value of Assets:	The portion of the Actuarial Value of Assets that is allocated for retirement benefits.

Section 4: Actuarial Valuation Basis

EXHIBIT I – ACTUARIAL ASSUMPTIONS AND METHODS

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, 2013 through June 30, 2016 Actuarial Experience Study report dated May 23, 2017 and the Mortality Experience Study During the Period July 1, 2010 through June 30, 2019. Unless otherwise noted, all actuarial assumptions and methods shown below apply to all tiers. These assumptions were adopted by the Board.
Economic Assumptions	
Net Investment Return:	7.25%; net of investment expenses. Based on the Actuarial Experience Study referenced above, expected investment expenses represent about 0.40% of the Actuarial Value of Assets.
Administrative Expenses:	Out of the total 1.25% of payroll in assumed administrative expenses, 1.16% of payroll payable biweekly is allocated to the Retirement Plan. This is equal to 1.12% of payroll payable at beginning of the year.
Member Contribution and Matching Account Crediting Rate:	4.00%
Consumer Price Index:	Increase of 3.00% per year. An annual 3% cost-of-living adjustment is assumed in valuing the benefits for Tiers 1 through 6.
Payroll Growth:	Inflation of 3.00% per year plus "across the board" real salary increases of 0.50% per year, used to amortize the Unfunded Actuarial Accrued Liability as a level percentage of payroll.
Increase in Internal Revenue Code Section 401(a)(17) Compensation Limit:	Increase of 3.00% per year from the valuation date.

Salary Increases:

The annual rate of compensation increase includes: inflation at 3.00%, plus “across the board” salary increases of 0.50% per year, plus the following merit and promotion increases:

Merit and Promotion Increases	
Years of Service	**Rate (%)**
Less than 1	8.50
1 – 2	7.50
2 – 3	6.00
3 – 4	5.50
4 – 5	4.00
5 – 6	2.75
6 – 7	2.50
7 – 8	2.00
8 – 9	1.75
9 – 10	1.75
10 – 11	1.25
11 – 12	1.00
12 – 13	1.00
13 – 14	1.00
14 – 15	1.00
15 & Over	0.80

Increases are assumed to occur beginning of the year for future salary increases.

We annualized bi-weekly pay (by multiplying by 365 and dividing by 14), supplied by LAFPP.

Demographic Assumptions	
Post-Retirement Mortality Rates:	*Healthy*[1] • Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table multiplied by 105% for males and 100% for females, projected generationally with the two-dimensional mortality improvement scale MP-2019. *Disabled* • Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Table projected generationally with the two-dimensional mortality improvement scale MP-2019. *Beneficiary*[2] • Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table multiplied by 105%, projected generationally with the two-dimensional mortality improvement scale MP-2019. The Pub-2010 mortality tables and adjustments as shown above reasonably reflect the mortality experience as of the measurement date. These mortality tables were adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years. (1) The Pub-2010 Healthy Retiree Amount-Weighted Above-Median Mortality Tables only have rates for ages 45 and later for the Safety table. To develop the post-retirement mortality rates for ages 36 through 44 for Safety members, we have smoothed the difference between the rates at age 35 from the Pub-2010 Safety Employee Amount-Weighted Above-Median Mortality Tables and the rates at age 45 from the Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality tables. To develop the post-retirement mortality rates before age 36 for the Safety table, we have used the Pub-2010 Safety Employee Amount-Weighted Above-Median Mortality Tables rates. This methodology for developing an extended annuitant mortality table is similar to the method used by the IRS to develop the base mortality table for determining minimum funding standards for single-employer defined benefit pension plans under Section 430. While Section 430 is not applicable to LAFPP, we believe this is a reasonable method for developing annuitant mortality rates at earlier ages. (2) The Pub-2010 Healthy Retiree Amount-Weighted Above-Median Mortality Tables only have rates for ages 50 and later for the General table. To develop the post-retirement mortality rates for ages 41 through 49 for General members, we have smoothed the difference between the rates at age 40 from the Pub-2010 General Employee Amount-Weighted Above-Median Mortality Tables and the rates at age 50 from the Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality tables. To develop the post-retirement mortality rates before age 41 for the General table, we have used the Pub-2010 General Employee Amount-Weighted Above-Median Mortality Tables rates. This methodology for developing an extended annuitant mortality table is similar to the method used by the IRS to develop the base mortality table for determining minimum funding standards for single-employer defined benefit pension plans under Section 430. While Section 430 is not applicable to LAFPP, we believe this is a reasonable method for developing annuitant mortality rates at earlier ages.

Pre-Retirement Mortality Rates:

- Pub-2010 Safety Employee Amount-Weighted Above-Median Mortality Table, projected generationally with the two-dimensional mortality improvement scale MP-2019.

Pre-Retirement Mortality		
	Rate (%)[1]	
Age	Male	Female
20	0.04	0.02
25	0.03	0.02
30	0.04	0.02
35	0.04	0.03
40	0.05	0.04
45	0.07	0.06
50	0.10	0.08
55	0.15	0.11
60	0.23	0.15

(1) Generational projections beyond the base year (2010) are not reflected in the above mortality rates.

All pre-retirement deaths are assumed to be service connected.

Disability Incidence:

Disability Incidence		
	Rate (%)	
Age	Fire	Police
25	0.02	0.03
30	0.03	0.05
35	0.06	0.08
40	0.12	0.19
45	0.18	0.28
50	0.23	0.39
55	0.70	0.72
60	2.50	1.08
65	1.40	0.48

85% of disabilities are assumed to be service connected disabilities. The other 15% are assumed to be non-service connected disabilities.

Disability rates are not applied to members eligible to enter the DROP.

Termination:

Termination (< 5 Years of Service)		
Years of Service	Rate (%)	
	Fire	Police
Less than 1	8.00	9.00
1 – 2	2.50	3.50
2 – 3	1.50	3.00
3 – 4	0.75	2.75
4 – 5	0.50	2.00

Termination (5+ Years of Service)		
	Rate (%)	
Age	Fire	Police
20	0.80	1.80
25	0.80	1.80
30	0.65	1.50
35	0.40	1.03
40	0.27	0.73
45	0.13	0.59
50	0.02	0.22
55	0.00	0.00
60	0.00	0.00

No termination is assumed after a member is eligible for retirement. This includes all active members currently in Tier 2. Members in Tiers 3, 5 and 6 who are not eligible to receive a deferred vested retirement benefit are assumed to receive refund of member contributions.

Retirement Rates:

	Retirement Rates (%)					
	Fire			Police		
Age	Tier 2 & 4	Tier 3 & 5	Tier 6	Tier 2 & 4	Tier 3 & 5	Tier 6
41	1.00	0.00	0.00	10.00	0.00	0.00
42	1.00	0.00	0.00	10.00	0.00	0.00
43	1.00	0.00	0.00	10.00	0.00	0.00
44	1.00	0.00	0.00	10.00	0.00	0.00
45	1.00	0.00	0.00	10.00	0.00	0.00
46	1.00	0.00	0.00	7.00	0.00	0.00
47	1.00	0.00	0.00	7.00	0.00	0.00
48	2.00	0.00	0.00	7.00	0.00	0.00
49	2.00	0.00	0.00	7.00	0.00	0.00
50	3.00	2.00	3.00	12.00	7.00	8.00
51	5.00	2.00	3.00	12.00	5.00	10.00
52	8.00	2.00	4.00	12.00	5.00	10.00
53	10.00	2.00	5.00	20.00	5.00	15.00
54	20.00	7.00	5.00	25.00	12.00	20.00
55	25.00	14.00	10.00	30.00	20.00	20.00
56	25.00	16.00	12.00	30.00	20.00	20.00
57	25.00	18.00	15.00	30.00	20.00	20.00
58	25.00	25.00	18.00	30.00	22.00	22.00
59	25.00	25.00	20.00	30.00	22.00	22.00
60	25.00	30.00	25.00	30.00	25.00	25.00
61	25.00	30.00	30.00	30.00	25.00	25.00
62	25.00	35.00	30.00	30.00	25.00	25.00
63	25.00	40.00	35.00	30.00	25.00	25.00
64	30.00	40.00	40.00	40.00	30.00	30.00
65	60.00	60.00	60.00	60.00	60.00	60.00
66	60.00	60.00	60.00	60.00	60.00	60.00
67	60.00	60.00	60.00	60.00	60.00	60.00
68	60.00	60.00	60.00	60.00	60.00	60.00
69	60.00	60.00	60.00	60.00	60.00	60.00
70 & Over	100.00	100.00	100.00	100.00	100.00	100.00

DROP Program:	DROP participants are considered active members until they leave DROP and begin receiving retirement benefits. Members are assumed to remain in the DROP for 5 years and will have DROP payments suspended for an average of 4.5 months due to the minimum hours per month needed for participation if they enter DROP on or after February 1, 2019. For active members who are not in the DROP as of the valuation date and are expected to retire with a service retirement benefit, we assume 95% will have elected DROP prior to retirement if they will have also satisfied the requirements for participating in the DROP for 5 years (starting on or after the valuation date).
Retirement Age for Deferred Vested Members:	50
Benefit for Inactive Non-Vested Members:	Immediate refund of member contributions.
Future Benefit Accruals:	1.0 year of service per year.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Definition of Active Members:	First day of biweekly payroll following employment for new department employees or immediately following transfer from other city department.
Form of Payment:	All active and inactive members are assumed to elect the unmodified option at retirement.
Percent Married:	For all active and inactive members, 80% of male members and 55% of female members are assumed to be married at pre-retirement death or retirement.
Age and Gender of Spouse:	For all active and inactive members, male members are assumed to have a female spouse who is 3 years younger than the member and female members are assumed to have a male spouse who is 2 years older than the member.
Service Connected Disability Benefits:	(see table below)

Years of Service	Benefit
Less than 20	55% of Final Average Salary
20 – 30	65% of Final Average Salary
More than 30	75% of Final Average Salary

Non-Service Connected Disability Benefits:	40% of Final Average Salary.
<u>Actuarial Funding Policy</u>	
Actuarial Cost Method:	Entry Age Actuarial Cost Method. Entry Age is the age on the valuation date minus years of service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are based on costs allocated as a level percentage of compensation, with Normal Cost determined as if the current benefit formula for each individual has always been in effect.

Actuarial Value of Assets:	Market Value of Assets (MVA) less unrecognized returns. Unrecognized returns are equal to the difference between the actual market return and the expected return on the market value, and are recognized over a seven-year period. The Actuarial Value of Assets (AVA) is limited by a 40% corridor; the AVA cannot be less than 60% of MVA, nor greater than 140% of MVA.
Valuation Value of Assets:	The portion of the Actuarial Value of Assets that is allocated for retirement benefits.
Funding Policy:	The City of Los Angeles makes contributions equal to the Normal Cost adjusted by an amount to amortize any Surplus or Unfunded Actuarial Accrued Liability (UAAL). Both the Normal Cost and the Actuarial Accrued Liability are determined under the Entry Age Cost Method on an individual basis. Any Surplus is amortized over an open (non-decreasing) thirty-year period. Any changes in UAAL due to actuarial gains or losses are amortized over separate twenty-year periods as a level percentage of payroll. Any changes in UAAL from plan amendments are amortized over separate fifteen-year periods as a level percentage of payroll. Any changes in UAAL from plan assumption changes are amortized over separate twenty-year periods as a level percentage of payroll. For Tier 1, the UAAL is amortized using level dollar amortization ending on June 30, 2037. For Tiers 2, 3 and 4, the UAAL is amortized using level percent of payroll as a percent of total valuation payroll from the respective employer (i.e., the City). For Tiers 5 and 6, the UAAL is amortized using level percent of payroll as a percent of combined payroll for these tiers from the respective employer (i.e., City, Harbor Department or Airport Department).
<u>Other Actuarial Methods</u>	
Internal Revenue Code Section 415:	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 $225,000 for 2019 and $230,000 for 2020. 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.

Changed Actuarial Assumptions:	The following assumptions have been changed since the prior valuation. Rationale for these changes are presented in the Mortality Experience Study During the Period July 1, 2010 through June 30, 2019.
Post-Retirement Mortality Rates:	*Healthy* • Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table projected 20 years with two-dimensional Scale MP-2016, set back one year. *Disabled* • Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table projected 20 years with two-dimensional Scale MP-2016, set forward one year. *Beneficiary* • Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table projected 20 years with two-dimensional Scale MP-2016, set forward one year. For ages less than 50[(1),] mortality rates are based on the Headcount-Weighted RP-2014 Employee Mortality tables. Those mortality rates are adjusted by the ratio of mortality rates for healthy annuitants at age 50 to the mortality rate for employees at age 50. The mortality rates are then projected 20 years with two-dimensional Scale MP-2016, and set back one year for Healthy Mortality or set forward one year for Disabled and Beneficiary Mortality. [(1)] The Headcount-Weighted RP-2014 Healthy Annuitant Mortality tables have rates only for ages 50 and later.

Changed Actuarial Assumptions:	The following assumptions have been changed since the prior valuation. Rationale for these changes are presented in the Mortality Experience Study During the Period July 1, 2010 through June 30, 2019.
Pre-Retirement Mortality Rates:	• Headcount-Weighted RP-2014 Employee Mortality Table times 90%, projected 20 years with two-dimensional Scale MP-2016. (table below) All pre-retirement deaths are assumed to be service connected.
DROP Program (new assumption):	The assumption that members who enter DROP on or after February 1, 2019 will have DROP payments suspended for an average of 4.5 months was added as a new assumption in this valuation based on the Ordinance 185935 to amend the DROP provisions of the plan.

Pre-Retirement Mortality

	Rate (%)	
Age	**Male**	**Female**
20	0.04	0.01
25	0.04	0.02
30	0.04	0.02
35	0.05	0.03
40	0.06	0.04
45	0.09	0.06
50	0.15	0.10
55	0.25	0.16
60	0.43	0.23

All pre-retirement deaths are assumed to be service connected.

EXHIBIT II – SUMMARY OF PLAN PROVISIONS

This exhibit summarizes the major provisions of the City of Los Angeles Fire & Police Pension Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

For Tiers 1 through 4 and Tier 6, the section codes are from the Los Angeles Charter. For Tier 5 and the DROP program, the section codes are from the Los Angeles Administrative Code.

Plan Year:	July 1 through June 30
Census Date:	June 30
Membership Eligibility:	LAFPP provides service retirement, disability, death and survivor benefits to eligible sworn members of the Los Angeles Fire, Police, Harbor and Airport Departments (effective January 7, 2018, eligible Airport Police Officers are allowed to join Tier 6). Sworn employees become members upon graduation from the Police Academy or Fire Drill Tower. There are currently six tiers applicable to members of the LAFPP.
Tier 1	Members hired on or before January 28, 1967.
Tier 2	Members hired from January 29, 1967 through December 7, 1980, and those Tier 1 members who transferred to Tier 2 during the enrollment period of January 29, 1967 to January 29, 1968.
Tier 3	Members hired from December 8, 1980 through June 30, 1997 and those Tier 4 members hired during the period of July 1, 1997 through December 31, 1997 who elected to transfer to Tier 3 by the enrollment deadline of June 30, 1998.
Tier 4	Members hired from July 1, 1997 through December 31, 2001 and those Tier 3 members who elected to transfer to Tier 4 by the enrollment deadline of June 30, 1998.
Tier 5	Members hired from January 1, 2002 through June 30, 2011 and those active members of Tiers 2, 3, or 4 who elected to transfer to Tier 5 during the enrollment period of January 2, 2002 through December 31, 2002.
Tier 6	Members hired on or after July 1, 2011.
Salary Base for Benefits:	
Normal Pension Base	
Tier 1 & Tier 2 (§1302, §1406)	Final monthly salary rate
Final Average Salary	
Tier 3, Tier 4 & Tier 5 (§1502, §1602, §4.2002)	Highest monthly average salary actually received during any 12 consecutive months of service
Tier 6 (§1702)	Highest monthly average salary actually received during any 24 consecutive months of service

Compensation Limit:	For members with membership dates on or after July 1, 1996, salary is limited to Internal Revenue Code Section 401(a)(17). This limit is $280,000 for Plan year beginning July 1, 2019. The limit is indexed for inflation on an annual basis.
Service:	Years of service are generally based on a member's employment during a period of time for which deductions are made from their compensation.
Service Retirement Eligibility:	
Tier 1, Tier 2 & Tier 4 (§1304, §1408, §1604)	Any age and 20 years of service
Tier 3 (§1504)	Age 50 and 10 years of service
Tier 5 & Tier 6 (§4.2004, §1704)	Age 50 and 20 years of service
Service Retirement Benefit:	
Tier 1 (§1304)	40% at 20 years of service, plus 2% for each additional year up to 25 years of service, plus 1 ⅔% for each additional year between 25 and 35 years of service. Maximum of 66 ⅔% for 35 or more years of service.
Tier 2 (1408)	40% at 20 years of service, plus 2% for each additional year up to 25 years of service. 55% at 25 years of service, plus 3% for each additional year between 25 and 30 years of service. Maximum of 70% for 30 or more years of service.
Tier 3 & Tier 4 (§1504, §1604)	2% per year of service up to 20 years of service, plus 3% for each additional year of service up to 30 years of service. Maximum of 70% for 30 or more years of service.
Tier 5 (§4.2004)	50% at 20 years of service, plus 3% for each additional year (except 4% at 30 years of service). Maximum of 90% for 33 or more years of service.
Tier 6 (§1704)	40% at 20 years of service, plus 3% per year for years 21 through 25, 4% per year for years 26 through 30, and 5% per year for years 31 through 33. Maximum of 90% for 33 or more years of service.

Deferred Retirement Option Plan (DROP) (§4.2100 - 4.2109):	
Eligibility	
Tier 2 & Tier 4	Any age and 25 years of service
Tier 3, Tier 5 & Tier 6	Age 50 and 25 years of service
Benefit under DROP	DROP benefits (calculated using age, service, and salary at the commencement date of participation in DROP) will be credited to a DROP account monthly, with interest at 5% annually. Members may participate in DROP for up to five years. For members who enter the DROP on or after February 1, 2019, their participation in DROP will be suspended for any calendar month in which they do not spend at least 112 hours on active duty status. If participation is suspended, the member is eligible to participate in DROP for a maximum of 30 additional months beyond the original participation period. Members are required to make normal member contributions. DROP benefits receive annual COLA while in DROP (limited to 3% for all Tiers).
Service Connected Disability:	
Eligibility	No age or service requirement.
Benefit	
Tier 1 & Tier 2 (§1310, §1412)	50% to 90% of Normal Pension Base depending on severity of disability, with a minimum of Member's service pension percentage rate.
Tier 3, Tier 4, Tier 5 & Tier 6 (§1506, §1606, §4.2006, §1706)	30% to 90% of Final Average Salary depending on severity of disability with a minimum of 2% of Final Average Salary per year of service.
Non-Service Connected Disability:	
Eligibility	Any age and 5 years of service.
Benefit	
Tier 1 & Tier 2 (§1312, §1412)	40% of highest monthly salary as of Member's retirement for basic rank of Police Officer III or Firefighter III, and the highest length of service pay.
Tier 3, Tier 4, Tier 5 & Tier 6 (§1506, §1606, §4.2006, §1706)	30% to 50% of Final Average Salary depending on severity of disability.
Basic Death Benefit:	
Tier 3, Tier 4, Tier 5 & Tier 6	If Member has at least one year of service, in addition to return of contributions, beneficiary receives the Member's one-year average monthly salary times years of completed service (not to exceed 6 years).

Death Before Retirement – Eligible for Service Retirement on Account of Years of Service:	
Eligibility	
Tier 1, Tier 2, Tier 4, Tier 5 & Tier 6 (§1304, §1408, §1604, §4.2004, §1704)	Any age and 20 years of service
Tier 3 (§1504)	Any age and 10 years of service
Benefit	
Tier 1 (§1314, §1316)	100% of Member's accrued service retirement Member would have received, not to exceed 50% of Normal Pension Base.
Tier 2 (§1414)	100% of Member's accrued service retirement Member would have received, not to exceed 55% of Normal Pension Base.
Tier 3 & Tier 4 (§1508, §1608)	80% of service retirement Member would have received, not to exceed 40% of the Member's Final Average Salary.
Tier 5 (§4.2008, §4.2008.5)	For former Tier 2, 100% of Member's accrued service retirement Member would have received, not to exceed 55% of Normal Pension Base. For members who are not former Tier 2, 40% of the Member's Final Average Salary.
Tier 6 (§1708)	50% of the Member's Final Average Salary.

Death Before Retirement – Service Connected Death:	
Eligibility	No age or service requirement.
Benefit	
Tier 1 (§1314)	50% of Member's Normal Pension Base.
Tier 2 (§1414)	50% of the Member's Normal Pension Base, or 55% of the Member's Normal Pension Base if Member had at least 25 years of service at the date of death.
Tier 3 & Tier 4 (§1508, §1608)	75% of the Member's Final Average Salary.
Tier 5 (§4.2008, §4.2008.5)	For former Tier 2, 75% of the Member's Normal Pension Base payable to a Qualified Surviving Spouse or Qualified Surviving Domestic Partner. For members who are not former Tier 2, 75% of the Member's Final Average Salary payable to a Qualified Surviving Spouse or Qualified Surviving Domestic Partner.
Tier 6 (§1708)	80% of the Member's Final Average Salary.
Death Before Retirement – Non-Service Connected Death:	
Eligibility	5 years of service.
Benefit	
Tier 1 & Tier 2 (§1316, §1414)	40% of highest monthly salary as of Member's death for basic rank of Police Officer III or Firefighter III, and the highest length of service pay.
Tier 3 & Tier 4 (§1508, §1608)	30% of the Member's Final Average Salary.
Tier 5 (§4.2008, §4.2008.5)	For former Tier 2, 40% of highest monthly salary as of Member's death for basic rank of Police Officer III or Firefighter III, and the highest length of service pay. For members who are not former Tier 2, 30% of the Member's Final Average Salary.
Tier 6 (§1708)	50% of the Member's Final Average Salary.

Death After Retirement – Service Retirement:	
Benefit	
Tier 1 (§1314, §1316)	Same percentage of the Member's Normal Pension Base to a maximum of 50%.
Tier 2 (§1414)	Same percentage of the Member's Normal Pension Base to a maximum of 55%.
Tier 3 & Tier 4 (§1508, §1608)	60% of the pension received by the deceased Member.
Tier 5 (§4.2008, §4.2008.5)	For former Tier 2, same percentage of the Member's Normal Pension Base to a maximum of 55%. For members who are not former Tier 2, 60% of the pension received by the deceased Member.
Tier 6 (§1708)	70% of the pension received by the deceased Member.
Death After Retirement – Service Connected Disability:	
Benefit	
Tier 1 (§1314)	50% of Member's Normal Pension Base.
Tier 2 (§1414)	50% of the Member's Normal Pension Base or 55% of the Member's Normal Pension Base if Member had at least 25 years of service at the date of death.
Tier 3 & Tier 4 (§1508, §1608)	If death occurs within three years of the Member's effective date of pension and is due to service-connected cause(s), then the Qualified Surviving Spouse or Qualified Surviving Domestic Partner shall receive 75% of the Final Average Salary. Otherwise, 60% of the pension received by the deceased Member.
Tier 5 (§4.2008, §4.2008.5)	For former Tier 2, 50% of the Member's Normal Pension Base or 55% of the Member's Normal Pension Base if Member had at least 25 years of service at the date of death. For members who are not former Tier 2, if death occurs within three years of the Member's effective date of pension and is due to service-connected cause(s), then the Qualified Surviving Spouse or Qualified Surviving Domestic Partner shall receive 75% of the Final Average Salary. Otherwise, 60% of the pension received by the deceased Member.
Tier 6 (§1708)	If death occurs within three years of the Member's effective date of pension and is due to service-connected cause(s), then the Qualified Surviving Spouse or Qualified Surviving Domestic Partner shall receive 80% of the Final Average Salary. Otherwise, 80% of the pension received by the deceased Member.

Death After Retirement – Non-Service Connected Disability:	
Benefit	
Tier 1 & Tier 2 (§1316, §1414)	40% of highest monthly salary as of Member's death for basic rank of Police Officer III or Firefighter III, and the highest length of service pay.
Tier 3 & Tier 4 (§1508, §1608)	60% of the pension received by the deceased Member.
Tier 5 (§4.2008, §4.2008.5)	If former Tier 2 member, 40% of highest monthly salary as of Member's death for basic rank of Police Officer III or Firefighter III, and the highest length of service pay. For members who are not former Tier 2, 60% of the pension received by the deceased Member.
Tier 6 (§1708)	70% of the pension received by the deceased Member.
Deferred Pension Option:	
Eligibility	
Tier 3 (§1504)	10 years of service. Receive service pension at age 50.
Tier 5, Tier 6 (§4.2004, §1704)	20 years of service. Receive service pension at age 50.
Benefit	Member is entitled to receive a service pension using Tier 3 retirement formula.
Cost-of-Living Adjustment (COLA):	
Tier 1 & Tier 2 (§1328, §1422)	Commencing July 1 based on changes to Los Angeles area consumer price index.
Tier 3 & Tier 4 (§1516, §1616)	Commencing July 1 based on changes to Los Angeles area consumer price index to a maximum of 3% per year. COLA is prorated in the first year of retirement.
Tier 5 & Tier 6 (§4.2016, §1716)	Commencing July 1 based on changes to Los Angeles area consumer price index to a maximum of 3% per year, excess banked. COLA is prorated in the first year of retirement.

Member Normal Contributions:	Members are exempt from making contributions if their continuous service exceeds 30 years for Tiers 1 through 4, and 33 years for Tier 5 and Tier 6. Members not in Tier 6 may pay a 2% contribution on their base salary retroactive to August 15, 2011 for a period of 25 years or until retired from the Plan to avoid a freeze on their retiree health subsidy.
Tier 1 (§1324)	Normal contribution rate of 6%.
Tier 2 (§1420)	Normal contribution rate of 6% plus half of the cost of the cost of living benefit to a maximum of 1%.
Tier 3 (§1514)	Normal contribution rate of 8%.
Tier 4 (§1614)	Normal contribution rate of 8%.
Tier 5 (§4.2014)	Normal contribution rate of 9% with the City of Los Angeles paying 1% provided that the Plan is at least 100% actuarially funded for pension benefits.
Tier 6 (§1714)	Normal contribution rate of 9%, plus 2% additional contributions to support funding of retiree health benefits. The additional 2% contributions shall not be required for members with more than 25 years of service. Normal contribution rate for Airport Police who transferred from Los Angeles City Employees' Retirement System (LACERS) is 11% until June 30, 2026. Thereafter, contribution rate is 10% for transferred Airport Police with more than 25 years of service.
Changes in Plan Provisions:	The following change in Plan provisions has been recognized since the prior valuation: • Ordinance 185935 was adopted by the City Council and amended the Deferred Retirement Option Plan (DROP) provisions of the Plan. For members who enter the DROP on or after February 1, 2019, their participation in DROP will be suspended for any calendar month in which they do not spend at least 112 hours on active duty status. If participation is suspended, the member is eligible to participate in DROP for a maximum of 30 additional months beyond the original participation period.

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

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City of Los Angeles Fire and Police Pension Plan

Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2019

(Revised to Reflect Updated Mortality Assumption Adopted on December 19, 2019)

Segal Consulting

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January 8, 2020

Board of Fire and Police Pension Commissioners
City of Los Angeles Fire and Police Pension Plan
701 East 3rd Street, Suite 200
Los Angeles, CA 90013

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2019. The report summarizes the actuarial data used in the valuation, establishes the Actuarially Determined Contribution (ADC) for the coming year, and analyzes the preceding year's experience. The census information and financial information on which our calculations were based was prepared by Los Angeles Fire and Police Pensions (LAFPP). That assistance is gratefully acknowledged. 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 Krumholz, 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 valuation 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 Exhibit III.

Sincerely,

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

By:

Paul Angelo, FSA, MAAA, FCA, EA	*Andy Yeung, ASA, MAAA, FCA, EA*
Senior Vice President and Actuary	*Vice President and Actuary*

JAC/jl

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PURPOSE

This report presents the results of our actuarial valuation of retiree health benefits offered by the City of Los Angeles Fire and Police Pension Plan as of June 30, 2019. The results of the valuation for financial reporting purposes consistent with Governmental Accounting Standards (GAS) Board Statement No. 74 are provided in a separate report.

HIGHLIGHTS OF THE VALUATION

- As requested by the Board, we performed an experience study of the mortality assumption based on the experience during the period July 1, 2010 through June 30, 2019. Based on that study and the recommendations provided in our report dated December 12, 2019, the Board adopted the updated mortality assumption for use in this valuation. The new mortality tables approved by the Board are outlined in Exhibit II of this report. There is an increase in the contribution rate of 0.49% of payroll (assuming contributions are paid at the beginning of the year) and in the unfunded actuarial accrued liability (UAAL) of $53.7 million due to the updated mortality assumption.
- The recommended contribution rate has decreased from 12.90% of payroll ($204.3 million) to 12.51% of payroll ($198.1 million), assuming contributions are made by the City on July 15. A reconciliation of the employer's rate, if made at the beginning of the year, is provided in Section 3, Exhibit I.
- The funded ratio has increased from 51.3% to 56.2% in this valuation. On a market value of asset basis, the funded ratio has increased from 52.9% to 56.8%. The UAAL has decreased from $1.728 billion to $1.574 billion. A reconciliation of the change in the UAAL is provided in Section 2, Chart 2.
- The primary reason for the decrease in the recommended contribution and the increase in the funded ratio since the prior valuation is that, on average, health premiums for 2019/2020 were lower than projected in the prior valuation.
- The funding method used to develop the Actuarially Determined Contribution (ADC) is the Entry Age method, with the Normal Cost developed as a level percent of payroll. With the exception of the UAAL for Tier 1 (which is amortized as a level dollar amount), the contribution to amortize the UAAL is developed as a level percent of payroll.
- As indicated in Section 3, Exhibit H of this report, the total unrecognized investment gain as of June 30, 2019 is $246.0 million for the assets for Retirement and Health Subsidy Benefits. For comparison purposes, the total unrecognized investment gain as of June 30, 2018 was $700.9 million.
- The unrecognized investment gains of $246.0 million represent 1.1% of the market value of assets as of June 30, 2019. Unless offset by future investment losses, or other unfavorable experience, the recognition of the $246.0 million market gains is expected to have an impact on the Health Plan's future funded percentage and contribution rate requirements. This potential impact may be illustrated as follows:
  - If the deferred gains were recognized immediately in the valuation value of assets, the funded

percentage would increase from 56.2% to 56.8%. For comparison purposes, if the deferred gains in the June 30, 2018 valuation had been recognized immediately in the June 30, 2018 valuation, the funded percentage in that valuation would have been increased from 51.3% to 52.9%.

- If the deferred gains were recognized immediately in the valuation value of assets, the aggregate employer rate (payable throughout the fiscal year) would decrease from 12.92% to 12.82% of payroll. For comparison purposes, if the deferred gains in the June 30, 2018 valuation had been recognized immediately in the June 30, 2018 valuation, the aggregate employer rate (payable throughout the fiscal year) would have decreased from 13.32% to 12.96% of payroll.

- The actuarial valuation report as of June 30, 2019 is based on financial and demographic information as of that date. Changes subsequent to that date are not reflected and may impact the actuarial cost of the Plan.
- The employer contribution rates provided in this report have been developed assuming that they will be made by the City either (1) throughout the year (i.e. the City will pay contributions at the end of every pay period), (2) on July 15 or (3) the beginning of the year.
- As noted above, the GAS 74 report with a measurement date of June 30, 2019 for financial reporting purposes for the Plan will be provided as a separate report.
- The GAS 75 report with a measurement date of June 30, 2019 for financial reporting purposes for the employer (with a reporting date of June 30, 2020) will be provided in the next few months.

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

SUMMARY OF VALUATION RESULTS

	June 30, 2019	June 30, 2018
Actuarially Determined Contribution (ADC) for coming year		
Determined as a percent of pay		
At the beginning of year	12.47%	12.86%(1)
On July 15	12.51%	12.90%(1)
At the end of each biweekly pay period	12.92%	13.32%(1)
Funding elements for plan year beginning July 1:		
Normal cost (beginning of year)	$77,036,694	$74,369,364(1)
Actuarial Value of Assets	2,016,201,804	1,819,359,475
Market Value of Assets	2,037,716,297	1,878,237,434
Actuarial Accrued Liability (AAL)	3,590,022,768	3,547,776,597
Unfunded Actuarial Accrued Liability on actuarial value of assets basis	1,573,820,964	1,728,417,122
Unfunded Actuarial Accrued Liability on market value of assets basis	1,552,306,471	1,669,539,163
Funded Ratio on Actuarial Value of Assets(2)	56.16%	51.28%
Funded Ratio on Market Value of Assets	56.76%	52.94%
Demographic data for plan year beginning July 1:		
Number of retired members and beneficiaries	11,077	10,913
Number of inactive members eligible for deferred benefits	886	899
Number of active members	13,535	13,442
Projected compensation	$1,583,807,654	$1,546,042,972

(1) *Recalculated to reflect payroll of active members enrolled in different tiers as of June 30, 2019. There is a change in the total aggregate rate determined in the June 30, 2018 valuation calculated using the 2018 projected payroll by tier compared to that recalculated above using the 2019 projected payroll by tier as a result of new members entering Tier 6 and active members leaving the other tiers.*

(2) *The funded ratios on AVA basis excluding Harbor Port Police and Airport Police Officers are 56.43% and 51.17% for 2019 and 2018 respectively.*

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 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 a valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

- **Plan 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 LAFPP. 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 LAFPP.
- **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 plan trend and enrollment. 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 LAFPP. 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 LAFPP 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. LAFPP 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 LAFPP, it is not a fiduciary in its capacity as actuaries and consultants with respect to LAFPP.

January 8, 2020

ACTUARIAL CERTIFICATION

This is to certify that Segal Consulting (Segal) has conducted an actuarial valuation of certain benefit obligations of the City of Los Angeles Fire and Police Pension Plan's other postemployment benefit program as of June 30, 2019, in accordance with generally accepted actuarial principles and practices.

The actuarial valuation is based on the plan of benefits verified by LAFPP and reliance on participant, premium, claims and expense data provided by LAFPP. Segal has not audited the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. Segal, however, has reviewed the data for reasonableness and consistency.

One of the general goals of an actuarial valuation is to establish contributions that fully fund the Pension Plan'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 Statements No. 74 and judging benefit security at termination of the plan.

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, the American Academy of Actuaries, and other professional actuarial organizations and collectively meet their "General Qualification Standards for Statements of Actuarial Opinions" to render the actuarial opinion contained herein.

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Retiree Health Actuary

Andy Yeung
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Vice President and Actuary

Melissa A. K
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Senior Health Consultant

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, 2019	June 30, 2018
Participant Category		
Current retirees, beneficiaries, and dependents	$1,925,941,459	$1,944,377,905
Current active members	2,393,559,166	2,238,373,013
Terminated members entitled but not yet eligible and retirees and beneficiaries with deferred health benefits	127,688,641	137,803,541
Total	$4,447,189,266	$4,320,554,459

	June 30, 2019	June 30, 2018
Actuarial Balance Sheet		
The actuarial balance sheet as of the valuation date is as follows:		
Assets		
1. Actuarial value of assets	$2,016,201,804	$1,819,359,475
2. Present value of future normal costs	857,166,498	772,777,862
3. Unfunded actuarial accrued liability	1,573,820,964	1,728,417,122
4. Present value of current and future assets	$4,447,189,266	$4,320,554,459
Liabilities		
5. Actuarial present value of total projected benefits	$4,447,189,266	$4,320,554,459

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, 2019	June 30, 2018
Participant Category		
Current retirees, beneficiaries, and dependents	$1,925,941,459	$1,944,377,905
Current active members	1,536,392,668	1,465,595,151
Terminated members entitled but not yet eligible and retirees and beneficiaries with deferred health benefits	127,688,641	137,803,541
Total actuarial accrued liability	$3,590,022,768	$3,547,776,597
Actuarial value of assets	2,016,201,804	1,819,359,475
Unfunded actuarial accrued liability	$1,573,820,964	$1,728,417,122

Development of Unfunded Actuarial Accrued Liability for the Year Ended June 30, 2019	
1. Unfunded actuarial accrued liability at beginning of year	$1,728,417,122
2. Normal cost and allocated administrative expenses from prior valuation	72,690,268
3. Expected employer contributions during 2018/2019 fiscal year	197,549,013
4. Interest on prior year UAAL, normal cost and contributions	116,257,982
5. Expected unfunded actuarial accrued liability (1 + 2 – 3 + 4)	$1,719,816,359
6. Change due to investment experience (after smoothing)	-8,650,255
7. Change due to actual contributions less than expected	10,807,184
8. Change due to miscellaneous demographic gains (primarily more than expected retiree terminations)	-37,328,636
9. Change due to updated 2019/2020 premium and subsidy levels(1)	-164,151,399
10. Change due to updated OPEB assumptions	22,263,353
12. Change due to reflecting implicit subsidy cost for Fire Kaiser based on updated information provided by LAFPP	3,527,991
13. Change due to modifications in application of assumptions and methods as recommended by the auditing actuary	-26,167,874
14. Change due to updated mortality assumptions	53,704,241
15. Unfunded actuarial accrued liability at end of year	$1,573,820,964

(1) *The decrease in UAAL due to non-Medicare subsidy increasing by 5.50% instead of the assumed 7.00% was $7,650,770.*

Amortization payments are calculated as level dollar amounts for Tier 1 and as amounts designed to remain level as a percent of a growing payroll base for all other tiers. The Board of the City of Los Angeles Fire and Police Pension Plan has elected to amortize the unfunded actuarial accrued liability using the following amortization periods:

Type of Base	Amortization Period (Closed)
Actuarial Gains or Losses*	20
Assumption or Method Changes	20
Plan Amendments	15
ERIPs	5
Actuarial Surplus	30

* *Retiree health assumption changes in this valuation are treated as gains and losses and amortized over 20 years.*

CHART 3 – Table of Amortization Bases
Tier 1

Type	Date Established	Initial Balance	Initial Period	Outstanding Balance	Years Remaining	Annual Payment(1)
Combined Base	06/30/2011(2)	$26,295,692	25	$22,260,840	17	$2,162,896
Experience Gain	06/30/2012	-3,862,723	20	-3,078,067	13	-348,279
Experience Loss	06/30/2013	568,696	20	473,144	14	51,203
Experience Gain	06/30/2014	-116,336	20	-100,583	15	-10,460
Assumption Change	06/30/2014	-170,349	25	-155,598	20	-13,962
Experience Gain	06/30/2015	-350,770	20	-314,088	16	-31,517
Experience Gain	06/30/2016	-1,578,952	20	-1,459,135	17	-141,772
Assumption Change	06/30/2017	967,229	20	919,651	18	86,789
Experience Gain	06/30/2017	-1,175,982	20	-1,118,135	18	-105,520
Experience Gain	06/30/2018	-980,558	20	-957,285	19	-87,985
Assumption Change	06/30/2019	-485,797	20	-485,797	20	-43,590
Experience Gain	06/30/2019	-1,435,708	20	-1,435,708	20	-128,825
Total				$14,549,239		$1,388,978

(1) *Level dollar amortization.*

(2) *Prior to the June 30, 2012 valuation, separate amortization layers were not maintained.*

CHART 3 - Table of Amortization Bases (Continued)

Tier 2

Type	Date Established	Initial Balance	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Combined Base	06/30/2011[2]	$892,673,992	25	$933,530,344	17	$71,904,106
Experience Gain	06/30/2012	-78,975,844	20	-74,847,995	13	-7,065,364
Experience Loss	06/30/2013	11,740,672	20	11,319,699	14	1,008,594
Experience Gain	06/30/2014	-19,495,604	20	-19,026,209	15	-1,608,190
Assumption Change	06/30/2014	9,333,499	25	9,693,031	20	665,523
Experience Loss	06/30/2015	34,495,425	20	34,008,293	16	2,738,815
Experience Gain	06/30/2016	-26,904,116	20	-26,692,494	17	-2,055,959
Assumption Change	06/30/2017	65,323,379	20	65,000,980	18	4,804,552
Experience Gain	06/30/2017	-42,827,148	20	-42,615,778	18	-3,149,948
Experience Loss	06/30/2018	17,399,406	20	17,379,608	19	1,236,455
Assumption Change	06/30/2019	-24,391,246	20	-24,391,246	20	-1,674,702
Experience Gain	06/30/2019	-60,756,692	20	-60,756,692	20	-4,171,552
Total				$822,601,541		$62,632,330

(1) *Level percentage of payroll amortization.*

(2) *Prior to the June 30, 2012 valuation, separate amortization layers were not maintained.*

CHART 3 - Table of Amortization Bases (Continued)

Tier 3

Type	Date Established	Initial Balance	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Combined Base	06/30/2011[2]	$68,153,341	25	$71,272,617	17	$5,489,692
Experience Gain	06/30/2012	-4,428,062	20	-4,196,620	13	-396,145
Experience Loss	06/30/2013	13,070,888	20	12,602,218	14	1,122,868
Experience Gain	06/30/2014	-7,497,023	20	-7,316,517	15	-618,428
Assumption Change	06/30/2014	2,693,968	25	2,797,740	20	192,093
Experience Gain	06/30/2015	-1,747,416	20	-1,722,739	16	-138,739
Experience Loss	06/30/2016	2,480,551	20	2,461,039	17	189,559
Assumption Change	06/30/2017	11,598,633	20	11,541,389	18	853,083
Experience Gain	06/30/2017	-10,568,753	20	-10,516,592	18	-777,335
Experience Loss	06/30/2018	2,430,745	20	2,427,979	19	172,736
Assumption Change	06/30/2019	6,680,084	20	6,680,084	20	458,654
Experience Gain	06/30/2019	-16,170,110	20	-16,170,110	20	-1,110,239
Total				$69,860,488		5,437,799

(1) *Level percentage of payroll amortization.*
(2) *Prior to the June 30, 2012 valuation, separate amortization layers were not maintained.*

CHART 3 - Table of Amortization Bases (Continued)

Tier 4

Type	Date Established	Initial Balance	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Combined Base	06/30/2011[2]	$49,380,711	25	$51,640,793	17	$3,977,573
Experience Gain	06/30/2012	-3,240,833	20	-3,071,444	13	-289,933
Experience Loss	06/30/2013	1,622,876	20	1,564,685	14	139,415
Experience Gain	06/30/2014	-6,372,636	20	-6,219,203	15	-525,678
Assumption Change	06/30/2014	4,070,034	25	4,226,814	20	290,213
Experience Gain	06/30/2015	-3,458,772	20	-3,409,928	16	-274,614
Experience Loss	06/30/2016	2,516,035	20	2,496,245	17	192,270
Assumption Change	06/30/2017	6,027,503	20	5,997,755	18	443,325
Experience Gain	06/30/2017	-4,896,151	20	-4,871,987	18	-360,113
Experience Loss	06/30/2018	1,422,225	20	1,420,607	19	101,068
Assumption Change	06/30/2019	3,344,627	20	3,344,627	20	229,642
Experience Gain	06/30/2019	-7,119,541	20	-7,119,541	20	-488,827
Total				$45,999,423		$3,434,341

(1) *Level percentage of payroll amortization.*

(2) *Prior to the June 30, 2012 valuation, separate amortization layers were not maintained.*

CHART 3 - Table of Amortization Bases (Continued)

Tiers 5 and 6 (without Harbor Port Police)

Type	Date Established	Initial Balance	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Combined Base	06/30/2011[2]	$635,657,540	25	$664,750,633	17	$51,201,656
Experience Gain	06/30/2012	-36,520,953	20	-34,612,102	13	-3,267,250
Experience Gain	06/30/2013	-195,938	20	-188,911	14	-16,832
Experience Gain	06/30/2014	-85,025,359	20	-82,978,210	15	-7,013,731
Assumption Change	06/30/2014	45,164,286	25	46,904,039	20	3,220,430
Experience Gain	06/30/2015	-5,944,485	20	-5,860,538	16	-471,971
Experience Gain	06/30/2016	-6,139,038	20	-6,090,749	17	-469,133
Assumption Change	06/30/2017	128,177,438	20	127,544,827	18	9,427,485
Experience Gain	06/30/2017	-72,934,341	20	-72,574,378	18	-5,364,341
Experience Loss	06/30/2018	26,485,437	20	26,455,302	19	1,882,136
Assumption Change	06/30/2019	67,742,714	20	67,742,714	20	4,651,212
Experience Gain	06/30/2019	-113,760,430	20	-113,760,430	20	-7,810,787
Total				$617,332,197		$45,968,874

(1) *Level percentage of payroll amortization.*

(2) *Prior to the June 30, 2012 valuation, separate amortization layers were not maintained.*

CHART 3 - Table of Amortization Bases (Continued)

Harbor Port Police (Tiers 5 and 6)

Type	Date Established	Initial Balance	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Combined Base	06/30/2011[2]	$2,555,060	25	$2,672,001	17	$205,808
Experience Gain	06/30/2012	-481,777	20	-456,596	13	-43,101
Experience Gain	06/30/2013	-71,817	20	-69,242	14	-6,170
Experience Gain	06/30/2014	-232,604	20	-227,003	15	-19,187
Assumption Change	06/30/2014	296,216	25	307,626	20	21,122
Experience Gain	06/30/2015	-64,131	20	-63,226	16	-5,092
Experience Loss	06/30/2016	181,052	20	179,627	17	13,836
Assumption Change	06/30/2017	873,251	20	868,942	18	64,228
Experience Gain	06/30/2017	-786,387	20	-782,507	18	-57,839
Experience Loss	06/30/2018	30,735	20	30,700	19	2,184
Assumption Change	06/30/2019	711,636	20	711,636	20	48,861
Experience Gain	06/30/2019	-255,031	20	-255,031	20	-17,510
Total				$2,916,927		$207,140

Airport Police Officers Tier 6

Type	Date Established	Initial Balance	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Experience Loss	06/30/2018	$661,802	20	$661,049	19	$47,030
Assumption Change	06/30/2019	102,223	20	102,223	20	7,019
Experience Gain	06/30/2019	-202,123	20	-202,123	20	-13,878
Total				$561,149		$40,171

(1) *Level percentage of payroll amortization.*

(2) *Prior to the June 30, 2012 valuation, separate amortization layers were not maintained.*

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 separately for each Tier. Both are determined as of the start of the period and adjusted as if the annual cost were to be contributed throughout the fiscal year or on July 15th.

CHART 4

Determination of Actuarially Determined Contribution (ADC)

	Determined as of June 30			
Cost Element	**2019**		**2018**	
	Amount	**Percentage of Compensation**	**Amount**	**Percentage of Compensation**
1. Normal cost	$77,036,694	4.86%	$74,369,364	4.69%
2. Amortization of the unfunded actuarial accrued liability	119,109,633	7.52%	127,953,773	8.08%
3. Allocated amount for administrative expenses	1,376,405	0.09%	1,376,405	0.09%
4. Total Actuarially Determined Contribution at beginning of year	$197,522,732	12.47%	$203,699,542	12.86%
5. Adjustment for timing (payable July 15)	576,886	0.04%	594,926	0.04%
6. Total Actuarially Determined Contribution (payable July 15)	$198,099,618	12.51%	$204,294,468	12.90%
7. Adjustment for timing (payable throughout the year)	7,034,922	0.45%	7,254,914	0.46%
8. Total Actuarially Determined Contribution (payable throughout the year)	$204,557,654	12.92%	$210,954,456	13.32%
9. Projected Compensation	$1,583,807,653		N/A	

CHART 5

Schedule of Employer Contributions

Fiscal Year Ended June 30	Actuarially Determined Contributions[1]	Actual Contributions[1]	Percentage Contributed
2014	$138,106,847	$138,106,847	100.00%
2015	148,476,512	148,476,512	100.00
2016	150,315,374	150,315,374	100.00
2017	165,170,422	165,170,422	100.00
2018	178,462,244[2]	178,462,244[2]	100.00
2019	188,019,917	188,019,917	100.00

[1] *Payable as of July 15.*
[2] *Excludes $517,068 transferred from LACERS for the Airport Police members who elected to join LAFPP Tier 6.*

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

	(Amounts in $1,000s)					
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)]
06/30/2014	$1,200,874	$2,783,283	$1,582,409	43.15%	$1,402,715	112.81%
06/30/2015	1,344,333	2,962,703	1,618,370	45.38%	1,405,171	115.17%
06/30/2016	1,480,810	3,079,670	1,598,860	48.08%	1,400,808	114.14%
06/30/2017	1,637,846	3,322,746	1,684,900	49.29%	1,475,539	114.19%
06/30/2018	1,819,359	3,547,777	1,728,417	51.28%	1,546,043	111.80%
06/30/2019	2,016,202	3,590,023	1,573,821	56.16%	1,583,808	99.37%

EXHIBIT A

Summary of Participant Data – Retiree Health Actuarial Valuation

	June 30, 2019	June 30, 2018
Retired members:		
Number of non-disabled retirees	8,129	7,971
Number of disabled retirees	1,258	1,293
Total Number of retirees	9,387	9,264
Average age of retirees	71.3	71.2
Number of spouses/domestic partners of retirees receiving subsidy	6,256	6,247
Average age of spouses/domestic partners of retirees receiving subsidy	67.8	67.4
Beneficiaries:		
Number	1,690	1,649
Average age	80.1	79.8
Active members in valuation:		
Number	13,535	13,442
Average age	42.2	42.3
Average years of service	15.2	15.3
Vested terminated members:		
Number		
Eligible for deferred pension and health benefits	65	105
Retirees and beneficiaries not in pay status but eligible for deferred health benefits	821	794
Total	886	899
Average age	51.9	51.9

EXHIBIT A (Continued)

Summary of Participant Data – Pension Actuarial Valuation

	June 30, 2019	June 30, 2018
Retired members:		
Number of non-disabled retirees	8,811	8,623
Number of disabled retirees	1,821	1,883
Total Number of retirees	10,632	10,506
Average age of retirees	70.2	70.2
Number of spouses/domestic partners of retirees receiving health subsidy	6,256	6,247
Average age of spouses/domestic partners of retirees receiving health subsidy	67.8	67.4
Beneficiaries:		
Number	2,465	2,384
Average age	76.6	76.4
Active members in valuation:		
Number	13,535	13,442
Average age	42.2	42.3
Average years of service	15.2	15.3
Vested terminated members[1]:		
Number	65	105
Average age	47.7	46.9

[1] *Excludes 458 in 2019 and 430 in 2018 of terminated members not eligible for retiree health benefit due to service or due only a refund of member contributions.*

EXHIBIT B

Reconciliation of Retiree Health Participant Data with Pension Participant Data

	June 30, 2019	June 30, 2018
Retired members:		
Pension valuation	8,811	8,623
Retirees with no subsidy due to service or decision not to enroll	-179	-189
Deferred retirees eligible for future health benefits	-503	-463
Health valuation	8,129	7,971
Disabled members:		
Pension valuation	1,821	1,883
Disableds with no subsidy due to service or decision not to enroll	-432	-437
Deferred disableds eligible for future health benefits	-131	-153
Health valuation	1,258	1,293
Beneficiaries:		
Pension valuation	2,465	2,384
Surviving spouses with no subsidy due to service or decision not to enroll	-588	-557
Deferred surviving spouses eligible for future health benefits	-187	-178
Health valuation	1,690	1,649
Active members:		
Pension valuation	13,535	13,442
Health valuation	13,535	13,442
Vested terminated members:		
Pension valuation(1)	65	105
Retirees eligible for deferred health benefits	+503	+463
Disableds eligible for deferred health benefits	+131	+153
Beneficiaries eligible for deferred health benefits	+187	+178
Health valuation	886	899

(1) *Excludes 458 in 2019 and 430 in 2018 terminated members not eligible for retiree health benefit due to service or due only a refund of member contributions.*

EXHIBIT C

Recommended Employer Contribution Rates

Tier 1 Members		June 30, 2019 Amount	June 30, 2019 % of Payroll	June 30, 2018 Amount	June 30, 2018 % of Payroll
1	Employer normal cost	$0	N/A	$0	N/A
2	Actuarial accrued liability	9,833,257		11,977,630	
3	Valuation value of assets	-4,715,982		-4,941,100	
4	Unfunded actuarial accrued liability	$14,549,239		$16,918,730	
5	Amortization of unfunded accrued liability	1,388,978	N/A	1,561,394	N/A
6	Allocated amount for admin expenses, calculated with payroll in 10	0		0	
7	**Total recommended contribution, July 1**	**$1,388,978**	**N/A**	**$1,561,394**	**N/A**
8	**Total recommended contribution, July 15**	**$1,393,035**	**N/A**	**$1,565,954**	**N/A**
9	**Total recommended contribution, biweekly**	**$1,438,448**	**N/A**	**$1,617,004**	**N/A**
10	Projected compensation used for developing normal cost rate	N/A		N/A	

Tier 2 Members		June 30, 2019 Amount	June 30, 2019 % of Payroll	June 30, 2018 Amount[2]	June 30, 2018 % of Payroll
1	Employer normal cost	$27,396	2.99%	$25,815	2.82%
2	Actuarial accrued liability	832,787,372		926,902,758	
3	Valuation value of assets	10,185,831		14,353,413	
4	Unfunded actuarial accrued liability	$822,601,541		$912,549,345	
5	Amortization of unfunded accrued liability[1]	62,632,330	4.01%	67,639,957	4.33%
6	Allocated amount for admin expenses, calculated with payroll in 10	796	0.09%	796	0.09%
7	**Total recommended contribution, July 1**	**$62,660,522**	**N/A**	**$67,666,568**	**N/A**
8	**Total recommended contribution, July 15**	**$62,843,529**	**N/A**	**$67,864,195**	**N/A**
9	**Total recommended contribution, biweekly**	**$64,892,224**	**N/A**	**$70,076,564**	**N/A**
10	Projected compensation used for developing normal cost rate	915,430		N/A	

[1] *UAAL rate is calculated using the City's total payroll of $1,562,123,727.*

[2] *Amounts are revised to reflect payroll as of June 30, 2019.*

Tier 3 Members		June 30, 2019 Amount	June 30, 2019 % of Payroll	June 30, 2018 Amount[2]	June 30, 2018 % of Payroll
1	Employer normal cost	$3,898,471	4.61%	$3,825,384	4.52%
2	Actuarial accrued liability	232,723,236		224,478,833	
3	Valuation value of assets	162,862,748		144,608,876	
4	Unfunded actuarial accrued liability	$69,860,488		$79,869,957	
5	Amortization of unfunded accrued liability[1]	5,437,799	0.35%	6,092,283	0.39%
6	Allocated amount for admin expenses, calculated with payroll in 10	73,550	0.09%	73,550	0.09%
7	**Total recommended contribution, payable July 1**	**$9,409,820**	**N/A**	**$9,991,217**	**N/A**
8	**Total recommended contribution, payable July 15**	**$9,437,302**	**N/A**	**$10,020,397**	**N/A**
9	**Total recommended contribution, payable biweekly**	**$9,744,958**	**N/A**	**$10,347,062**	**N/A**
10	Projected compensation used for developing normal cost rate	84,632,397		N/A	

Tier 4 Members		June 30, 2019 Amount	June 30, 2019 % of Payroll	June 30, 2018 Amount[2]	June 30, 2018 % of Payroll
1	Employer normal cost	$1,433,285	4.47%	$1,391,874	4.34%
2	Actuarial accrued liability	117,470,215		114,218,478	
3	Valuation value of assets	71,470,792		64,240,216	
4	Unfunded actuarial accrued liability	$45,999,423		$49,978,262	
5	Amortization of unfunded accrued liability[1]	3,434,341	0.22%	3,592,885	0.23%
6	Allocated amount for admin expenses, calculated with payroll in 10	27,871	0.09%	27,871	0.09%
7	**Total recommended contribution, payable July 1**	**$4,895,497**	**N/A**	**$5,012,630**	**N/A**
7	**Total recommended contribution, payable July 15**	**$4,909,795**	**N/A**	**$5,027,270**	**N/A**
9	**Total recommended contribution, payable biweekly**	**$5,069,854**	**N/A**	**$5,191,159**	**N/A**
10	Projected compensation used for developing normal cost rate	32,070,830		N/A	

[1] *UAAL rate is calculated using the City's total payroll of $1,562,123,727.*
[2] *Amounts are revised to reflect payroll as of June 30, 2019.*

Tier 5 Members (without Harbor Port Police)

		June 30, 2019		June 30, 2018	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$49,357,256	4.32%	$47,995,369	4.20%
2	Actuarial accrued liability	*(Tiers 5 and 6 are combined. See table on the next page)*		*(Tiers 5 and 6 are combined. See table on the next page)*	
3	Valuation value of assets				
4	Unfunded actuarial accrued liability				
5	Amortization of unfunded accrued liability	$36,372,964	3.18%	$38,624,845	3.38%
6	Allocated amount for admin expenses, calculated with payroll in 10	993,102	0.09%	993,102	0.09%
7	**Total recommended contribution, payable July 1**	**$86,723,322**	**7.59%**	**$87,613,316**	**7.67%**
8	**Total recommended contribution, payable July 15**	**$86,976,607**	**7.61%**	**$87,869,200**	**7.69%**
9	**Total recommended contribution, payable biweekly**	**$89,812,039**	**7.86%**	**$90,733,731**	**7.94%**
10	Projected compensation used for developing normal cost rate	1,142,746,882		N/A	

Tier 6 Members (without Harbor Port Police and Airport Police)

		June 30, 2019		June 30, 2018	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$20,866,534	6.91%	$19,765,161	6.55%
2	Actuarial accrued liability	*(Tiers 5 and 6 are combined. See table on the next page)*		*(Tiers 5 and 6 are combined. See table on the next page)*	
3	Valuation value of assets				
4	Unfunded actuarial accrued liability				
5	Amortization of unfunded accrued liability	$9,595,910	3.18%	$10,199,427	3.38%
6	Allocated amount for admin expenses, calculated with payroll in 10	262,242	0.09%	262,242	0.09%
7	**Total recommended contribution, payable July 1**	**$30,724,686**	**10.18%**	**$30,226,830**	**10.02%**
8	**Total recommended contribution, payable July 15**	**$30,814,421**	**10.21%**	**$30,315,111**	**10.05%**
9	**Total recommended contribution, payable biweekly**	**$31,818,969**	**10.54%**	**$31,303,382**	**10.37%**
10	Projected compensation used for developing normal cost rate	301,758,188		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2019.*

Combined Tiers 5 and 6 UAAL Contribution Rate Calculations for the City

		June 30, 2019				June 30, 2018	
		Tier 5	Tier 6	Combined Tiers 5 and 6		Combined Tiers 5 and 6	
				Amount	% of Payroll	Amount[1]	% of Payroll
2	Actuarial accrued liability	$2,319,912,758	$60,226,687	$2,380,139,445		$2,255,680,118	
3	Valuation value of assets			1,762,807,248		1,589,704,941	
4	Unfunded actuarial accrued liability			$617,332,197		$665,975,177	
5	Amortization of unfunded accrued liability			45,968,874	3.18%	48,824,272	3.38%
	Projected compensation used for developing combined UAAL rate	1,142,746,882	301,758,188	1,444,505,070		N/A	

All Tiers Combined (without Harbor Port Police and Airport Police)

		June 30, 2019		June 30, 2018	
		Amount	% of Payroll	Amount[1][3]	% of Payroll
1	Employer normal cost	$75,582,942	4.83%	$73,003,603	4.67%
2	Actuarial accrued liability	3,572,953,525		3,533,257,817	
3	Valuation value of assets	2,002,610,637		1,807,966,346	
4	Unfunded actuarial accrued liability	$1,570,342,888		$1,725,291,471	
5	Amortization of unfunded accrued liability	118,862,322	7.61%	127,710,791	8.18%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,357,561	0.09%	1,357,561	0.09%
7	**Total recommended contribution, payable July 1**	**$195,802,825**	**12.53%**	**$202,071,955**	**12.94%**
8	**Total recommended contribution, payable July 15**	**$196,374,688**	**12.57%**	**$202,662,128**	**12.97%**
9	**Total recommended contribution, payable biweekly**	**$202,776,491**	**12.98%**	**$209,268,901**	**13.40%**
10	Projected compensation used for developing normal cost rate	1,562,123,727		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2019.*

[2] *Amounts are recalculated to reflect payroll of active members enrolled in the different tiers as of June 30, 2019. There is a change in the total aggregate rate determined in the June 30, 2018 valuation calculated using the 2018 projected payroll by tier compared to that recalculated above using the 2019 projected payroll by tier as a result of new members entering Tier 6 and active members leaving the other Tiers. This shows that even if the contribution rate for each tier were to remain unchanged, the aggregate rate (which is the weighted average of the rates by tier) would change over time as the proportion of non-Tier 6 payroll decreases and the proportion of Tier 6 payroll increases. In our June 30, 2018 valuation report, the aggregate rate (all Tiers combined without Harbor Port Police) is 12.84% payable July 1, based on June 30, 2018 projected payroll. The total aggregate rate is increased slightly to 12.94%, payable July 1, using the June 30, 2019 projected payroll.*

Harbor Port Police Tier 5

		June 30, 2019		June 30, 2018	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$722,441	6.02%	$692,050	5.77%
2	Actuarial accrued liability	*(Tiers 5 and 6 are combined. See table on the next page)*		*(Tiers 5 and 6 are combined. See table on the next page)*	
3	Valuation value of assets				
4	Unfunded actuarial accrued liability				
5	Amortization of unfunded accrued liability	$171,287	1.43%	$145,127	1.21%
6	Allocated amount for admin expenses, calculated with payroll in 10	10,423	0.09%	10,423	0.09%
7	**Total recommended contribution, payable July 1**	**$904,151**	**7.54%**	**$847,600**	**7.07%**
8	**Total recommended contribution, payable July 15**	**$906,792**	**7.56%**	**$850,076**	**7.10%**
9	**Total recommended contribution, payable biweekly**	**$936,353**	**7.81%**	**$877,788**	**7.33%**
10	Projected compensation used for developing normal cost rate	11,993,936		N/A	

Harbor Port Police Tier 6

		June 30, 2019		June 30, 2018	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$169,165	6.74%	$158,705	6.33%
2	Actuarial accrued liability	*(Tiers 5 and 6 are combined. See table on the next page)*		*(Tiers 5 and 6 are combined. See table on the next page)*	
3	Valuation value of assets				
4	Unfunded actuarial accrued liability				
5	Amortization of unfunded accrued liability	$35,853	1.43%	$30,337	1.21%
6	Allocated amount for admin expenses, calculated with payroll in 10	2,179	0.09%	2,179	0.09%
7	**Total recommended contribution, payable July 1**	**$207,197**	**8.26%**	**$191,221**	**7.63%**
8	**Total recommended contribution, payable July 15**	**$207,802**	**8.29%**	**$191,779**	**7.65%**
9	**Total recommended contribution, payable biweekly**	**$214,576**	**8.56%**	**$198,031**	**7.90%**
10	Projected compensation used for developing normal cost rate	2,507,195		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2019.*

Combined Tiers 5 and 6 UAAL Contribution Rate Calculations for Harbor Port Police

		June 30, 2019				June 30, 2018	
		Tier 5	Tier 6	Combined Tiers 5 and 6		Combined Tiers 5 and 6	
				Amount	% of Payroll	Amount	% of Payroll
2	Actuarial accrued liability	$14,910,804	$447,585	$15,358,389		$13,163,817	
3	Valuation value of assets			12,441,462		10,699,968	
4	Unfunded actuarial accrued liability			$2,916,927		$2,463,849	
5	Amortization of unfunded accrued liability			207,140	1.43%	175,464	1.21%
	Projected compensation used for developing combined UAAL rate	11,993,936	2,507,195	14,501,131		N/A	

Harbor Port Police Combined (Tiers 5 and 6)

		June 30, 2019		June 30, 2018	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$891,606	6.14%	$850,755	5.87%
2	Actuarial accrued liability	15,358,389		13,163,817	
3	Valuation value of assets	12,441,462		10,699,968	
4	Unfunded actuarial accrued liability	$2,916,927		$2,463,849	
5	Amortization of unfunded accrued liability	207,140	1.43%	175,464	1.21%
6	Allocated amount for admin expenses, calculated with payroll in 10	12,602	0.09%	12,602	0.09%
7	**Total recommended contribution, payable July 1**	**$1,111,348**	**7.66%**	**$1,038,821**	**7.16%**
8	**Total recommended contribution, payable July 15**	**$1,114,594**	**7.69%**	**$1,041,855**	**7.18%**
9	**Total recommended contribution, payable biweekly**	**$1,150,929**	**7.94%**	**$1,075,819**	**7.42%**
10	Projected compensation used for developing normal cost rate	14,501,131		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2019.*

Airport Police Officers Tier 6

		June 30, 2019		June 30, 2018	
		Amount	% of Payroll	Amount(1)	% of Payroll
1	Employer normal cost	$562,146	7.82%	$515,006	7.17%
2	Actuarial accrued liability	1,710,854		1,354,963	
3	Valuation value of assets	1,149,705		693,161	
4	Unfunded actuarial accrued liability	$561,149		$661,802	
5	Amortization of unfunded accrued liability	40,171	0.56%	67,518	0.94%
6	Allocated amount for admin expenses, calculated with payroll in 10	6,242	0.09%	6,242	0.09%
7	**Total recommended contribution, payable July 1**	**$608,559**	**8.47%**	**$588,766**	**8.20%**
8	**Total recommended contribution, payable July 15**	**$610,336**	**8.50%**	**$590,486**	**8.22%**
9	**Total recommended contribution, payable biweekly**	**$630,233**	**8.77%**	**$609,735**	**8.49%**
10	Projected compensation used for developing normal cost rate	7,182,795		N/A	

(1) *Amounts are revised to reflect payroll as of June 30, 2019.*

All Tiers Combined

		June 30, 2019		June 30, 2018	
		Amount	% of Payroll	Amount(1)	% of Payroll
1	Employer normal cost	$77,036,694	4.86%	$74,369,364	4.69%
2	Actuarial accrued liability	3,590,022,768		3,547,776,597	
3	Valuation value of assets	2,016,201,804		1,819,359,475	
4	Unfunded actuarial accrued liability	$1,573,820,964		$1,728,417,122	
5	Amortization of unfunded accrued liability	119,109,633	7.52%	127,953,773	8.08%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,376,405	0.09%	1,376,405	0.09%
7	**Total recommended contribution, payable July 1**	**$197,522,732**	**12.47%**	**$203,699,542**	**12.86%**
8	**Total recommended contribution, payable July 15**	**$198,099,618**	**12.51%**	**$204,294,468**	**12.90%**
9	**Total recommended contribution, payable biweekly**	**$204,557,654**	**12.92%**	**$210,954,456**	**13.32%**
10	Projected compensation used for developing normal cost rate	1,583,807,653		N/A	

(1) *Amounts are revised to reflect payroll as of June 30, 2019.*

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
2020	17,333	241	17,574	$141,610,843	$2,284,842	$143,895,685
2021	17,273	1,058	18,331	146,664,241	10,916,330	157,580,571
2022	16,786	1,853	18,639	149,136,216	20,283,012	169,419,228
2023	16,292	2,816	19,108	152,105,126	32,496,131	184,601,257
2024	15,793	4,075	19,868	154,212,085	49,689,543	203,901,628
2025	15,288	5,119	20,407	155,646,633	65,226,254	220,872,887
2026	14,777	5,712	20,489	156,937,639	75,336,567	232,274,206
2027	14,258	6,335	20,593	157,739,889	86,515,185	244,255,074
2028	13,732	7,018	20,750	158,024,916	98,672,843	256,697,759
2029	13,202	7,716	20,918	157,944,807	110,836,069	268,780,876

* *Includes spouses of retirees.*

EXHIBIT E

Summary Statement of Income and Expenses on a Market Value Basis
All Retirement and Health Subsidy Benefits

	Year Ended June 30, 2019		Year Ended June 30, 2018	
Net assets at market value at the beginning of the year		**$22,360,370,203**		**$20,662,406,596**
Contribution income:				
Employer contributions	$692,897,316		$639,945,905	
Member contributions	147,752,497		146,282,682	
Net contribution income		$840,649,813		$786,228,587
Investment income:				
Interest, dividends and other income	$1,506,893,160		$1,743,935,819	
Recognition of capital appreciation	(63,115,216)		410,192,186	
Less investment fees	(114,451,387)		(95,217,452)	
Net investment income		$1,329,326,557		2,058,910,553
Total income available for benefits		**$2,169,976,370**		**$2,845,139,140**
Less benefit payments		$(1,208,330,043)		$(1,125,521,496)
Less administrative expenses		(22,099,870)		(21,654,037)
Change in net assets at market value		**$939,546,457**		**$1,697,963,607**
Net assets at market value at the end of the year		**$23,299,916,660**		**$22,360,370,203**

EXHIBIT F

Summary Statement of Plan Assets
All Assets For Retirement and Health Subsidy Benefits

	Year Ended June 30, 2019		Year Ended June 30, 2018	
Cash equivalents		$3,030,085		$1,907,884
Accounts receivable:				
Accrued interest and dividends	$84,549,708		$74,516,264	
Contributions	8,340,007		8,560,537	
Due from brokers	428,898,729		120,224,468	
Total accounts receivable		$521,788,444		$203,301,269
Investments:				
Equities	$14,893,471,207		$14,486,973,615	
Fixed income investments	7,306,404,108		6,704,268,155	
Real estate	1,476,898,794		1,417,018,290	
Total investments at market value		$23,676,774,109		$22,608,260,060
Total assets		$24,201,592,638		$22,813,469,213
Less accounts payable:				
Accounts payable and benefits in process	$(37,753,098)		$(34,428,662)	
Due to brokers	(685,323,718)		(244,400,114)	
Mortgage payable	(178,599,162)		(174,270,234)	
Total accounts payable		$(901,675,978)		$(453,099,010)
Net assets at market value		**$23,299,916,660**		**$22,360,370,203**
Net assets at actuarial value		**$23,053,912,894**		**$21,659,429,558**
Net assets at valuation value (health benefits)		**$2,016,201,804**		**$1,819,359,475**

EXHIBIT G

Development of the Fund Through June 30, 2019
All Assets for Retirement and Health Subsidy Benefits

Year Ended June 30	Employer Contributions	Member Contributions	Administrative Expenses	Net Investment Return[1]	Benefit Payments	Market Value of Assets at Year End	Actuarial Value of Assets at Year End	Actuarial Value as a Percent of Market Value
2010	$357,165,140	$106,411,630	-	$360,741,904	$853,749,429	$12,198,968,351	$15,036,856,639	123.3%
2011	388,773,459	105,471,264	-	568,411,044	878,952,809	14,400,209,049	15,220,559,597	105.7%
2012	444,565,284	120,099,124	-	320,400,668	926,349,506	14,132,070,728	15,179,275,167	107.4%
2013	508,387,283	121,777,655	-	827,790,619	966,118,502	15,748,371,630	15,671,112,222	99.5%
2014	578,805,107	124,394,889	-	1,468,399,449	963,356,954	18,291,010,687	16,879,354,713	92.3%
2015	628,808,763	126,770,882	$19,178,885	1,527,957,644	1,029,319,785	18,737,100,702	18,114,393,332	96.7%
2016	628,700,812	129,733,559	20,897,310	1,381,259,601	1,107,041,622	18,539,679,980	19,126,148,372	103.2%
2017	619,479,274	128,900,736	22,563,327	1,517,741,599	1,052,639,705	20,662,406,596	20,317,066,949	98.3%
2018	639,945,905	146,282,682	21,654,037	1,703,309,555	1,125,521,496	22,360,370,203	21,659,429,558	96.9%
2019	692,897,316	147,752,497	22,099,870	1,329,326,557	1,208,330,043	23,299,916,660	23,053,912,894	98.9%

[1] *Net of investment fees and administrative expenses prior to 2015. Starting in 2015, administrative expenses are shown separately.*

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board of Commissioners 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 H

Determination of Actuarial Value of Assets

	Original Amount	Percent Deferred	Unrecognized Amount	
1. Market value of assets (for Retirement and Health Subsidy Benefits)				$23,299,916,660
2. Calculation of unrecognized return[1]				
(a) Combined Net Deferred Gains as of June 30, 2013[2]	$77,259,408	0/6	$0	
(b) Year ended June 30, 2014	$1,571,818,656	1/7	$224,545,522	
(c) Year ended June 30, 2015	(643,447,599)	2/7	(183,842,171)	
(d) Year ended June 30, 2016	(1,240,953,883)	3/7	(531,837,378)	
(e) Year ended June 30, 2017	1,050,034,903	4/7	600,019,945	
(f) Year ended June 30, 2018	$552,799,174	5/7	394,856,553	
(g) Year ended June 30, 2019	(300,695,155)	6/7	(257,738,705)	
(h) Total unrecognized return[3]				$246,003,766
3. Preliminary actuarial value: (1) - (2h)				$23,053,912,894
4. Adjustment to be within 40% corridor				0
5. Final actuarial value of assets: (3) + (4)				$23,053,912,894
6. Actuarial value as a percentage of market value: (5) ÷ (1)				98.9%
7. Market value of health assets				$2,037,716,297
8. Valuation value of health assets: (5) ÷ (1) x (7)				$2,016,201,804

(1) *Total return minus expected return on a market value basis. Effective with the calculation for period ended June 30, 2015, both actual and expected returns on market value have been adjusted to exclude administrative expense paid during the plan year.*

(2) *Net deferred unrecognized investment gains as of June 30, 2013 have been combined into a single layer to be recognized over a six-year period effective July 1, 2013. This is fully recognized as of June 30, 2019.*

(3) *Deferred return as of June 30, 2019 recognized in each of the next six years:*

(a) Amount recognized on June 30, 2020	*$141,365,156*
(b) Amount recognized on June 30, 2021	*(83,180,365)*
(c) Amount recognized on June 30, 2022	*8,740,720*
(d) Amount recognized on June 30, 2023	*186,019,847*
(e) Amount recognized on June 30, 2024	*36,014,858*
(f) Amount recognized on June 30, 2025	*(42,956,450)*
(g) Total unrecognized return as of June 30, 2019	*$246,003,766*

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

EXHIBIT I

Reconciliation of Recommended Contribution from June 30, 2018 to June 30, 2019[1]

Recommended Contribution as of June 30, 2018	12.78%
Effect of amortizing prior year's UAAL over a lower than expected projected compensation	0.08%
Change due to investment gain (after smoothing)	-0.04%
Change due to actual contributions less than expected	0.05%
Change due to miscellaneous demographic gains (primarily more than expected retiree terminations)	-0.03%
Change due to updated 2019/2020 premium and subsidy levels[2]	-0.90%
Change due to updated OPEB assumptions	0.15%
Change due to reflecting implicit subsidy cost for Fire Kaiser based on updated information provided by LAFPP	0.02%
Change due to modifications in application of assumptions and methods as recommended by the auditing actuary	-0.13%
Change due to updated mortality assumption	0.49%
Recommended Contribution as of June 30, 2019	12.47%

[1]*Based on contributions at beginning of year.*

[2]*Decrease in contribution due to non-Medicare subsidy increasing by 5.50% instead of assumed 7.00% was 0.05%.*

EXHIBIT I

Summary of Supplementary Information

Valuation date	June 30, 2019
Actuarial cost method	Entry age normal, level percent of pay
Amortization method	Closed amortization periods. On September 6, 2012, the Board adopted the following amortization policy:

Type of Base	Amortization Period (Closed)
Actuarial Gains or Losses[1]	20
Assumption or Method Changes	20
Plan Amendments	15
ERIPs	5
Actuarial Surplus	30

Asset valuation method	Market Value of Assets (MVA) less unrecognized returns. Unrecognized returns are equal to the difference between the actual market return and the expected return on the market value, and are recognized over a seven-year period. The Actuarial Value of Assets (AVA) is limited by a 40% corridor; the AVA cannot be less than 60% of MVA, nor greater than 140% of MVA.
Actuarial assumptions:	
Investment rate of return	7.25%
Inflation rate	3.00%
Across-the-board pay increase	0.50%
Payroll growth	3.50%
Health care cost trend rate (to calculate following year's premium)	
• Medical Non-Medicare[3]	8.75% in 2019-2020[2], then decreasing by 0.25% for each year for nine years until it reaches an ultimate rate of 4.50%.
• Medical Medicare[3]	8.00% in 2019-2020, then decreasing by 0.25% for each year for seven years until it reaches an ultimate rate of 4.50%.
• Dental	4.00% for all years
• Medicare Part B Premium	4.50% for all years

(1) *Retiree health assumption changes are treated as gains and losses.*

(2) *For example, the 8.75% assumption, when applied to the 2019/2020 non-Medicare medical premiums, would provide the projected 2020/2021 non-Medicare medical premiums.*

(3) *The trends shown for fiscal year 2019-2020 do reflect additional estimated increases of 2.00% (non-Medicare) and 1.75% (Medicare) from the impact of the Health Insurance Tax (HIT). Before reflecting the HIT, the increases are 6.75% for non-Medicare and 6.25% for Medicare plans, respectively.*

Actuarial assumptions (continued):

• Medical Subsidy Trend	▪ For all non-Medicare retirees, increase at lesser of 7% or non-Medicare medical trend. ▪ For Medicare retirees with single party premium, increase with medical trend. ▪ For Medicare retirees with 2-party premium less than or equal to the maximum subsidy as of July 1, 2019 (e.g. Fire Kaiser), increase with medical trend. ▪ For Medicare retirees with 2-party premium greater than the maximum subsidy as of July 1, 2019 (e.g. Police Blue Cross PPO), increase with lesser of 7% or medical trend.

Plan membership – Excluding retirees and beneficiaries not receiving subsidy:	June 30, 2019	June 30, 2018
Current retirees and beneficiaries	11,077	10,913
Current active participants	13,535	13,442
Terminated participants entitled but not yet enrolled in health benefits		
Eligible for deferred pension and health benefits	65	105
Retirees and beneficiaries not in pay status but eligible for deferred health benefits	821	794
Subtotal	886	899
Total	25,498	25,254

EXHIBIT II

Actuarial Assumptions and Actuarial Cost Method

Rationale for Assumptions: The information and analysis used in selecting each assumption (with the exception of mortality assumption) that has a significant effect on this actuarial valuation is shown in the July 1, 2013 through June 30, 2016 Actuarial Experience Study dated May 23, 2017 and retiree health assumptions letter dated September 12, 2019. The mortality assumption is shown in a separate letter detailing the July 1, 2010 through June 30, 2019 mortality experience dated December 12, 2019. Unless otherwise noted, all actuarial assumptions and methods shown below apply to all members. These assumptions have been adopted by the Board.

Demographic Assumptions:

Mortality Rates – Pre-Retirement

Employee Mortality: Pub-2010 Safety Employee Headcount-Weighted Above-Median Mortality Table, projected generationally with two-dimensional Scale MP-2019.

Mortality Rates – Post-Retirement

Healthy(1): Pub-2010 Safety Healthy Retiree Headcount-Weighted Above-Median Mortality Table multiplied by 105% for males and 100% for females, projected generationally with two-dimensional Scale MP-2019.

Disabled: Pub-2010 Safety Disabled Retiree Headcount-Weighted Mortality Table, projected generationally with two-dimensional Scale MP-2019.

Beneficiary(2): Pub-2010 General Healthy Retiree Headcount-Weighted Above-Median Mortality Table multiplied by 105%, projected generationally with two-dimensional Scale MP-2019.

The Pub-2010 mortality tables and adjustments as shown above reflect the mortality experience as of the measurement date. These mortality tables were adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

(1) *The Pub-2010 Healthy Retiree Headcount-Weighted Above-Median Mortality Tables only have rates for ages 45 and later for the Safety table. To develop the post-retirement mortality rates for ages 36 through 44 for Safety members, we have smoothed the difference between the rates at age 35 from the Pub-2010 Employee Headcount-Weighted Above-Median Mortality Tables and the rates at age 45 from the Pub-2010 Healthy Retiree Headcount-Weighted Above-Median Mortality tables. To develop the post-retirement mortality rates before age 36 for the Safety table, we have used the Pub-2010 Employee Headcount-Weighted Above-Median Mortality Tables rates. This methodology for developing an extended annuitant mortality table is similar to the method used by the IRS to develop the base mortality table for determining minimum funding standards for single-employer defined benefit pension plans under Section 430. While Section 430 is not applicable to LAFPP, we believe this is a reasonable method for developing annuitant mortality rates at earlier ages.*

(2) *The Pub-2010 Healthy Retiree Headcount-Weighted Above-Median Mortality Tables only have rates for ages 50 and later for the General table. To develop the post-retirement mortality rates for ages 41 through 49 for General members, we have smoothed the difference between the rates at age 40 from the Pub-2010 Employee Headcount-Weighted Above-Median Mortality Tables and the rates at age 50 from the Pub-2010 Healthy Retiree Headcount-Weighted Above-Median Mortality tables. To develop the post-retirement mortality rates before age 41 for the General table, we have used the Pub-2010 Employee Headcount-Weighted Above-Median Mortality Tables rates. This methodology for developing an extended annuitant mortality table is similar to the method used by the IRS to develop the base mortality table for determining minimum funding standards for single-employer defined benefit pension plans under Section 430. While Section 430 is not applicable to LAFPP, we believe this is a reasonable method for developing annuitant mortality rates at earlier ages.*

Mortality Rates Before Retirement:

	Rate (%)	
Age	**Male**	**Female**
20	0.04	0.02
25	0.03	0.02
30	0.04	0.02
35	0.04	0.03
40	0.05	0.04
45	0.07	0.06
50	0.11	0.08
55	0.15	0.11
60	0.24	0.16

All pre-retirement deaths are assumed to be service connected.

Generational projections beyond the base year (2010) are not reflected in the above mortality rates.

Termination Rates Before Retirement (continued):

Disability Incidence Rates[1]:

	Rate (%)	
Age	**Fire**	**Police**
25	0.02	0.03
30	0.03	0.05
35	0.06	0.08
40	0.12	0.19
45	0.18	0.28
50	0.23	0.39
55	0.70	0.72
60	2.50	1.08
65	1.40	0.48

[1] *85% of disabilities are assumed to be service connected. The other 15% are assumed to be non-service connected disabilities. Disability rates are not applied to members eligible to enter the DROP.*

Termination Rates Before Retirement (continued):

Rate (%)		
Less Than 5 Years of Service		
Years of Service	**Fire**	**Police**
Less than 1	8.00	9.00
1 – 2	2.50	3.50
2 – 3	1.50	3.00
3 – 4	0.75	2.75
4 – 5	0.50	2.00

Rate (%)		
Five or More Years of Service [1]		
Age	**Fire**	**Police**
20	0.80	1.80
25	0.80	1.80
30	0.65	1.50
35	0.40	1.03
40	0.27	0.73
45	0.13	0.59
50	0.02	0.22
55	0.00	0.00
60	0.00	0.00

(1) *No termination is assumed after a member is eligible for retirement. This includes all active members currently in Tier 2. Members in Tiers 3, 5 and 6 who are not eligible to receive a deferred vested retirement benefit are assumed to receive refund of member contributions.*

Retirement Rates:

	Rate(%)					
	Fire			Police		
Age	Tiers 2&4	Tiers 3&5	Tier 6	Tiers 2&4	Tiers 3&5	Tier 6
41	1.00	0.00	0.00	10.00	0.00	0.00
42	1.00	0.00	0.00	10.00	0.00	0.00
43	1.00	0.00	0.00	10.00	0.00	0.00
44	1.00	0.00	0.00	10.00	0.00	0.00
45	1.00	0.00	0.00	10.00	0.00	0.00
46	1.00	0.00	0.00	7.00	0.00	0.00
47	1.00	0.00	0.00	7.00	0.00	0.00
48	2.00	0.00	0.00	7.00	0.00	0.00
49	2.00	0.00	0.00	7.00	0.00	0.00
50	3.00	2.00	3.00	12.00	7.00	8.00
51	5.00	2.00	3.00	12.00	5.00	10.00
52	8.00	2.00	4.00	12.00	5.00	10.00
53	10.00	2.00	5.00	20.00	5.00	15.00
54	20.00	7.00	5.00	25.00	12.00	20.00
55	25.00	14.00	10.00	30.00	20.00	20.00
56	25.00	16.00	12.00	30.00	20.00	20.00
57	25.00	18.00	15.00	30.00	20.00	20.00
58	25.00	25.00	18.00	30.00	22.00	22.00
59	25.00	25.00	20.00	30.00	22.00	22.00
60	25.00	30.00	25.00	30.00	25.00	25.00
61	25.00	30.00	30.00	30.00	25.00	25.00
62	25.00	35.00	30.00	30.00	25.00	25.00
63	25.00	40.00	35.00	30.00	25.00	25.00
64	30.00	40.00	40.00	40.00	30.00	30.00
65	60.00	60.00	60.00	60.00	60.00	60.00
66	60.00	60.00	60.00	60.00	60.00	60.00
67	60.00	60.00	60.00	60.00	60.00	60.00
68	60.00	60.00	60.00	60.00	60.00	60.00
69	60.00	60.00	60.00	60.00	60.00	60.00
70 & Over	100.00	100.00	100.00	100.00	100.00	100.00

DROP Program: DROP participants are considered active members until they leave DROP and begin receiving retirement benefits. Members are assumed to remain in the DROP for 5 years.

Individual Salary Increases:

Annual Rate of Compensation Increase (%)

Inflation: 3.00% per year; plus 0.50% "across the board" salary increases; plus the following Merit and Promotional increases based on years of service.

Merit and Promotion Increases

Years of Service	Rate (%)
Less than 1	8.50
1 – 2	7.50
2 – 3	6.00
3 – 4	5.50
4 – 5	4.00
5 – 6	2.75
6 – 7	2.50
7 – 8	2.00
8 – 9	1.75
9 – 10	1.75
10 – 11	1.25
11 – 12	1.00
12 – 13	1.00
13 – 14	1.00
14 – 15	1.00
15 & Over	0.80

Measurement Date:	June 30, 2019
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Definition of Active Members:	First day of biweekly payroll following employment for new department employees or immediately following transfer from other city department.
Actuarial Value of Assets:	Market Value of Assets (MVA) less unrecognized returns. Unrecognized returns are equal to the difference between the actual market return and the expected return on the market value, and are recognized over a seven-year period. The Actuarial Value of Assets (AVA) is limited by a 40% corridor; the AVA cannot be less than 60% of MVA, nor greater than 140% of MVA.
Actuarial Cost Method:	Entry Age Actuarial Cost Method. Entry Age is the current age minus Service Credit. Actuarial Accrued Liability is calculated on an individual basis and is based on costs allocated as a level percentage of compensation. Normal Cost and amortization of unfunded are computed as a percent of pay and applied to actual payroll.
Funding Policy:	The City of Los Angeles makes contributions equal to the Normal Cost adjusted by amounts to amortize any Surplus or Unfunded Actuarial Accrued Liability (UAAL). Both the Normal Cost and the Actuarial Accrued Liability are determined under the Entry Age cost method. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis.

The Board has adopted the following amortization policy:

Type of Base	Amortization Period (Closed)
Actuarial Gains or Losses[1]	20
Assumption or Method Changes	20
Plan Amendments	15
ERIPs	5
Actuarial Surplus	30

[1] *Retiree health assumption changes are treated as gains and losses.*

Data: Detailed census data and financial data for postemployment benefits were provided by the City of Los Angeles Fire and Police Pension Plan.

Future Benefit Accruals: 1.0 year of service per year.

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

Administrative Expenses: Out of the total 1.25% of payroll in administrative expense, 0.09% of payroll payable biweekly is allocated to the Retiree Health Plan. This is equal to 0.09% of payroll payable at beginning of the year.

Spouse Age Difference: Husbands are assumed to be 3 years older than wives.

Participation:

Service Range (Years)	(a) Participation for Future Retirees Under 65	(b) Participation for Future Retirees Over 65	Participation Upon Attaining Age 65 for Current Retirees aged 55-64 Without Subsidy [(b-a)/(1-a)]
10-14	45%	80%	63.64%
15-19	65	85	57.14
20-24	80	85	25.00
25 and over	95	95	0.00

Medicare Coverage: 100% of future retirees are assumed to elect Medicare Parts A & B.

Dental Coverage: 85% of future retirees are assumed to elect dental coverage.

Spousal Coverage: Of future retirees receiving a medical subsidy 80% are assumed to elect coverage for married and surviving spouses or domestic partners. For those retired on valuation date with a subsidy, spousal coverage is based on census data.

Child Coverage:

Some non-Medicare retirees will cover children in addition to their spouse and draw the maximum monthly subsidy ($1,820.29). We assumed that current retirees will cover, if indicated in the data, their children for an additional 2 years. For future retirees, we assumed that 25% will cover children for 4 years, or until when the retiree attains age 65, if earlier.

Implicit Subsidy:

Plans Other Than Fire Kaiser

No implicit subsidy exists since retiree medical premiums are underwritten separately from active premiums.

Fire Kaiser

According to information provided to LAFPP by the unions/relief associations that administer the retiree health plans and forwarded to Segal for the June 30, 2019 valuation, it is our understanding that active and retiree health premiums are blended for the Fire Kaiser Medical Plan.

Based on information recently provided by the health consultant retained by Los Angeles Firemen's Relief Association (LAFRA), we understand that retirees under age 65 enrolled in the Fire Kaiser Medical Plan are presently underwritten with the actives enrolled in that plan. A table of the blended (i.e., active/retiree combined) and unblended (i.e., early retiree only) monthly premium rates are shown below:

Monthly Premium July 1, 2019		
Tier	**Active/Retiree Combined**	**Early Retiree Only**
Member Only	$757.87	$893.74
Member + 1	$1,487.89	$1,777.48
Family	$1,874.80	$2,245.86

The implicit subsidy is the difference between the retiree-only premium and the active/retiree combined premium (shown in the table on page 43). LAFPP has made a decision to include the implicit subsidy in the employer's contribution rate starting with the June 30, 2019 funding valuation. (Note that while the contribution rate will be increased to reflect the prefunding of the implicit subsidy, the Plan is not going to reimburse the City as that implicit subsidy is paid by the employer.)

Per Capita Cost Development – Not Subject to Retiree Medical Freeze:

Retirees Under Age 65

Future retirees under age 65 are assumed, upon retirement, to elect carriers in the percentages with corresponding premiums and subsidies as noted in the table below. Current retirees and current eligible survivors under age 65 are assumed to continue to cover themselves (and their spouse or domestic partner). We assume that some non-Medicare retirees will cover children in addition to their spouse and draw the maximum monthly subsidy ($1,820.29) shown in the below table. We will assume that current retirees will cover, if indicated in the data, their children for an additional 2 years. For future retirees, we will assume that 25% will cover children for 4 years, or until when the retiree attains age 65, if earlier.

2019 – 2020 Fiscal Year		**Single Party**			**Married/With Domestic Partner**			**Eligible Survivor**		
Carrier	**Assumed Election Percent**	**Monthly Premium**	**Maximum Subsidy**	**Subsidy**	**Monthly Premium**	**Maximum Subsidy**	**Subsidy**	**Monthly Premium**	**Maximum Subsidy***	**Subsidy**
Fire										
Fire Medical	85	$1,023.94	$1,820.29	**$1,023.94**	$1,658.56	$1,820.29	**$1,658.56**	$1,023.94	$853.39	**$853.39**
Fire Kaiser	10	$757.87	$1,820.29	**$757.87**	$1,487.89	$1,820.29	**$1,487.89**	$757.87	$853.39	**$757.87**
UFLAC PPO**	0	$1,804.32	$1,820.29	**$1,804.32**	$2,179.82	$1,820.29	**$1,820.29**	$1,460.93	$853.39	**$853.39**
UFLAC HMO	5	$1,707.88	$1,820.29	**$1,707.88**	$1,730.21	$1,820.29	**$1,730.21**	$1,045.52	$853.39	**$853.39**
UFLAC Vivity**	0	$1,765.39	$1,820.29	**$1,765.39**	$1,769.40	$1,820.29	**$1,769.40**	$1,069.19	$853.39	**$853.39**
UFLAC HSA	0	$1,158.89	$1,820.29	**$1,158.89**	$1,275.39	$1,820.29	**$1,275.39**	$986.31	$853.39	**$853.39**
Police										
Blue Cross PPO	60	$957.80	$1,820.29	**$957.80**	$2,131.61	$1,820.29	**$1,820.29**	$957.80	$853.39	**$853.39**
Blue Cross HMO	15	$861.08	$1,820.29	**$861.08**	$1,667.07	$1,820.29	**$1,667.07**	$861.08	$853.39	**$853.39**
Police Kaiser	25	$664.23	$1,820.29	**$664.23**	$1,296.69	$1,820.29	**$1,296.69**	$664.23	$853.39	**$664.23**

Members who are subject to the retiree medical subsidy freeze have monthly health insurance subsidy maximums fixed at the level in effect on July 1, 2011, as shown on page 45.

* *The maximum subsidy for eligible survivors did not increase because the LACERS premium upon which it is based did not increase from 2018 to 2019.*

** *Plan will no longer be offered as of January 1, 2020.*

For the valuation of current retirees, subsidies valued are based on actual medical election provided in the data reported for the Health Plan.

Per Capita Cost Development – Not Subject to Retiree Medical Freeze:

Retirees Age 65 and Older

Future retirees and current retirees under age 65 are assumed, upon reaching age 65, to elect carriers in the percentages with corresponding premiums and subsidies as noted in the table below. Current retirees and current eligible survivors over age 65 are assumed to continue to cover themselves (and their spouse or domestic partner). Due to low number of current retirees over age 65 who have covered children and the short duration of child-related subsidy payments, we assumed that for retirees over age 65 all children will age out.

2019 – 2020 Fiscal Year		**Single Party**			**Married/With Domestic Partner**			**Eligible Survivor**		
Carrier	**Assumed Election Percent**	**Monthly Premium**	**Maximum Subsidy**	**Subsidy**	**Monthly Premium**	**Maximum Subsidy**	**Subsidy**	**Monthly Premium**	**Maximum Subsidy**	**Subsidy**
Fire										
Fire Medical	85	$668.70	$542.51	**$542.51**	$948.08	$821.89	**$821.89**	$668.70	$542.51	**$542.51**
Fire Kaiser	15	$289.53	$542.51	**$289.53**	$551.21	$551.21	**$551.21**	$289.53	$542.51	**$289.53**
UFLAC PPO**	0	$1,010.73	$542.51	**$542.51**	$2,130.87	$1,662.65	**$1,662.65**	$1,010.73	$542.51	**$542.51**
UFLAC HMO	0	$649.56	$542.51	**$542.51**	$1,693.30	$1,586.25	**$1,586.25**	$649.56	$542.51	**$542.51**
UFLAC Vivity**	0	$663.52	$542.51	**$542.51**	$1,778.29	$1,657.28	**$1,657.28**	$663.52	$542.51	**$542.51**
UFLAC HSA	0	$421.98	$542.51	**$421.98**	$665.83	$665.83	**$665.83**	$677.34	$542.51	**$542.51**
Police										
Blue Cross PPO	75	$590.80	$542.51	**$542.51**	$1,397.61	$1,349.32	**$1,349.32**	$590.80	$542.51	**$542.51**
Blue Cross HMO	10	$647.58	$542.51	**$542.51**	$1,240.07	$1,135.00	**$1,135.00**	$647.58	$542.51	**$542.51**
Police Kaiser	15	$254.89	$542.51	**$254.89**	$484.37	$542.51	**$484.37**	$254.89	$542.51	**$254.89**

Members who are subject to the retiree medical subsidy freeze have monthly health insurance subsidy maximums fixed at the level in effect on July 1, 2011, as shown on page 45.

* *The maximum subsidy for single party retirees and eligible survivors did not increase because the LACERS premium upon which it is based did not increase from 2018 to 2019.*

** *Plan will no longer be offered as of January 1, 2020.*

For the valuation of current retirees, subsidies valued are based on actual medical election provided in the data reported for the Health Plan.

Per Capita Cost Development – Subject to Retiree Medical Subsidy Freeze:

	Single Party	Married/With Domestic Partner	Eligible Survivor
Under 65 – All Plans	$1,097.41	$1,097.41	$595.60
Over 65			
Fire Medical	$480.41	$733.64	$480.41
Fire Kaiser	289.53[1]	551.21	289.53[1]
UFLAC PPO	480.41	916.32	480.41
UFLAC HMO	480.41	883.62	480.41
UFLAC Vivity	480.41	908.62	480.41
UFLAC HSA	421.98[1]	665.83	421.98[1]
Police Blue Cross PPO	480.41	805.02	480.41
Police Blue Cross HMO	480.41	812.24	480.41
Police Kaiser	254.89[1]	484.37	254.89[1]

[1] *Future single-party subsidy levels limited to $480.41.*

Adjustment of Per Capita Medical Costs for Age, Gender and Spouse Status[1]

Applied to Per Capita Costs in Table 2(a) for 2019-2020

	Retiree		Spouse	
Age	Male	Female	Male	Female
55	0.9224	0.9523	0.7259	0.8222
60	1.0954	1.0265	0.9718	0.9536
64	1.2567	1.0889	1.2268	1.0733

Applied to Per Capita Costs in Table 2(b) for 2019-2020

	Retiree		Spouse	
Age	Male	Female	Male	Female
65	0.9068	0.7708	0.9068	0.7708
70	1.0510	0.8306	1.0510	0.8306
75	1.1326	0.8941	1.1326	0.8941
80+	1.2196	0.9639	1.2196	0.9639

[1] *We also apply the adjustment for age, gender, and spouse status to non-frozen Medicare subsidies because they are based on LACERS medical premiums and, therefore, would be affected by demographic factors.*

Per Capita Cost Development – Dental Plan

Maximum Dental Subsidy

Because almost all current retirees enrolled in a dental plan are paying a premium in excess of the maximum subsidy, we assumed that 100% of future retirees with dental coverage will receive the maximum subsidy.

Monthly Subsidy for 2019-2020 Fiscal Year
$44.60

Per Capita Cost Development – Medicare Part B Premium Reimbursement

The Plan will reimburse monthly Medicare Part B premiums before means testing:

MONTHLY PREMIUM	Single
Actual premium for calendar year 2019	$135.50
Projected premium for calendar year 2020	141.60
Projected average monthly premium for plan year 2019-2020	138.55

For retirees over age 65 on the valuation date, we assumed all retirees will revert to the standard premium (shown above) in the following calendar year (2020). For current retirees under age 65 and future retirees, we assumed 100% of those electing a medical subsidy will be eligible for the Medicare Part B premium subsidy.

Health Care Premium Cost Trend Rates:

Trend is to be applied to premium for the fiscal year shown to calculate the next fiscal year's projected premium[1].

First Fiscal Year (July 1, 2019 through June 30, 2020)

The fiscal year trend rates are the following:

	Trend (applied to calculate following year premium)	
Fiscal Year	**Non-Medicare**	**Medicare**
2019-2020	8.75%[2,3]	8.00%[2]
2020-2021	6.50%	6.00%
2021-2022	6.25%	5.75%
2022-2023	6.00%	5.50%
2023-2024	5.75%	5.25%
2024-2025	5.50%	5.00%
2025-2026	5.25%	4.75%
2026-2027	5.00%	4.50%
2027-2028	4.75%	4.50%
2028 and later	4.50%	4.50%

Dental Premium Trend 4.00% for all years

Medicare Part B Premium Trend 4.50% for all years

1 For example, the 8.75% assumption for fiscal year 2019-2020, when applied to the 2019-2020 non-Medicare medical premiums, would provide the projected 2020-2021 non-Medicare medical premiums.

2 The trends for fiscal year 2019-2020 do reflect additional estimated increases of 2.00% (non-Medicare) and 1.75% (Medicare) from the impact of the HIT. Before reflecting the HIT, the increases are 6.75% for non-Medicare and 6.25% for Medicare plans, respectively.

3 The maximum non-Medicare health subsidy for 2020-2021 would be calculated by multiplying the maximum non-Medicare health subsidy for 2019-2020 by the 2019-2020 fiscal year trend assumption of 7.00% (lesser of 7.00% or non-Medicare medical trend of 8.75%).

Health Care Reform:

As stated in our June 30, 2011 retiree health report, based on direction provided to Segal, the impact of the excise tax that will be imposed in 2022[1] by the Affordable Care Act (ACA) and related statutes on certain health plans was not included in calculating the contribution rates for the employer. It is our understanding that Statements No. 74 and 75 by the Governmental Accounting Standards Board (GASB) for financial reporting purposes require the inclusion of the excise tax in the liability.

For the June 30, 2019 valuation, we have continued to exclude the projected excise tax from the valuation results (i.e., the projected excise tax has not been used to set the contribution rates for the employer).

[1] This is based on our understanding of the provisions of the ACA as of the date of the valuation on June 30, 2019.

Expected annual rate of increase in The Board's health subsidy amount:

For employees not subject to freeze, we assume that the Board's health subsidy amount will increase with the minimum of 7.00% and the non-Medicare medical trend.

Plan Design:

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

Changes in Assumptions:

Premiums and maximum subsidies were updated.

Medicare carrier election assumptions were updated.

Participation (retiree medical coverage election) assumption was updated.

Future Medicare Part B trend rate assumption was updated.

A percentage of non-Medicare retirees will cover children in addition to their spouse.

The retiree-only unblended premium rates (implicit subsidy) were reflected for Fire Kaiser plan.

Mortality rates were updated.

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.

SUBSIDY FOR MEMBERS NOT ELIGIBLE FOR MEDICARE A & B

Eligibility	Retired Members who retired with 10 or more years of service. Benefits commence no earlier than age 55. Members who retired prior to July 1, 1998 are subject to an eligibility requirement of age 60 with 10 or more years of service. Subsidy is paid only to Members on service or disability retirements. Surviving spouses and surviving domestic partners are eligible for health benefits upon the Member's date of death if the Member had attained age 55 prior to death. Otherwise, health benefits for survivors shall commence on the date that the Member would have reached age 55. Basic subsidy is paid until age 65, or after age 65 if Member is not covered by Medicare Parts A and B.
Amount of Subsidy	4% per year of service, to a maximum of 100%, times Maximum Subsidy, subject to a maximum of the actual premium paid to the Board's approved health carrier.
Maximum Subsidy	As of July 1, 2019, maximum is $1,820.29 per month. For surviving spouse or domestic partner, the maximum subsidy is $853.39 per month.
Increase in Subsidy	For employees not subject to freeze, the Board's health subsidy amount may increase at lesser of 7% or medical trend as shown in Exhibit II - Healthcare Premium Cost Trend Rates.
Dependent Portion	Difference between basic subsidy maximum amount and single-party premium.

EXHIBIT III

Summary of Plan (continued)

SUBSIDY FOR MEMBERS ELIGIBLE FOR MEDICARE A & B

Eligibility	Retired Members over age 65 with 10 or more years of service who participate in Medicare Parts A & B.
Amount of Subsidy to Participant:	For retirees, health subsidy is provided subject to the following vesting schedule:

Completed Years of Service	Vested Percentage
10-14	75%
15-19	90%
20+	100%

Surviving spouses or surviving domestic partners are eligible for benefits upon the death of the Member.

Maximum Subsidy

As of July 1, 2019, the single coverage maximum subsidy for retirees and surviving spouse or domestic partner is $542.51. The multi-person coverage maximum subsidy is $1,662.65 and depends on the carrier elected.

The Board's health subsidy amount may:

- For Medicare retirees with single party premium, increase with medical trend as shown in Exhibit II - Healthcare Premium Cost Trend Rates.
- For Medicare retirees with 2-party premium less than or equal to the maximum subsidy as of July 1, 2019 (e.g., Fire Kaiser), increase with medical trend as shown in Exhibit II - Healthcare Premium Cost Trend Rates, and
- For Medicare retirees with 2-party premium greater than the maximum subsidy as of July 1, 2019 (e.g., Police Blue Cross), increase with lesser of 7% or medical trend as shown in Exhibit II - Healthcare Premium Cost Trend Rates.

EXHIBIT III

Summary of Plan (continued)

Dependent Portion: Calculation based on Board of Fire and Police Pension Commissioners Resolution No. 9320: equal to the amount payable on behalf of the dependents of a retired member in the same plan, with the same years of service, who qualifies for an under 65 or Part B/D only subsidy, whichever is greater, providing such subsidy does not exceed the civilian retiree dependent subsidy.

Subsidy Freeze: The retiree health benefits program was changed to freeze the medical subsidy for non-retired members not enrolled in the DROP as of July 14, 2011 who did not begin to contribute an additional 2% of employee contributions to the Pension Plan.

- The frozen subsidy is different for Medicare and non-Medicare retirees.
- The freeze applies to the medical subsidy limits in effect for the 2011-2012 plan year.
- The freeze does not apply to the dental subsidy or the Medicare Part B premium reimbursement.

EXHIBIT III

Summary of Plan (continued)

<u>**Medicare Part B -Related Subsidy**</u>

Medicare Part B Premium Reimbursement	For retired Members enrolled in Medicare A & B who are receiving a subsidy, the Plan provides payment of Part B premiums ($135.50 for calendar year 2019, for all eligible retirees and beneficiaries).

Dental Subsidy

Eligibility	Retired Members who retired with 10 or more years of service. Benefits commence no earlier than age 55. Subsidy is paid only to Members on service or disability retirements. Surviving spouses/domestic partners are not eligible for benefits upon the death of the Member.
Amount of Subsidy	4% per year of service, to a maximum of 100%, times Maximum Subsidy, subject to a maximum of the single-party premium paid to City approved dental carrier.
Maximum Subsidy	Lesser of monthly amount paid to active Fire and Police Members and retired City Employee Retirement System Members. As of July 1, 2019, maximum is $44.60 per month.

Retiree Contributions:	To the extent the subsidies are less than the medical or dental premiums, the retiree contributes the cost difference.
Changes in Plan Provisions	There have been no changes in plan provisions since the last valuation.

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.

Employer Contributions:	An employer has contributed to an OPEB plan if the employer has (a) provided benefits directly to retired plan members or their beneficiaries, (b) paid insurance premiums to insure the payment of benefits, or (c) irrevocably transferred assets to a qualifying trust, or equivalent arrangement, in which plan assets are dedicated to providing benefits to retirees and their beneficiaries in accordance with the terms of the plan and are legally protected from creditors of the employer(s) or plan administrator.

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City of Los Angeles Fire and Police Pension Plan (LAFPP)

Governmental Accounting Standards (GAS) 67
Actuarial Valuation as of June 30, 2019

(Revised to Reflect Updated Mortality Assumption Adopted on December 19, 2019)

Segal Consulting

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January 8, 2020

Board of Fire and Police Pension Commissioners
City of Los Angeles Fire and Police Pension Plan
701 East 3rd Street, Suite 200
Los Angeles, CA 90013

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards (GAS) 67 Actuarial Valuation as of June 30, 2019. 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 Plan. The census and financial information on which our calculations were based was prepared by Los Angeles Fire & Police Pensions (LAFPP). 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 Plan.

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: Paul Angelo, FSA, MAAA, FCA, EA	Andy Yeung, ASA, MAAA, FCA, EA
Senior Vice President and Actuary	*Vice President and Actuary*

EK/jl
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Purpose

This report has been prepared by Segal Consulting to present certain disclosure information required by Governmental Accounting Standards (GAS) 67 as of June 30, 2019. This valuation is based on:

- The benefit provisions of LAFPP, as administered by the Board of Commissioners;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of June 30, 2018, provided by LAFPP;
- The assets of the Plan as of June 30, 2019, provided by LAFPP;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board for the June 30, 2019 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. adopted by the Board for the June 30, 2019 valuation.

General Observations on GAS 67 Actuarial 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 method) and the same type of discount rate (expected return on assets) as LAFPP uses for funding. Note that, with regard to the actuarial cost method, the GASB rules use a version of the Entry Age method where the Total Pension Liability (TPL) must be fully accrued by the time a member either enters the DROP or is expected to elect the DROP. This is in contrast to the version of the Entry Age method used for funding, where the Actuarial Accrued Liability (AAL) is not fully accrued until members retire from employment after participation in the DROP. Under GASB, actives who are expected to enroll in the DROP in the future would report an annual Service Cost that is higher than the Normal Cost used for funding, while members already in the DROP would report no Service Cost even though their Normal Cost continues to accrue.

As the service retirement rates we use in the funding valuation have been developed based on the later date of exit from the DROP, we have adjusted those rates in this valuation so that they are based on the earlier date of first participation in the DROP. Those rates are provided in Appendix A.

- 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 very similar to an 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 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, 2019 and 2018 have been determined by rolling forward the results of 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 requested by the Board, we performed an experience study of the mortality assumption based on the experience during the period July 1, 2010 through June 30, 2019. Based on that study and the recommendations provided in our report dated December 12, 2019, the Board adopted an updated mortality assumption for use in this valuation.
- The NPL increased from $1.255 billion as of June 30, 2018 to $1.738 billion as of June 30, 2019 mainly due to the change in mortality assumption (an increase of about $0.36 billion) and the loss from a return on the market value of assets of 5.94% during 2018/2019 that was less than the assumption of 7.25% used in the June 30, 2018 valuation (a loss of about $0.27 billion). Changes in these values during the last two fiscal years ending June 30, 2018 and June 30, 2019 can be found in Exhibit 3.
- Ordinance 185935 was adopted by the City Council and amended the Deferred Retirement Option Plan (DROP) provisions of the Plan. For members who enter the DROP on or after February 1, 2019, their participation in DROP will be suspended for any calendar month in which they do not spend at least 112 hours on active duty status. If participation is suspended, the member is eligible to participate in DROP for a maximum of 30 additional months beyond the original participation period. This plan amendment is reflected in the NPL as of June 30, 2019[1].

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[1] As noted in DROP Modification Cost Study prepared in conjunction with the adoption of the above Ordinance, we have only included the projected cost savings associated with the suspension of DROP payments. We have excluded the projected cost savings associated with members potentially delaying

- The discount rate used to determine the TPL and NPL as of June 30, 2019 and 2018 was 7.25%. Details on the derivation of the discount rate 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.

their retirement to make up for the suspension of DROP payments until such actual experience becomes available.

Summary of Key Valuation Results

	2019	2018
Disclosure elements for fiscal year ending June 30:		
Service Cost[1]	$402,708,041	$390,743,068
Total Pension Liability	23,000,504,726	21,736,849,050
Plan's Fiduciary Net Position	21,262,200,363	20,482,132,769
Net Pension Liability	1,738,304,363	1,254,716,281
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	92.44%	94.23%
Schedule of contributions for fiscal year ending June 30:		
Actuarially determined contributions	$504,877,399	$459,631,946[2]
Actual contributions	504,877,399	459,631,946[2]
Contribution deficiency (excess)	0	0
Demographic data for plan year ending June 30:[3]		
Number of retired members and beneficiaries	13,097	12,890
Number of inactive vested members[4]	523	534
Number of DROP members	1,665	1,442
Number of active members	11,870	12,000
Key assumptions as of June 30:		
Investment rate of return	7.25%	7.25%
Inflation rate	3.00%	3.00%
Projected salary increases[5]	Ranges from 4.30% to 12.00% based on years of service	Ranges from 4.30% to 12.00% based on years of service

(1) *Excludes administrative expense load. The service cost is based on the previous year's assumptions, meaning the June 30, 2019 and June 30, 2018 values are based on the assumptions as of June 30, 2018 and June 30, 2017, respectively. The actuarial assumptions used to determine the service cost in the June 30, 2017 valuation were the same as those shown for the June 30, 2018 valuation.*

(2) *Figures exclude $1,334,647 in employer contributions that was related to the transfer of certain Airport Police members from the Los Angeles City Employees' Retirement System (LACERS) into LAFPP.*

(3) *Data as of June 30, 2018 is used in the measurement of the TPL as of June 30, 2019.*

(4) *Includes inactive members due only a refund of member contributions.*

(5) *Includes inflation at 3.00% plus real across-the-board salary increases of 0.50% plus merit and promotional increases for 2019 and 2018.*

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 Consulting ("Segal") relies on a number of input items. These include:

- **Plan 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 (as well as the plan summary included in our funding valuation report) to confirm that Segal has correctly interpreted the plan provisions.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by LAFPP. 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 measurement date, as provided by LAFPP.
- **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 valuation is prepared at the request of LAFPP. 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 LAFPP 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. LAFPP 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 LAFPP, it is not a fiduciary in its capacity as actuaries and consultants with respect to LAFPP.

EXHIBIT 1

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

Plan Description

Plan administration. The City of Los Angeles Fire and Police Plan (LAFPP) was established by the City of Los Angeles in 1899. LAFPP is a single employer public employee retirement system whose main function is to provide retirement benefits to the safety members employed by the City of Los Angeles.

The Fire and Police Pension Plan is administered by a Board of Commissioners composed of five commissioners who are appointed by the Mayor, two commissioners elected by Police Members of the Plan and two commissioners elected by Fire Members of the Plan. Under provisions of the City Charter, the City Administrative Code and the State Constitution, the Board has the responsibility to administer the Plan.

Plan membership. At June 30, 2019, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	13,097
Inactive vested members entitled to, but not yet receiving benefits[(1)]	523
DROP members	1,665
Active members	11,870
Total	27,155

[(1)] *Includes inactive members due only a refund of member contributions.*

Note: Data as of June 30, 2018 is used in the measurement of the TPL as of June 30, 2019.

Benefits provided. LAFPP provides service retirement, disability, death and survivor benefits to eligible sworn members of the Los Angeles Fire, Police, Harbor and Airport Departments (effective January 7, 2018, eligible Airport Police Officers are allowed to join Tier 6). Sworn employees become members upon graduation from the Police Academy or Fire Drill Tower.

There are currently six tiers applicable to members of the LAFPP. Tier 1 includes members hired on or before January 28, 1967. Tier 2 includes members hired from January 29, 1967 through December 7, 1980, and those Tier 1 members who transferred to Tier 2 during the enrollment period of January 29, 1967 to January 29, 1968. Tier 3 includes members hired from December 8, 1980 through June 30, 1997 and those Tier 4 members hired during the period of July 1, 1997 through December 31, 1997 who elected to transfer to Tier 3 by the enrollment deadline of June 30, 1998. Tier 4 includes members hired from July 1, 1997 through December 31, 2001 and those Tier 3 members who elected to transfer to Tier 4 by the enrollment deadline of June 30, 1998. Tier 5 includes members hired from January 1, 2002 through June 30, 2011 and those active members of Tiers 2, 3, or 4 who elected to transfer to Tier 5 during the enrollment period of January 2, 2002 through December 31, 2002. Tier 6 was established for all firefighters and police officers hired on or after July 1, 2011.

Tier 1, Tier 2, and Tier 4 members are eligible to retire once they attain 20 years of service. Tier 3 members are eligible to retire once they reach age 50 and have attained 10 or more years of service. Tier 5 and Tier 6 members are eligible to retire once they reach age 50 and have attained 20 or more years of service.

The Service Retirement benefit the member will receive is based upon age at retirement, final average compensation, years of retirement service credit and tier.

The Tier 1 Service Retirement benefit is calculated pursuant to the provisions of Section 1304 of the Los Angeles Charter. The monthly allowance for a member with between 20 to 25 years of service who retires from active status is equal to 40% of the average monthly rate of salary assigned to the ranks or positions held by the member during the three years immediately preceding the date of his/her retirement plus 2% of the average rate of salary for each year of service in excess of 20 years. The monthly allowance for a member with between 25 to 34 years of service who retires from active status is equal to 50% of the average monthly rate of salary assigned to the ranks or positions held by the member during the three years immediately preceding the date of his/her retirement plus 1 2/3% of the average rate of salary for each year of service in excess of 25 years. The monthly allowance for a member with 35 or more years of service who retires from active status is equal to 66 2/3% of the average monthly rate of salary assigned to the ranks or positions held by the member during the three years immediately preceding the date of his/her retirement.

The Tier 2 Service Retirement benefit is calculated pursuant to the provisions of Section 1408 of the Los Angeles Charter. The monthly allowance for a member with less than 25 years of service who retires from active status is equal to 2% of Normal Pension Base per year of service. The monthly allowance for a member with 25 or more years of service who retires from active status is equal to 55% of Normal Pension Base plus 3% of Normal Pension Base for each year of service in excess of 25 years, with a maximum of 70% of Normal Pension Base.

The Tier 3 Service Retirement benefit is calculated pursuant to the provisions of Section 1504 of the Los Angeles Charter. The monthly allowance for a member with less than 20 years of service who retires from active status is equal to 2% of Final Average Salary per year of service. The monthly allowance for a member with 20 or more years of service who retires from active status is equal to 40% of Final Average Salary plus 3% of Final Average Salary for each year of service in excess of 20 years, with a maximum of 70% of Final Average Salary.

The Tier 4 Service Retirement benefit is calculated pursuant to the provisions of Section 1604 of the Los Angeles Charter. The monthly allowance for a member who retires from active status is equal to 40% of Final Average Salary plus 3% per year of service over 20 years, with a maximum of 70% of Final Average Salary.

The Tier 5 Service Retirement benefit is calculated pursuant to the provisions of Section 4.2004 of the Los Angeles Administrative Code. The monthly allowance for a member who retires from active status is equal to 50% of Final Average Salary plus 3% per year of service over 20, except for the 30th year, where 4% is provided, with a maximum of 90% of Final Average Salary.

The Tier 6 Service Retirement benefit is calculated pursuant to the provisions of Section 1704 of the Los Angeles Charter. The monthly allowance for a member who retires from active status is equal to 40% of Final Average Salary, plus 3% of Final Average Salary per year of service from 21 through 25 years, 4% of Final Average Salary per year of service from 26 through 30 years, and 5% of Final Average Salary per year of service over 30 years, with a maximum of 90% of Final Average Salary.

Under Tier 1, pension benefits are calculated based on the average monthly rate of salary assigned to the ranks or positions held by the member during the three years immediately preceding the date of his/her retirement. Under Tier 2, pension benefits are calculated based on the Normal Pension Base, the final monthly salary rate. Under Tiers 3 – 6, pension benefits are calculated based on the Final Average Salary. Under Tiers 3 – 5, the Final Average Salary is the highest monthly average salary actually received during any 12 consecutive months of service. Under Tier 6 the Final Average Salary is the highest monthly average salary actually received during any 24 consecutive months of service.

LAFPP provides annual cost-of-living adjustments (COLAs) to retirees. The cost-of-living adjustments are made each July 1 and vary by Tier. Under Tier 1 and Tier 2, the COLA is 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 (starting with the 2018 COLA, the Consumer Price Index for the new Los Angeles-Long Beach-Anaheim area is used). Under Tier 3 and Tier 4, the COLA is the same as under Tier 1 and Tier 2 but is capped at 3%, with a prorated COLA in the first year of retirement. Under Tier 5 and Tier 6, the COLA is the same as under Tier 3 and Tier 4, with the excess of the COLA over 3% banked for future use when the COLA is under 3%.

The City of Los Angeles contributes to the retirement plan based upon actuarially determined contribution rates adopted by the Board of Commissioners based upon recommendations received from LAFPP's actuary after the completion of the annual actuarial valuation. The average employer contribution rate for fiscal year 2018 – 2019 (based on the June 30, 2017 valuation) was 33.93% of compensation if paid on July 15, 2018.

All members are required to make contributions to LAFPP regardless of tier in which they are included. However, members are exempt from making contributions when their continuous service exceeds 30 years for Tiers 1 through 4, and 33 years for Tier 5 and Tier 6. The average member contribution rate for fiscal year 2018 – 2019 (based on the June 30, 2017 valuation) was 9.93% of compensation paid biweekly.

EXHIBIT 2

Net Pension Liability

	June 30, 2019	June 30, 2018
The components of the Net Pension Liability are as follows:		
Total Pension Liability	$23,000,504,726	$21,736,849,050
Plan's Fiduciary Net Position	21,262,200,363	20,482,132,769
Net Pension Liability	$1,738,304,363	$1,254,716,281
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	92.44%	94.23%

The Net Pension Liability (NPL) was measured as of June 30, 2019 and 2018. The Plan's Fiduciary Net Position (plan assets) was valued as of the measurement date while the Total Pension Liability (TPL) was determined based upon rolling forward the TPL from 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, 2019 and 2018 are the same as those used in the LAFPP actuarial valuation as of June 30, 2019 and 2018, respectively. The NPL as of June 30, 2019 reflects the plan amendment on the DROP provision adopted by City Council under Ordinance 185935.

Actuarial assumptions. The TPL as of June 30, 2019 that was determined by an actuarial valuation as of June 30, 2018, was re-measured as of June 30, 2019 to reflect the mortality assumption that the Board of Commissioners has approved for use in the pension funding valuation as of June 30, 2019. That updated assumption was based on the Mortality Experience Study During the Period July 1, 2010 through June 30, 2019. The other actuarial assumptions were based on the results of an experience study for the period from July 1, 2013 through June 30, 2016. They are the same as the assumptions used in the June 30, 2019 funding actuarial valuation for LAFPP. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	Ranges from 4.30% to 12.00% based on years of service, including inflation
Investment rate of return	7.25%, including inflation but net of pension plan investment expense
Mortality tables	See Mortality Experience Study During the Period July 1, 2010 through June 30, 2019.
Other assumptions	See analysis of actuarial experience during the period July 1, 2013 through June 30, 2016 and Appendix A for the service retirement rates after they have been adjusted to be based on the earlier date of first participation in the DROP.

The TPL as of June 30, 2018 that was determined by an actuarial valuation June 30, 2017 used the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	Ranges from 4.30% to 12.00% based on years of service, including inflation
Investment rate of return	7.25%, including inflation but net of pension plan investment expense
Other assumptions	See analysis of actuarial experience during the period July 1, 2013 through June 30, 2016 and Appendix A for the service retirement rates after they have been adjusted to be based on the earlier date of first participation in the DROP.

The long-term expected rate of return on pension plan investments was determined in 2017 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 deducting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each measurement class, after deducting inflation, but before reduction for 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 used in the actuarial valuations as of June 30, 2019 and June 30, 2018. This information will change every three years based on the actuarial experience study.

Asset Class	Target Allocation	Long-Term Expected Arithmetic Real Rate of Return
Large Cap U.S. Equity	23%	5.61%
Small Cap U.S. Equity	6%	6.37%
Developed International Equity	16%	6.96%
Emerging Markets Equity	5%	9.28%
U.S. Core Fixed Income	12%	1.06%
TIPS	5%	0.94%
High Yield Bonds	3%	3.65%
Real Estate	10%	4.37%
Commodities	5%	3.76%
Cash	1%	-0.17%
Unconstrained Fixed Income	2%	2.50%
Private Equity	12%	7.50%
Total Portfolio	100%	5.11%

Discount rate. The discount rate used to measure the TPL was 7.25% as of June 30, 2019 and June 30, 2018. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rates for each tier and that employer contributions will be made at rates equal to the actuarially determined contribution rates for each tier. For this purpose, only 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 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 TPL as of both June 30, 2019 and June 30, 2018.

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the NPL of LAFPP as of June 30, 2019, calculated using the discount rate of 7.25%, as well as what LAFPP's NPL 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 Rate (7.25%)	1% Increase (8.25%)
Net Pension Liability as of June 30, 2019	$4,952,113,933	$1,738,304,363	$(872,832,397)

EXHIBIT 3

Schedule of Changes in LAFPP Net Pension Liability – Last Two Fiscal Years

	2019	2018
Total Pension Liability		
1. Service Cost	$402,708,041	$390,743,068
2. Interest	1,572,220,041	1,502,656,339
3. Change of benefit terms	(79,650,050)	0
4. Differences between expected and actual experience	81,464,725	21,699,834
5. Changes of assumptions	357,369,205	0
6. Benefit payments, including refunds of employee contributions	(1,070,456,286)	(994,799,584)
7. Other[1]	0	2,504,849
8. **Net change in Total Pension Liability**	$1,263,655,676	$922,804,506
9. **Total Pension Liability – beginning**	21,736,849,050	20,814,044,544
10. **Total Pension Liability – ending**	$23,000,504,726	$21,736,849,050
Plan's Fiduciary Net Position		
11. Contributions – employer[2]	$504,877,399	$459,631,946
12. Contributions – employee[2]	147,752,497	145,112,480
13. Net investment income	1,218,137,939	1,892,870,167
14. Benefit payments, including refunds of employee contributions	(1,070,456,286)	(994,799,584)
15. Administrative expense	(20,243,955)	(19,908,418)
16. Other[1]	0	2,504,849
17. **Net change in Plan's Fiduciary Net Position**	$780,067,594	$1,485,411,440
18. **Plan's Fiduciary Net Position – beginning**	20,482,132,769	18,996,721,329
19. **Plan's Fiduciary Net Position – ending**	$21,262,200,363	$20,482,132,769
20. **Net Pension Liability – ending (10) – (19)**	$1,738,304,363	$1,254,716,281
21. **Plan's Fiduciary Net Position as a percentage of the Total Pension Liability**	92.44%	94.23%
22. **Covered payroll[3]**	$1,487,977,884	$1,451,995,822
23. **Net Pension Liability as percentage of covered payroll**	116.82%	86.41%

(1) *For 2018, includes $1,334,647 in employer contributions and $1,170,202 in employee contributions transferred from LACERS for the Airport Police members who elected to join LAFPP Tier 6.*

(2) *For 2018, excludes the transfers of employer and employee contributions referenced in footnote (1).*

(3) *Covered payroll represents payroll on which contributions to the pension plan are based. For 2018, includes the budgeted payroll for Airport Police members of $1,881,610.*

EXHIBIT 4

Schedule of Employer Contributions – Last Ten Fiscal Years

Year Ended June 30	Actuarially Determined Contributions(1)	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll(2)	Contributions as a Percentage of Covered Payroll(3)
2010	$250,516,858	$250,516,858	$0	$1,266,311,709	19.78%
2011	277,092,251	277,092,251	0	1,289,856,708	21.48%
2012	321,593,433	321,593,433	0	1,213,395,874	26.50%
2013	375,448,092	375,448,092	0	1,277,031,317	29.40%
2014	440,698,260	440,698,260	0	1,308,198,504	33.69%
2015	480,332,251	480,332,251	0	1,314,360,387	36.54%
2016	478,385,438	478,385,438	0	1,351,788,221	35.39%
2017	454,308,852	454,308,852	0	1,397,244,974	32.51%
2018	459,631,946(4)	459,631,946(4)	0	1,451,995,822	31.66%
2019	504,877,399	504,877,399	0	1,487,977,884	33.93%

See accompanying notes to this schedule on next page.

(1) *All "Actuarially Determined Contributions" through June 30, 2015 were determined as the "Annual Required Contribution" under GAS 25 and 27.*

(2) *Covered payroll represents payroll on which contributions to the pension plan are based.*

(3) *Contribution rate as a percentage of payroll reflects discount applied when the employer prepays its contributions. This rate has been "backed" into by dividing the actual contributions by the budgeted covered payroll.*

(4) *Excludes $1,334,647 transferred from LACERS for the Airport Police members who elected to join LAFPP Tier 6.*

Notes to Exhibit 4

Methods and assumptions used to establish "actuarially determined contribution" (ADC) rates:

The assumptions used in establishing the ADC for the year ended June 30, 2019 were based on the June 30, 2017 funding valuation.

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 Actuarial Cost Method
Amortization method	For Tier 1, level dollar amortization is used with the last period ending on June 30, 2037. For Tiers 2, 3 and 4, level percent of payroll amortization with multiple layers is used as a percent of total valuation payroll from the respective employer (i.e., City, Harbor Port Police or Airport). For Tiers 5 and 6, level percent of payroll with multiple layers is used as a percent of combined payroll for these tiers from the respective employer (i.e., City, Harbor Port Police or Airport).
Remaining amortization period	Actuarial gains/losses are amortized over 20 years. Assumption changes are amortized over 20 years. Plan changes are amortized over 15 years.
Asset valuation method	The market value of assets less unrecognized returns. Unrecognized return is equal to the difference between the actual and the expected return on a market value basis, and is recognized over a seven-year period. Deferred gains and losses as of June 30, 2013 have been combined and will be recognized over a period of six years from July 1, 2013. The actuarial value of assets is further adjusted, if necessary, to be within 40% of the market value of assets.
Actuarial assumptions:	
June 30, 2017 valuation	
Investment rate of return	7.25%, net of investment expenses
Inflation rate	3.00%
Administrative Expenses:	Out of the total 1.25% of paroll in administrative expense, 1.16 % of payroll payable biweekly is allocated to the Retirement Plan. This is equal to 1.12% of payroll payable at beginning of the year.
Real across-the-board salary increase	0.50%
Projected salary increases[1]	Ranges from 4.30% to 12.00% based on years of service
Cost of living adjustments	3.00% of retirement income for all Tiers.
Other assumptions	Same as those used in the June 30, 2017 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 Plan’s Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2019 ($ in millions)

Year Beginning July 1,	Projected Beginning Plan's Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Plan's Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2018	$20,482	$653	$1,070	$20	$1,218	$21,262
2019	21,262	684	1,128	17	1,543	22,344
2020	22,344	634	1,219	17	1,614	23,357
2021	23,357	628	1,270	17	1,685	24,383
2022	24,383	621	1,386	17	1,754	25,356
2023	25,356	598	1,491	16	1,819	26,266
2024	26,266	534	1,391	16	1,884	27,276
2025	27,276	494	1,465	16	1,951	28,241
2026	28,241	446	1,545	16	2,015	29,140
2027	29,140	440	1,625	15	2,076	30,016
2042	38,584	170	2,796	7	2,692	38,643
2043	38,643	151	2,848	6	2,693	38,633
2044	38,633	131	2,898	5	2,689	38,550
2045	38,550	113	2,947	5	2,680	38,391
2046	38,391	96	3,003	4	2,665	38,145
2086	4,203	0	829	0	270	3,644
2087	3,644	0	740	0	233	3,138
2088	3,138	0	655	0	200	2,682
2089	2,682	0	575	0	170	2,278
2090	2,278	0	499	0	144	1,924
2105	562	0	8	0	40	594
2106	594	0	5	0	43	632
2107	632	0	3	0	46	674
2108	674	0	2	0	49	721
2109	721	0	1	0	52	772
2129	2,913	0	0	0	211	3,124
2130	3,124					
2130	Discounted Value: 1 **					

* *Less than $1 million, when rounded.*

** *$3,124 million when discounted with interest at the rate of 7.25% per annum has a value of $1 million as of June 30, 2019.*

EXHIBIT 5 (continued)

Projection of Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2019 ($ in millions)

Notes:

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

(2) Amounts shown in the year beginning July 1, 2018 row are actual amounts, based on the information provided by LAFPP.

(3) Years 2028-2041, 2047-2085, 2091-2104, and 2110-2128 have been omitted from this table.

(4) Column (a): Except for the "discounted value" shown for 2130 none of the projected beginning Plan's 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 employer contributions to fund each year's annual administrative expenses. Contributions are assumed to occur beginning of the year.

(6) Column (c): Projected benefit payments have been determined in accordance with paragraph 39 of GASB 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, 2019 valuation report. The projected benefit payments are assumed to occur beginning of the month, on average.

(7) Column (d): Projected administrative expenses (payable at the beginning of the year) are calculated as 1.12% of projected payroll, based on the closed group of active members as of June 30, 2018. Projected administrative expenses are then adjusted to reflect the assumption that they 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 except for 2018/2019.

(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, 2019 shown earlier in this report, pursuant to paragraph 44 of GASB Statement No. 67.

Appendix A

Retirement Rates After Adjustment for DROP Participation

As the service retirement rates we use in the funding valuation have been developed based on the later date of exit from the DROP, we have adjusted those rates in this GASB valuation so that they are based on the earlier date of first participation in the DROP. Retirement rates used in our June 30, 2019 funding valuation are shown on the next page. Please note that those rates are applicable in the GASB valuation for actives not eligible to enter the DROP. A sample of those rates used in the GASB valuation for an active eligible to enter the DROP at age 55 are as follows:

Retirement Rates for funding valuation
(Also applicable to actives not eligible to enter the DROP in GASB valuation)

Age	Fire Tiers 2&4	Fire Tiers 3&5	Fire Tier 6	Police Tiers 2&4	Police Tiers 3&5	Police Tier 6
41	1.00%	0.00%	0.00%	10.00%	0.00%	0.00%
42	1.00	0.00	0.00	10.00	0.00	0.00
43	1.00	0.00	0.00	10.00	0.00	0.00
44	1.00	0.00	0.00	10.00	0.00	0.00
45	1.00	0.00	0.00	10.00	0.00	0.00
46	1.00	0.00	0.00	7.00	0.00	0.00
47	1.00	0.00	0.00	7.00	0.00	0.00
48	2.00	0.00	0.00	7.00	0.00	0.00
49	2.00	0.00	0.00	7.00	0.00	0.00
50	3.00	2.00	3.00	12.00	7.00	8.00
51	5.00	2.00	3.00	12.00	5.00	10.00
52	8.00	2.00	4.00	12.00	5.00	10.00
53	10.00	2.00	5.00	20.00	5.00	15.00
54	20.00	7.00	5.00	25.00	12.00	20.00
55	25.00	14.00	10.00	30.00	20.00	20.00
56	25.00	16.00	12.00	30.00	20.00	20.00
57	25.00	18.00	15.00	30.00	20.00	20.00
58	25.00	25.00	18.00	30.00	22.00	22.00
59	25.00	25.00	20.00	30.00	22.00	22.00
60	25.00	30.00	25.00	30.00	25.00	25.00
61	25.00	30.00	30.00	30.00	25.00	25.00
62	25.00	35.00	30.00	30.00	25.00	25.00
63	25.00	40.00	35.00	30.00	25.00	25.00
64	30.00	40.00	40.00	40.00	30.00	30.00
65	60.00	60.00	60.00	60.00	60.00	60.00
66	60.00	60.00	60.00	60.00	60.00	60.00
67	60.00	60.00	60.00	60.00	60.00	60.00
68	60.00	60.00	60.00	60.00	60.00	60.00
69	60.00	60.00	60.00	60.00	60.00	60.00
70	100.00	100.00	100.00	100.00	100.00	100.00

Sample Retirement Rates for GASB valuation
(For actives eligible to enter the DROP at 55)

Age	Fire Tiers 2&4	Fire Tiers 3&5	Fire Tier 6	Police Tiers 2&4	Police Tiers 3&5	Police Tier 6
41	1.00%	0.00%	0.00%	10.00%	0.00%	0.00%
42	1.00	0.00	0.00	10.00	0.00	0.00
43	1.00	0.00	0.00	10.00	0.00	0.00
44	1.00	0.00	0.00	10.00	0.00	0.00
45	1.00	0.00	0.00	10.00	0.00	0.00
46	1.00	0.00	0.00	7.00	0.00	0.00
47	1.00	0.00	0.00	7.00	0.00	0.00
48	2.00	0.00	0.00	7.00	0.00	0.00
49	2.00	0.00	0.00	7.00	0.00	0.00
50	3.00	2.00	3.00	12.00	7.00	8.00
51	5.00	2.00	3.00	12.00	5.00	10.00
52	8.00	2.00	4.00	12.00	5.00	10.00
53	10.00	2.00	5.00	20.00	5.00	15.00
54	20.00	7.00	5.00	25.00	12.00	20.00
55	30.64	23.50	20.49	34.79	27.40	27.40
56	32.42	26.88	25.81	36.74	29.13	29.13
57	34.77	32.88	30.46	39.48	31.27	31.27
58	37.86	45.38	38.90	43.35	35.91	35.91
59	45.33	51.62	48.62	55.04	43.14	43.14
60	54.64	53.68	53.83	54.08	54.64	54.64
61	53.69	52.89	53.15	53.28	53.69	53.69
62	52.76	52.36	52.36	52.49	52.76	52.76
63	51.85	51.96	51.84	51.72	51.85	51.85
64	51.20	51.45	51.45	51.45	51.20	51.20
65	84.58	84.58	84.58	84.58	84.58	84.58
66	3.00	3.00	3.00	3.00	3.00	3.00
67	3.00	3.00	3.00	3.00	3.00	3.00
68	3.00	3.00	3.00	3.00	3.00	3.00
69	3.00	3.00	3.00	3.00	3.00	3.00
70	100.00	100.00	100.00	100.00	100.00	100.00

Segal Consulting

City of Los Angeles Fire and Police Pension Plan (LAFPP)

Governmental Accounting Standards (GAS) 74 Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2019

(Revised to Reflect Updated Mortality Assumption Adopted on December 19, 2019)

This report has been prepared at the request of the Board of Commissioners 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 Commissioners and may only be provided to other parties in its entirety, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Segal Consulting

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January 8, 2020

Board of Fire and Police Pension Commissioners
City of Los Angeles Fire and Police Pension Plan
701 East 3rd Street, Suite 200
Los Angeles, CA 90013

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards (GAS) 74 Actuarial Valuation as of June 30, 2019. 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 Plan. The census and financial information on which our calculations were based was prepared by Los Angeles Fire and Police Pensions (LAFPP). 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, FCA, Enrolled Actuary. The health care trend and other related medical assumptions have been reviewed by Melissa Krumholz, 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 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	*Andy Yeung, ASA, MAAA, FCA, EA*
Senior Vice President and Actuary	*Vice President and Actuary*

JAC/jl

SECTION 1

VALUATION SUMMARY

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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, 2019. This valuation is based on:

- The benefit provisions of the OPEB plan, as administered by the Board of Commissioners;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of June 30, 2019, provided by LAFPP;
- The assets of the Plan as of June 30, 2019, provided by LAFPP;
- 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, 2019.

General Observations on GAS 74 Actuarial Valuations

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 findings were the results of this actuarial valuation.

- As requested by the Board, we performed an experience study of the mortality assumption based on the experience during the period July 1, 2010 through June 30, 2019. Based on that study and the recommendations provided in our report dated December 12, 2019, the Board adopted the updated mortality assumption for use in this valuation.
- The NOL has decreased from $1,710 million as of June 30, 2018 to $1,583 million as of June 30, 2019 mainly due to health premiums and subsidy levels for 2019/2020, on average, being lower than projected in the prior valuation. The June 30, 2019 and June 30, 2018 liabilities under GAS 74 reflect the excise tax from the Affordable Care Act (ACA) and related statutes[1] which were excluded from the funding valuations as of June 30, 2019 and June 30, 2018.
- The NOLs measured as of June 30, 2019 and 2018 have been determined from the valuations as of June 30, 2019 and 2018, respectively.
- The discount rate used in the valuation for financial disclosure purposes as of June 30, 2019 is the assumed investment return on Plan assets (e.g. 7.25% for the June 30, 2019 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.

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[1] *This was based on our understanding of the provision of the ACA and the date of the valuations on June 30, 2019 and June 30, 2018.*

Summary of Key Valuation Results

	2019	2018
Disclosure elements for fiscal year ending June 30:		
Service cost[1]	$74,089,629	$69,939,886
Total OPEB Liability	3,621,203,927	3,588,131,652
Plan Fiduciary Net Position	2,037,716,297	1,878,237,434
Net OPEB Liability	1,583,487,630	1,709,894,218
Schedule of contributions for fiscal year ending June 30:		
Actuarially determined contributions	$188,019,917	$178,462,244[2]
Actual contributions	188,019,917	178,462,244[2]
Contribution deficiency (excess)	0	0
Demographic data for plan year ending June 30:		
Number of retired members, married dependents and beneficiaries receiving a health subsidy	17,333	17,160
Number of vested terminated members, retirees, and beneficiaries entitled to, but not yet receiving benefits	886	899
Number of active members	13,535	13,442
Key assumptions as of June 30:		
Discount rate	7.25%	7.25%
Health care premium trend rates		
Non-Medicare medical plan	Graded from 8.75% to ultimate 4.50% over 9 years[3]	7.00%, then 8.75%, then graded to ultimate 4.50% over 9 years[3]
Medicare medical plan	Graded from 8.00% to ultimate 4.50% over 7 years[3]	6.50%, then 8.00%, then graded to ultimate 4.50% over 7 years [3]
Dental	4.00%	4.00%
Medicare Part B	4.50%	4.00%

[1] *The service cost is always based on the previous year's valuation, meaning the 2019 and 2018 values are based on the valuations as of June 30, 2018 and June 30, 2017 (with adjustment for Airport Police transfers), respectively. The key assumptions used in the June 30, 2017 valuation are as follows:*

Discount rate	*7.25%*
Health care premium trend rates	
Non-Medicare medical plan	*Graded from 7.00% to ultimate 4.50% over 10 years*
Medicare medical plan	*Graded from 6.50% to ultimate 4.50% over 8 years*
Dental and Medicare Part B	*4.50%*

[2] *Figures exclude $517,068 in employer contributions that was related to the transfer of certain Airport Police members from the Los Angeles City Employees' Retirement System (LACERS) into LAFPP.*

[3] *The trends shown for fiscal year 2019-2020 do reflect additional estimated increases of 2.00% (non-Medicare) and 1.75% (Medicare) from the impact of the Health Insurance Tax (HIT). Before reflecting the HIT, the increases are 6.75% for non-Medicare and 6.25% for Medicare plans, respectively.*

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to financing future uncertain obligations of a postretirement health 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 LAFPP. 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 LAFPP.
- **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.

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 LAFPP. 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 LAFPP 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. LAFPP 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 LAFPP, it is not a fiduciary in its capacity as actuaries and consultants with respect to LAFPP.

EXHIBIT 1

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

Plan Description

Plan administration. The City of Los Angeles Fire and Police Pensions (LAFPP) was established by the City of Los Angeles in 1899. LAFPP is a single employer public employee retirement system whose main function is to provide retirement benefits to the safety members employed by the City of Los Angeles.

The Fire and Police Pension Plan is administered by a Board of Commissioners composed of five commissioners who are appointed by the Mayor, two commissioners elected by Police Members of the Plan and two commissioners elected by Fire Members of the Plan. Under provisions of the City Charter, the City Administrative Code and the State Constitution, the Board has the responsibility to administer the Plan.

Plan membership. At June 30, 2019, OPEB plan membership consisted of the following:

Retired members, married dependents and beneficiaries currently receiving benefits	17,333
Vested terminated members, retirees and beneficiaries entitled to, but not yet receiving benefits	886
Active members	13,535
Total	31,754

Benefits provided. LAFPP provides the following benefits to eligible members:

Subsidy For Members Not Eligible For Medicare A & B

Eligibility	Retired Members who retired with 10 or more years of service. Benefits commence no earlier than age 55. Members who retired prior to July 1, 1998 are subject to an eligibility requirement of age 60 with 10 or more years of service. Subsidy is paid only to Members on service or disability retirements.

Eligibility (Continued)	Surviving spouses and surviving domestic partners are eligible for health benefits upon the Member's date of death if the Member had attained age 55 prior to death. Otherwise, health benefits for survivors shall commence on the date that the Member would have reached age 55. Basic subsidy is paid until age 65, or after age 65 if Member is not covered by Medicare Parts A and B.
Amount of Subsidy	4% per year of service, to a maximum of 100%, times Maximum Subsidy, subject to a maximum of the actual premium paid to the Board's approved health carrier.
Maximum Subsidy	As of July 1, 2019, maximum is $1,820.29 per month. For surviving spouse or domestic partner, the maximum subsidy is $853.39 per month.
Increase in Subsidy	For employees not subject to freeze, the Board's health subsidy amount may increase at lesser of 7% or medical trend as shown in Exhibit II - Healthcare Premium Cost Trend Rates of the OPEB funding valuation report.
Dependent Portion	Difference between basic subsidy maximum amount and single-party premium.

Subsidy For Members Eligible For Medicare A & B

Eligibility	Retired Members over age 65 with 10 or more years of service who participate in Medicare Parts A & B.
Amount of Subsidy to Participant:	For retirees, health subsidy is provided subject to the following vesting schedule:

Amount of Subsidy to Participant (Continued)

Completed Years of Service	Vested Percentage
10-14	75%
15-19	90%
20+	100%

Surviving spouses or surviving domestic partners are eligible for benefits upon the death of the Member.

Maximum Subsidy

As of July 1, 2019, the single coverage maximum subsidy for retirees and surviving spouse or domestic partner is $542.51. The multi-person coverage maximum subsidy is $1,662.65 and depends on the carrier elected.

The Board's health subsidy amount may:

- For Medicare retirees with single party premium, increase with medical trend as shown in Summary of Key Valuation Results on page iii,
- For Medicare retirees with 2-party premium less than or equal to the maximum subsidy as of July 1, 2019 (e.g., Fire Kaiser), increase with medical trend as shown in Summary of Key Valuation Results on page iii, and
- For Medicare retirees with 2-party premium greater than the maximum subsidy as of July 1, 2019 (e.g., Police Blue Cross), increase with lesser of 7% or medical trend as shown in Summary of Key Valuation Results on page iii.

Dependent Portion:

Calculation based on Board of Fire and Police Pension Commissioners Resolution No. 9320: equal to the amount payable on behalf of the dependents of a retired member in the same plan, with the same years of service, who qualifies for an under 65 or Part B/D only subsidy, whichever is greater, providing such subsidy does not exceed the civilian retiree dependent subsidy.

Subsidy Freeze:	The retiree health benefits program was changed to freeze the medical subsidy for nonretired members not enrolled in the DROP as of July 14, 2011 who did not begin to contribute an additional 2% of employee contributions to the Pension Plan. ➤ The frozen subsidy is different for Medicare and non-Medicare retirees. ➤ The freeze applies to the medical subsidy limits in effect for the 2011-2012 plan year. ➤ The freeze does not apply to the dental subsidy or the Medicare Part B premium reimbursement.
Implicit Subsidy:	Fire Kaiser non-Medicare retirees are charged a premium that reflects blending with active employees. The difference between the retiree-only cost and the blended premium is the implicit subsidy.

Medicare Part B -Related Subsidy

Medicare Part B Premium Reimbursement	For retired Members enrolled in Medicare A & B who are receiving a subsidy, the Plan provides payment of Part B premiums ($135.50 for calendar year 2019, for all eligible retirees and beneficiaries).

Dental Subsidy

Eligibility	Retired Members who retired with 10 or more years of service. Benefits commence no earlier than age 55. Subsidy is paid only to Members on service or disability retirements. Surviving spouses/domestic partners are not eligible for benefits upon the death of the Member.
Amount of Subsidy	4% per year of service, to a maximum of 100%, times Maximum Subsidy, subject to a maximum of the single-party premium paid to City approved dental carrier.
Maximum Subsidy	Lesser of monthly amount paid to active Fire and Police Members and retired CERS Members. As of July 1, 2019, maximum is $44.60 per month.

Retiree Contributions

To the extent the subsidies are less than the medical or dental premiums, the retiree contributes the cost difference.

EXHIBIT 2

Net OPEB Liability

The components of the Net OPEB Liability are as follows:

	June 30, 2019	June 30, 2018
Total OPEB Liability	$3,621,203,927	$3,588,131,652
Plan Fiduciary Net Position	2,037,716,297	1,878,237,434
System's Net OPEB Liability	$1,583,487,630	$1,709,894,218
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	56.27%	52.35%

The Net OPEB Liability (NOL) was measured as of June 30, 2019 and 2018. The Plan's Fiduciary Net Position (plan assets) was valued as of the measurement date, while the Total OPEB Liability (TOL) was determined based upon the results of the funding actuarial valuations as of June 30, 2019 and 2018, respectively, with the following exception:

- The NOLs as of June 30, 2019 and 2018 reflect the impact of the excise tax on high-cost health plans imposed in 2022 by ACA.[1]

Plan provisions. The plan provisions used in the measurement of the TOL as of June 30, 2019 and 2018 are the same as those used in the LAFPP funding valuations as of June 30, 2019 and 2018, respectively.

Actuarial assumptions. The TOL as of June 30, 2019 and 2018 were determined by actuarial valuations as of June 30, 2019 and 2018, respectively. The actuarial assumptions were based on the results of an experience study for the period from July 1, 2013 through June 30, 2016 with the exception of the mortality assumption where the Board adopted the updated Pub-2010 mortality tables proposed in a separate letter dated December 12, 2019. They are the same as the assumptions used in the June 30, 2019 funding actuarial valuation for LAFPP with the exception of the inclusion of the impact of the excise tax on high-cost health plans. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	Ranges from 4.30% to 12.00% based on years of service, including inflation
Discount rate	7.25%, net of OPEB Plan investment expense, including inflation
Other assumptions	Same as those used in the June 30, 2019 funding actuarial valuation

[1] *This was based on our understanding of the provision of the ACA and the date of the valuations on June 30, 2019 and June 30, 2018.*

The long-term expected rate of return on pension plan investments was determined in 2017 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 deducting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each measurement class, after deducting inflation, but before reduction for investment expenses, used in the derivation of the long-term expected investment rate of return assumption as of June 30, 2019 and June 30, 2018 are summarized in the following table. This information will change every three years based on the actuarial experience study.

Asset Class	Target Allocation	Long-Term Expected Arithmetic Real Rate of Return
Large Cap U.S. Equity	23%	5.61%
Small Cap U.S. Equity	6%	6.37%
Developed International Equity	16%	6.96%
Emerging Markets Equity	5%	9.28%
U.S. Core Fixed Income	12%	1.06%
TIPS	5%	0.94%
High Yield Bonds	3%	3.65%
Real Estate	10%	4.37%
Commodities	5%	3.76%
Cash	1%	-0.17%
Unconstrained Fixed Income	2%	2.50%
Private Equity	12%	7.50%
Total Portfolio	100%	5.11%

Discount rate: The discount rate used to measure the TOL was 7.25% as of June 30, 2019 and 2018. 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 NOL to changes in the discount rate. The following presents the NOL of LAFPP as of June 30, 2019, calculated using the discount rate of 7.25%, as well as what LAFPP's NOL 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%)
NOL as of June 30, 2019	$2,126,785,914	$1,583,487,630	$1,143,755,017

Sensitivity of the NOL to changes in the trend rate. The following presents the NOL of LAFPP as of June 30, 2019, as well as what LAFPP's NOL 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*
NOL as of June 30, 2019	$1,105,675,287	$1,583,487,630	$2,238,482,815

* *Current trend rates: 8.75% graded down to 4.50% over 9 years for Non-Medicare medical plan costs and 8.00% graded down to 4.50% over 7 years for Medicare medical plan costs. The trends for fiscal year 2019-2020 do reflect additional estimated increases of 2.00% (non-Medicare) and 1.75% (Medicare) from the impact of the HIT. Before reflecting the HIT, the increases are 6.75% for non-Medicare and 6.25% for Medicare plans, respectively. 4.00% for all years for Dental and 4.50% for all years for Medicare Part B subsidy cost.*

EXHIBIT 3

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

	2019	2018
Total OPEB Liability		
Service cost[1]	$74,089,629	$69,939,886
Interest	260,513,119	243,768,983
Change of benefit terms	0	0
Difference between expected and actual experience	-249,567,518	-16,531,756
Changes of assumptions	85,910,802	63,331,870
Benefit payments	-137,873,757	-130,721,912
Other[2]	0	517,068
Net change in Total OPEB Liability	$33,072,275	$230,304,139
Total OPEB Liability – beginning	3,588,131,652	3,357,827,513
Total OPEB Liability – ending (a)	$3,621,203,927	$3,588,131,652
Plan Fiduciary Net Position		
Employer contributions[3]	$188,019,917	$178,462,244
Employee contributions	0	0
Net investment income	111,188,618	166,040,386
Benefit payments	-137,873,757	-130,721,912
Administrative expense	-1,855,915	-1,745,619
Other[2]	0	517,068
Net change in Plan Fiduciary Net Position	$159,478,863	$212,552,167
Plan Fiduciary Net Position – beginning	1,878,237,434	1,665,685,267
Plan Fiduciary Net Position – ending (b)	$2,037,716,297	$1,878,237,434
Plan's Net OPEB Liability – ending (a) – (b)	$1,583,487,630	$1,709,894,218
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	56.27%	52.35%
Covered payroll[4]	$1,487,977,884	$1,451,995,822
Plan Net OPEB Liability as percentage of covered payroll	106.42%	117.76%

(1) *The service cost is always based on the previous year's valuation, meaning the 2019 and 2018 values are based on the valuations as of June 30, 2018 and June 30, 2017 (with an adjustment for service cost of APO members transferred from LACERS), respectively.*

(2) *For 2018, reflects employer contributions transferred from LACERS for the Airport Police members who elected to join LAFPP Tier 6.*

(3) *For 2018, excludes the transfer of employer contributions referenced in footnote (2).*

(4) *Covered payroll represents payroll on which contributions to the OPEB plan are based. For 2018, includes the budgeted payroll for Airport Police members of $1,881,610.*

EXHIBIT 4

Schedule of LAFPP's Contributions – Last Ten Fiscal Years

Year Ended June 30	Actuarially Determined Contributions[1]	Contributions in Relation to the Actuarially Determined Contributions[1]	Contribution Deficiency (Excess)	Covered Payroll[2]	Contributions as a Percentage of Covered Payroll[3]
2010	$106,648,282	$106,648,282	$0	$1,266,311,709	8.42%
2011	111,681,208	111,681,208	0	1,289,856,708	8.66%
2012	122,971,851	122,971,851	0	1,213,395,874	10.13%
2013	132,939,191	132,939,191	0	1,277,031,317	10.41%
2014	138,106,847	138,106,847	0	1,308,198,504	10.56%
2015	148,476,512	148,476,512	0	1,314,360,387	11.30%
2016	150,315,374	150,315,374	0	1,351,788,221	11.12%
2017	165,170,422	165,170,422	0	1,397,244,974	11.82%
2018	178,462,244[4]	178,462,244[4]	0	1,451,995,822	12.29%
2019	188,019,917	188,019,917	0	1,487,977,884	12.64%

See accompanying notes to this exhibit on next page.

(1) *Payable as of July 15.*

(2) *Covered-employee payroll represents the collective total of the LAFPP eligible wages of all LAFPP member categories.*

(3) *Contribution rate as a percentage of payroll reflects discount applied when the employer prepays its contributions. This rate has been "backed" into by dividing the actual contributions by the budgeted covered-employee payroll.*

(4) *Excludes $517,068 transferred from LACERS for the Airport Police members who elected to join LAFPP Tier 6.*

Notes to Exhibit 4

Methods and assumptions used to establish "actuarially determined contribution" (ADC) rates:

The assumptions used in establishing the ADC for the year ended June 30, 2019 were based on the June 30, 2017 funding valuation.

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 Actuarial Cost Method
Amortization method	For Tier 1, level dollar amortization is used with last period ending on June 30, 2037. For Tiers 2, 3 and 4, level percent of payroll amortization with multiple layers is used as a percent of total valuation payroll from the respective employer (i.e., City or Harbor Port Police). For Tiers 5 and 6, level percent of payroll with multiple layers is used as a percent of combined payroll for these tiers from the respective employer (i.e., City or Harbor Port Police).
Remaining amortization period	Actuarial gains/losses are amortized over 20 years. Assumption changes are amortized over 25 years. Plan changes are amortized over 15 years.
Asset valuation method	The market value of assets less unrecognized returns. Unrecognized return is equal to the difference between the actual and the expected return on a market value basis, and is recognized over a seven-year period. Deferred gains and losses as of June 30, 2013 have been combined and will be recognized over a period of six years from July 1, 2013. The actuarial value of assets is further adjusted, if necessary, to be within 40% of the market value of assets.
Actuarial assumptions:	
June 30, 2017 valuation	
Investment rate of return	7.25%, net of investment expenses
Inflation rate	3.00%
Administrative Expenses:	Out of the total 1.25% of paroll in administrative expense, 1.16% of payroll payable biweekly is allocated to the Retirement Plan. This is equal to 1.12% of payroll payable at beginning of the year.
Real across-the-board salary increase	0.50%
Projected salary increases[1]	Ranges from 4.30% to 12.00% based on years of service
Other assumptions	Same as those used in the June 30, 2017 funding actuarial valuation.

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

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