City of Los Angeles Fire and Police Pension Plan

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

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
100 Montgomery Street, Suite 500 San Francisco, CA 94104
T 415.263.8200 www.segalco.com

November 9, 2018

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, 2018 Actuarial Valuations

Dear Board Members:

Enclosed please find the June 30, 2018 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

5559751v1/07916.002

Exhibit A

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

		June 30, 2018	June 30, 2017	Percent Change
I.	**Total Membership**			
	A. Current Active Members (includes DROP members)	13,442	13,327	0.86%
	B. Current Vested Former Members[(1)]	534	374	42.78%
	C. Current Retirees, Beneficiaries, and Dependents	12,890	12,836	0.42%
II.	**Valuation Salary**			
	A. Total Projected Annual Payroll	$1,546,042,972	$1,475,539,138	4.78%
	B. Average Projected Monthly Salary	9,585	9,227	3.88%
III.	**Benefits to Current Retirees and Beneficiaries[(2)]**			
	A. Total Annual Benefits	$916,461,228	$875,832,384	4.64%
	B. Average Monthly Benefit Amount	5,925	5,686	4.20%
IV.	**Total System Assets[(3)]**			
	A. Actuarial Value	$21,659,429,558	$20,317,066,949	6.61%
	B. Market Value	22,360,370,203	20,662,406,596	8.22%
V.	**Unfunded Actuarial Accrued Liability (UAAL)**			
	A. Retirement Benefits	$1,524,733,536	$1,731,803,309	-11.96%
	B. Health Subsidy Benefits	1,728,417,122	1,684,899,981	2.58%

(1) *The June 30, 2018 valuation includes 484 terminated members due only a refund of member contributions. The June 30, 2017 valuation included 322 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 2019-2020 Beginning of Year[1]	FY 2019-2020 July 15	FY 2018-2019 Beginning of Year	FY 2018-2019 July 15	Change Beginning of Year	Change July 15
A. Retirement Benefits						
1. Normal Cost as a Percent of Pay	18.79%	18.84%	18.76%	18.82%	0.03%	0.03%
2. Amortization of UAAL	14.36%	14.41%	13.97%	14.01%	0.39%	0.39%
3. Allocated amount for administrative expenses	1.12%	1.12%	1.12%	1.12%	0.00%	0.00%
4. Total Retirement Contribution	34.27%	34.37%	33.85%	33.95%	0.42%	0.42%
B. Health Subsidy Contribution						
1. Normal Cost as a Percent of Pay	4.61%	4.63%	4.64%	4.66%	-0.03%	-0.03%
2. Amortization of UAAL	8.08%	8.10%	7.96%	7.98%	0.12%	0.12%
3. Allocated amount for administrative expenses	0.09%	0.09%	0.09%	0.09%	0.00%	0.00%
4. Total Health Contribution	12.78%	12.82%	12.69%	12.73%	0.09%	0.09%
C. Total Contribution (A+B)	47.05%	47.19%	46.54%	46.68%	0.51%	0.51%

[1] *Alternative contribution payment date for FY 2019-2020:*	*Retirement*	*Health*	*Total*
End of Pay Period	*35.49%*	*13.23%*	*48.72%*

Exhibit A (continued)

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

		June 30, 2018	June 30, 2017	Change
VII	**Funded Ratio**			
	(Based on Valuation Value of Assets)			
	A. Retirement Benefits	92.9%	91.5%	1.4%
	B. Health Subsidy Benefits	51.3%	49.3%	2.0%
	C. Total	86.9%	85.6%	1.3%

		June 30, 2018	June 30, 2017	Change
VIII	**Funded Ratio**			
	(Based on Market Value of Assets)			
	A. Retirement Benefits	95.9%	93.1%	2.8%
	B. Health Subsidy Benefits	52.9%	50.1%	2.8%
	C. Total	89.8%	87.1%	2.7%

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)
06/30/2009	22.26%	9.00%	31.26%	$1,357,249
06/30/2010	28.20%[3]	12.27%[4]	40.47%	1,356,986
06/30/2011[2]	32.56%	11.34%	43.90%	1,343,963
06/30/2012[2]	35.93%	11.22%[5]	47.15%	1,341,914
06/30/2013	37.82%	11.69%	49.51%	1,367,237
06/30/2014	36.47%	11.50%	47.97%	1,402,715
06/30/2015	33.70%	12.23%	45.93%	1,405,171
06/30/2016	32.92%	12.73%	45.65%	1,400,808
06/30/2017	35.18%	13.08%	48.26%	1,475,539
06/30/2018	35.49%	13.23%	48.72%	1,546,043

(1) *Contributions are 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.*

City of Los Angeles Fire and Police Pension Plan

Actuarial Valuation and Review as of June 30, 2018

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
100 Montgomery Street, Suite 500 San Francisco, CA 94104
T 415.263.8200 www.segalco.com

November 9, 2018

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, 2018. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal year 2019-2020 and analyzes the preceding year's experience.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Plan. The census 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 measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in plan provisions or applicable law.

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

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

Sincerely,

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

By:

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

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

EK/bbf

SECTION 1

VALUATION SUMMARY

SECTION 2

VALUATION RESULTS

SECTION 3

SUPPLEMENTAL INFORMATION

SECTION 4

REPORTING INFORMATION

Segal Consulting

Purpose

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

- The benefit provisions of the Pension Plan, as administered by the Board of 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, 2018, provided by LAFPP;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

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).

Significant Issues in Valuation Year

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

Reference: Pg. 22 and Pg. 47

- The ratio of the valuation value of assets to actuarial accrued liabilities increased from 91.5% to 92.9%. On a market value of assets basis, the funded ratio increased from 93.1% to 95.9%. The Unfunded Actuarial Accrued Liability (UAAL) decreased from $1.732 billion to $1.525 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), partially offset by (ii) higher than expected salary increases for continuing active members, (iii) higher than expected COLAs granted to Tier 1 and Tier 2 retirees and beneficiaries, and (iv) loss due to actual contributions less than expected. A complete reconciliation of the Plan's UAAL is provided in Section 3, Exhibit G.

Reference: Pg. 20

- The aggregate beginning-of-year employer rate calculated in this valuation has increased from 33.85% of payroll to 34.27% of payroll. Using a projected annual payroll of $1.546 billion as of June 30, 2018, there would be an increase in contributions from $523 million to $530 million. The increase was due to: (i) gain layers from the June 30, 2003 valuation being fully amortized, (ii) higher than expected salary increases for continuing active members, (iii) higher than expected COLAs granted to Tier 1 and Tier 2 retirees and beneficiaries, and (iv) loss due to actual contributions less than expected partially offset by (v) higher than expected return on the valuation value of assets (after smoothing), and (vi) amortizing the prior year's UAAL over a larger than expected projected total payroll. A complete reconciliation of the aggregate employer contribution is provided in Section 2, Chart 15.

Reference: Pgs. 48 – 59

- In addition to the UAAL amortization schedules by tier, this report also includes a graphical display of the projected net outstanding balances and net amortization payments for all tiers combined.

Reference: Pg. 5

- As indicated in Section 2, Subsection B of this report, the total net unrecognized investment gain as of June 30, 2018 is $700.9 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, 2017 was $345.3 million.
- The net unrecognized investment gains represent about 3.1% of the market value of assets. Unless offset by future investment losses or other unfavorable experience, the recognition of the $700.9 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:
  - If the net deferred gains for the Retirement Plan were recognized immediately in the valuation value of assets, the funded percentage would increase from 92.9% to 95.9%.

    For comparison purposes, if all the net deferred gains for the Retirement Plan in the June 30, 2017 valuation had been recognized immediately in the June 30, 2017 valuation, the funded percentage would have increased from 91.5% to 93.1%.
  - 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 34.27% of payroll to 31.42% of payroll.

    For comparison purposes, if all the net deferred gains for the Retirement Plan in the June 30, 2017 valuation had been recognized immediately in the June 30, 2017 valuation, the aggregate beginning-of-year employer contribution rate would have decreased from 33.97% of payroll to 32.49% of payroll.
- The actuarial valuation report as of June 30, 2018 is based on financial and demographic information as of that date. Changes subsequent to that date are not reflected and will impact the actuarial cost of the Plan.
- Pursuant to Ordinance No. 184853 ("the Ordinance"), which was adopted by the City Council on March 28, 2017, Airport Peace Officers (APO) at Los Angeles City Employees' Retirement System (LACERS) can elect to remain in LACERS or transfer to LAFPP Tier 6 prior to January 7, 2018. All new APO hired after that date would be enrolled in LAFPP Tier 6, rather than in LACERS. Under the Ordinance, APO members who elect to transfer to LAFPP are required to convert all of their prior LACERS service to LAFPP service at their own cost. This valuation, prepared using actual membership information, is the first valuation to reflect these new APO members.

Impact of Future Experience on Contribution Rates

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 of Commissioners.

New Actuarial Standard of Practice on Risk Assessment

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

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

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

Summary of Key Valuation Results

	2018	2017
Contributions calculated as of June 30:		
Recommended as a percent of pay (note there is a 12-month delay until the rate is effective)		
At the beginning of year	34.27%	33.85%[1]
On July 15	34.37%	33.95%[1]
At the end of each biweekly pay period	35.49%	35.06%[1]
Funding elements for plan year beginning July 1:		
Normal cost	$441,593,887	$441,495,577[1]
Valuation value of retirement assets (VVA)	19,840,070,083	18,679,220,993
Market value of retirement assets	20,482,132,769	18,996,721,329
Actuarial accrued liability	21,364,803,619	20,411,024,302
Unfunded actuarial accrued liability on valuation value of retirement assets basis	1,524,733,536	1,731,803,309
Unfunded actuarial accrued liability on market value of retirement assets basis	882,670,850	1,414,302,973
Funded ratio on valuation value of retirement assets basis[2]	92.9%	91.5%
Funded ratio on market value of retirement assets basis	95.9%	93.1%
Demographic data for plan year beginning July 1:		
Number of retired members and beneficiaries	12,890	12,836
Number of vested former members[3]	534	374
Number of active members (includes DROP members)	13,442	13,327
Projected total payroll	$1,546,042,972	$1,475,539,138
Projected average payroll	115,016	110,718

(1) *Recalculated to reflect payroll of active members enrolled in the different tiers as of June 30, 2018. There is a change in the total aggregate rate determined in the June 30, 2017 valuation calculated using the 2017 projected payroll by tier compared to that recalculated above using the 2018 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 VVA basis excluding Harbor Port Police and Airport Police Officers are 92.9% and 91.5% for 2018 and 2017, respectively.*

(3) *The June 30, 2018 valuation includes 484 terminated members due only a refund of member contributions. The June 30, 2017 valuation included 322 such members.*

Important Information about Actuarial Valuations

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

In order to prepare an actuarial valuation, Segal 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 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.

Actuarial Certification

November 9, 2018

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, 2018, in accordance with generally accepted actuarial principles and practices. In particular, it is our understanding that the assumptions and methods used for funding purposes meet the parameters set by the Actuarial Standards of Practice (ASOPs). Actuarial valuations are performed annually for this retirement program with the last valuation completed on June 30, 2017. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of the historical funding methods used in determination of the liability for retirement benefits.

The actuarial valuation is based on the plan of benefits summarized in Exhibit IV 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:

1) Schedule of Net Pension Liability
2) Schedule of Changes in Net Pension Liability and Related Ratios
3) 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.

Andy Yeung

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

A. MEMBER DATA

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

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

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

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

CHART 1

Member Population: 2009 – 2018

Year Ended June 30	Active Members(1)	DROP Members	Vested Terminated Members(2)	Retired Members and Beneficiaries	Ratio of Non-Actives to Actives
2009	13,802	1,024	61	12,327	0.90
2010	13,654	1,089	58	12,348	0.91
2011	13,432	1,314(3)	59	12,392(4)	0.93
2012	13,396	1,193	62	12,380	0.93
2013	13,224	1,191	133	12,432	0.95
2014	13,097	1,277	131	12,502	0.96
2015	13,068	1,359	112	12,593	0.97
2016	13,050	1,243	128	12,819	0.99
2017	13,327	1,303	374(5)	12,836	0.99
2018	13,442	1,442	534(6)	12,890	1.00

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

(2) *Includes terminated members due only a refund of contributions (beginning with the June 30, 2013 valuation).*

(3) *Includes 113 members who made an election to participate in the DROP during the period July 1, 2011 to July 14, 2011.*

(4) *Includes 13 new retirees during the period July 1, 2011 to July 14, 2011.*

(5) *Includes 179 terminated members due only a refund of contributions not included in the membership data provided for the June 30, 2016 valuation.*

(6) *Includes 110 terminated members due only a refund of contributions not included in the membership data provided for the June 30, 2017 valuation.*

Active Members (Including DROP Members)
Plan costs are affected by the age, years of service and salaries of active members. In this year's valuation, there were 13,442 active members with an average age of 42.3, average years of service of 15.3 years and average salary of $115,016. The 13,327 active members in the prior valuation had an average age of 42.3, average service of 15.3 years and average salary of $110,718.

Inactive Members
In this year's valuation, there were 534 members with a vested right to a deferred or immediate vested benefit or a return of member contributions versus 374 members in the prior valuation.

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

CHART 2

Distribution of Active Members (Including DROP Members) by Age as of June 30, 2018

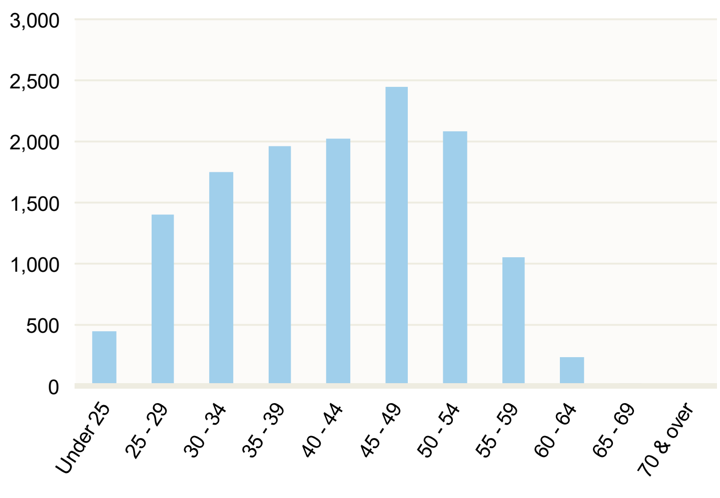
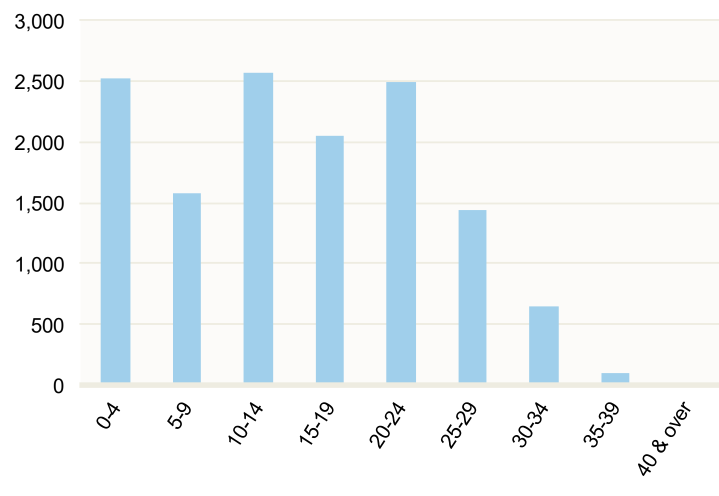


CHART 3

Distribution of Active Members (Including DROP Members) by Years of Service as of June 30, 2018



Retired Members and Beneficiaries
As of June 30, 2018, 10,506 retired members and 2,384 beneficiaries and survivors were receiving total monthly benefits of $76,371,769. For comparison, in the previous valuation there were 10,404 retired members and 2,432 beneficiaries and survivors receiving monthly benefits of $72,986,032.

Please note that the monthly benefits provided have been adjusted for the COLA granted effective for the month of July.

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

CHART 4

Distribution of Retired Members by Type and by Monthly Amount as of June 30, 2018 (Includes July 1 COLA)

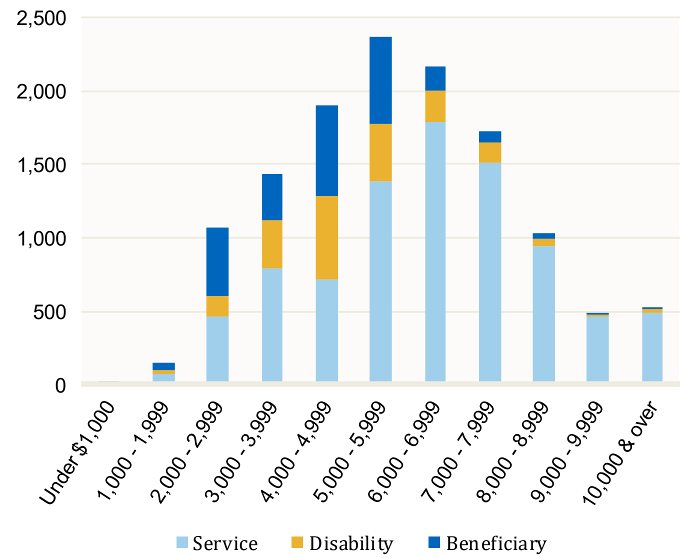
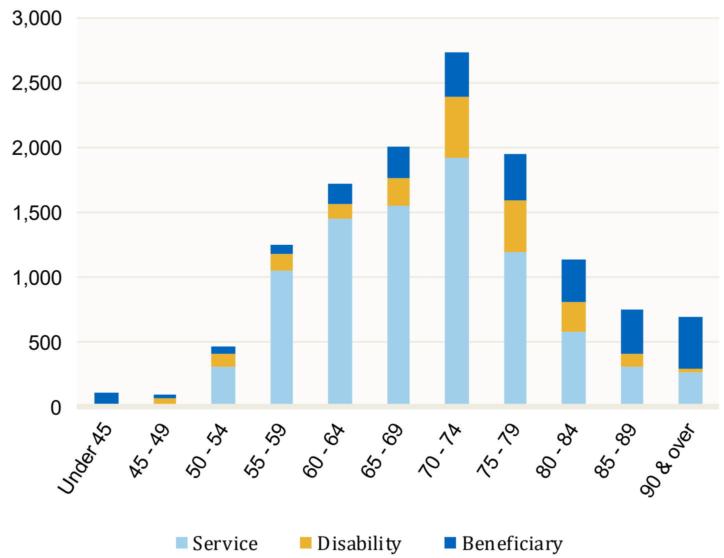


CHART 5

Distribution of Retired Members by Type and by Age as of June 30, 2018 (Includes July 1 COLA)



B. FINANCIAL INFORMATION

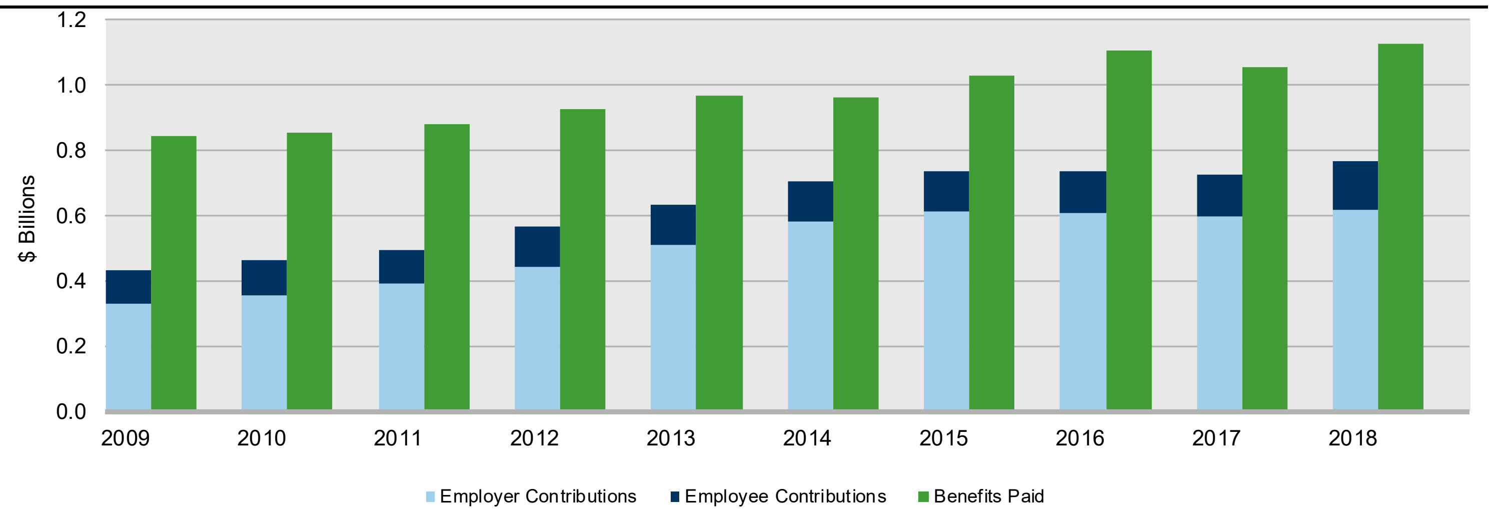
Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.

Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits D, E and F.

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

CHART 6

Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended June 30, 2009 – 2018



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

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.

CHART 7

Determination of Actuarial Value of Assets for Year Ended June 30, 2018

	Original Amount	Portion Not Recognized	Amount Not Recognized	
1. Market value of assets (for Retirement and Health Subsidy Benefits)				$22,360,370,203
2. Calculation of unrecognized return[1]				
(a) Year ended June 30, 2018	$552,799,174	6/7	$473,827,863	
(b) Year ended June 30, 2017	1,050,034,903	5/7	750,024,931	
(c) Year ended June 30, 2016	(1,240,953,883)	4/7	(709,116,505)	
(d) Year ended June 30, 2015	(643,447,599)	3/7	(275,763,257)	
(e) Year ended June 30, 2014	1,571,818,656	2/7	449,091,045	
(f) Combined Net Deferred Gain as of June 30, 2013[2]	77,259,408	1/6	12,876,568	
(g) Total unrecognized return				700,940,645
3. Preliminary actuarial value: (1) - (2g)				$21,659,429,558
4. Adjustment to be within 40% corridor				0
5. Final actuarial value of assets: (3) + (4)				$21,659,429,558
6. Actuarial value as a percentage of market value: (5) ÷ (1)				96.9%
7. Market value of retirement assets				$20,482,132,769
8. Valuation value of retirement assets: (5) ÷ (1) x (7)				$19,840,070,083
9. Deferred return recognized in each of the next 6 years (for Retirement and Health Subsidy Benefits):				
(a) Amount recognized on June 30, 2019				$197,198,175
(b) Amount recognized on June 30, 2020				184,321,608
(c) Amount recognized on June 30, 2021				(40,223,914)
(d) Amount recognized on June 30, 2022				51,697,170
(e) Amount recognized on June 30, 2023				228,976,298
(f) Amount recognized on June 30, 2024				78,971,308
(g) Subtotal (may not total exactly due to rounding)				$700,940,645

(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.*

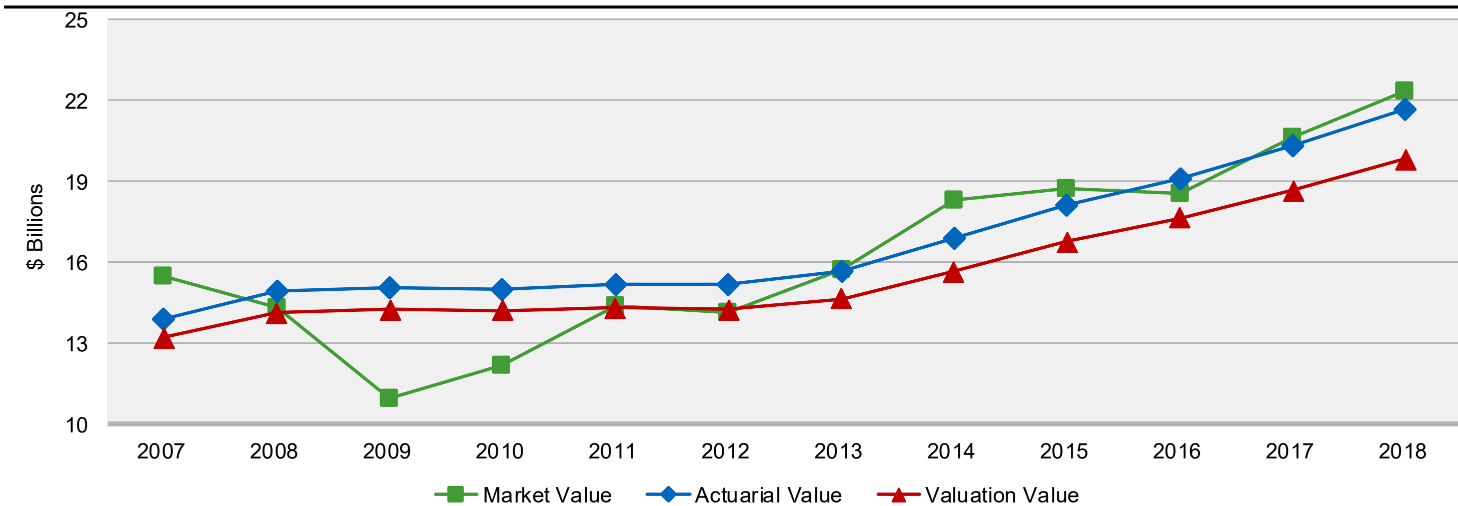
(2) *Net deferred unrecognized investment gains as of June 30, 2013 have been combined into a single layer to be recognized over the six-year period effective July 1, 2013*

The actuarial value, market value and valuation value of assets are representations of LAFPP'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 LAFPP'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.

This chart shows the change in the actuarial value of assets versus the market value over the past twelve years.

CHART 8

Market Value of Assets(1), Actuarial Value of Assets(1) and Valuation Value of Assets(2) as of June 30, 2007 – 2018



(1) *Retirement and Health assets*

(2) *Retirement only assets*

C. ACTUARIAL EXPERIENCE

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

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

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

The total net gain of $111,083,014 was due mainly to an investment gain of $213,587,572 (after smoothing), offset by more than expected COLA increases for Tier 1 and Tier 2 retirees and beneficiaries and more than expected active salary increases and other experience losses. A discussion of the major components of the actuarial experience is on the following pages.

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

CHART 9

Actuarial Experience for Year Ended June 30, 2018

1.	Net gain from investments[1]	$213,587,572
2.	Net loss from other experience[2]	(102,504,558)
3.	Net experience gain: (1) + (2)	$111,083,014

(1) *Details in Chart 10.*

(2) *Details in Chart 13. The net loss is attributed to actual liability experience from June 30, 2017 to June 30, 2018, compared to the projected experience as predicted by the actuarial assumptions as of June 30, 2017.*

Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on LAFPP's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets was 7.25% for the 2017-2018 plan year (based on the June 30, 2017 valuation). The actual rate of return on the actuarial value of assets basis for the 2017-2018 plan year was 8.34%.

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

This chart shows the gain due to investment experience.

CHART 10

Investment Experience for Year Ended June 30, 2018

	Market Value(1)	Actuarial Value(1)	Valuation Value(2)
1. Actual return	$2,058,910,553	$1,703,309,555	$1,568,307,817
2. Average value of assets	20,773,950,049	20,428,610,401	18,685,796,476
3. Actual rate of return: (1) ÷ (2)	9.91%	8.34%	8.39%
4. Assumed rate of return	7.25%	7.25%	7.25%
5. Expected return: (2) x (4)	$1,506,111,379	$1,481,074,255	$1,354,720,245
6. Actuarial gain: (1) – (5)	552,799,174	$222,235,300	$213,587,572

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

(1) *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 market value investment return for all Retirement and Health Subsidy Benefits assets for the last ten years, including five-year and ten-year averages.

CHART 11

Investment Return[(1)] – Actuarial Value vs. Market Value: 2009 – 2018

	Actuarial Value Investment Return		Market Value Investment Return	
Year Ended June 30	Amount	Percent	Amount	Percent
2009	$557,346,783	3.75%	$(2,968,762,917)	-20.74%
2010	360,741,904	2.40%	1,612,772,227	14.74%
2011	568,411,044	3.78%	2,585,948,784	21.22%
2012	320,400,668	2.10%	93,546,777	0.65%
2013	827,790,619	5.43%	1,952,254,466	13.75%
2014	1,468,399,449	9.29%	2,802,796,015	17.65%
2015	1,527,957,644	8.98%	739,009,040	4.01%
2016	1,381,259,601	7.58%	172,083,839	0.91%
2017	1,517,741,599	7.89%	2,449,549,638	13.13%
2018	1,703,309,555	8.34%	2,058,910,553	9.91%
Five-Year Average Return		8.41%		8.95%
Ten-Year Average Return		5.92%		6.84%

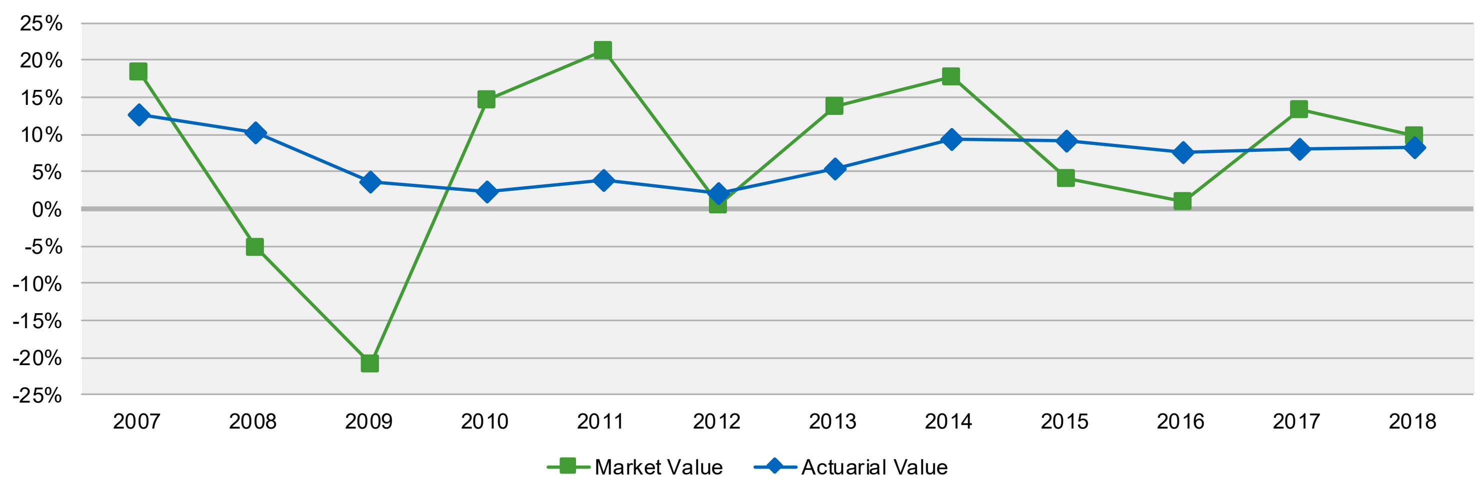
(1) *Includes all assets for Retirement and Health Subsidy Benefits*

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

This chart illustrates how this leveling effect has actually worked over the last twelve years.

CHART 12

Market and Actuarial Rates of Return for Years Ended June 30, 2007 - 2018



Other Experience

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

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

The net loss from this other experience for the year ended June 30, 2018 amounted to $102,504,558, which is 0.5% of the actuarial accrued liability and within the range of reasonable expectations.

A brief summary of the demographic gain/(loss) experience of the LAFPP for the year ended June 30, 2018 is shown in the chart below.

The chart shows elements of the experience loss for the most recent year.

CHART 13

Experience Due to Sources Other Than Investment Return for Year Ended June 30, 2018

1.	Loss due to higher than expected COLA increases for retirees and beneficiaries	$(29,174,386)
2.	Loss due to higher than expected salary increases for continuing actives	(49,315,706)
3.	Miscellaneous loss[(1)]	(24,014,466)
4.	Net loss	$(102,504,558)

(1) *Includes a loss of $51.7 million due to actual contributions less than expected. See Section 3 Exhibit G.*

D. RECOMMENDED CONTRIBUTION

The amount of annual contribution required to fund the Plan is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability, separately for each Tier. The total amount is then divided by the projected payroll for active members to determine the contribution rate of 34.27% of payroll if paid at the beginning of the year.

CHART 14
Recommended Contribution

Tier 1 Members	June 30, 2018 Amount	June 30, 2018 % of Payroll	June 30, 2017 Amount	June 30, 2017 % of Payroll
1. Total normal cost	$0	N/A	$0	N/A
2. Expected employee 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	81,546,620		89,064,054	
5. Valuation value of assets	-76,418,204		-74,632,173	
6. Unfunded actuarial accrued liability	157,964,824		163,696,227	
7. Amortization of unfunded accrued liability	14,518,696	N/A	14,688,373	N/A
8. Allocated amount for admin expenses, calculated with payroll in (12)	0	N/A	0	N/A
9. Total recommended contribution, payable July 1	14,518,696	N/A	14,688,373	N/A
10. Total recommended contribution, payable July 15	14,561,099	N/A	14,731,272	N/A
11. Total recommended contribution, payable biweekly	15,035,790	N/A	15,211,511	N/A
12. Projected payroll used for developing normal cost rate	0		N/A	

Tier 2 Members	June 30, 2018 Amount	June 30, 2018 % of Payroll	June 30, 2017 Amount[2]	June 30, 2017 % of Payroll
1. Total normal cost	$299,649	25.83%	$300,891	25.94%
2. Expected employee contributions, discounted to beginning of year	-12,284	-1.06%	-14,615	-1.26%
3. Employer normal cost: (1) + (2)	287,365	24.77%	286,276	24.68%
4. Actuarial accrued liability	5,047,062,918		5,146,062,952	
5. Valuation value of assets	5,272,798,516		5,294,879,263	
6. Unfunded actuarial accrued liability	-225,735,598[3]		-148,816,311[3]	
7. Amortization of unfunded accrued liability[1]	14,071,007[3]	0.92%	17,563,045[3]	1.15%
8. Allocated amount for admin expenses, calculated with payroll in (12)	12,993	1.12%	12,991	1.12%
9. Total recommended contribution, payable July 1	14,371,365	N/A	17,862,312	N/A
10. Total recommended contribution, payable July 15	14,413,338	N/A	17,914,481	N/A
11. Total recommended contribution, payable biweekly	14,883,212	N/A	18,498,492	N/A
12. Projected payroll used for developing normal cost rate	1,159,950		N/A	

(1) *UAAL rate is calculated using the City's total payroll of $1,527,221,319.*
(2) *Amounts are revised to reflect payroll as of June 30, 2018.*
(3) *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.*

CHART 14
Recommended Contribution (Continued)

Tier 3 Members	June 30, 2018		June 30, 2017	
	Amount	% of Payroll	Amount[2]	% of Payroll
1. Total normal cost	$22,678,948	25.66%	$22,743,258	25.73%
2. Expected employee contributions, discounted to beginning of year	-7,618,433	-8.62%	-7,822,691	-8.85%
3. Employer normal cost: (1) + (2)	15,060,515	17.04%	14,920,567	16.88%
4. Actuarial accrued liability	1,196,618,561		1,126,049,720	
5. Valuation value of assets	1,188,032,215		1,063,566,723	
6. Unfunded actuarial accrued liability	8,586,346		62,482,997	
7. Amortization of unfunded accrued liability[1]	52,821[3]	0.00%	26,573,651[3]	1.74%
8. Allocated amount for admin expenses, calculated with payroll in (12)	990,084	1.12%	989,990	1.12%
9. Total recommended contribution, payable July 1	16,103,420	N/A	42,484,208	N/A
10. Total recommended contribution, payable July 15	16,150,452	N/A	42,608,288	N/A
11. Total recommended contribution, payable biweekly	16,676,956	N/A	43,997,315	N/A
12. Projected payroll used for developing normal cost rate	88,391,987		N/A	

Tier 4 Members	June 30, 2018		June 30, 2017	
	Amount	% of Payroll	Amount[2]	% of Payroll
1. Total normal cost	$8,746,116	26.27%	$8,742,091	26.25%
2. Expected employee contributions, discounted to beginning of year	-2,509,843	-7.54%	-2,667,587	-8.01%
3. Employer normal cost: (1) + (2)	6,236,273	18.73%	6,074,504	18.24%
4. Actuarial accrued liability	586,559,573		560,375,131	
5. Valuation value of assets	511,844,044		467,527,614	
6. Unfunded actuarial accrued liability	74,715,529		92,847,517	
7. Amortization of unfunded accrued liability[1]	7,919,101[3]	0.52%	18,021,212[3]	1.18%
8. Allocated amount for admin expenses, calculated with payroll in (12)	373,031	1.12%	372,996	1.12%
9. Total recommended contribution, payable July 1	14,528,405	N/A	24,468,712	N/A
10. Total recommended contribution, payable July 15	14,570,837	N/A	24,540,175	N/A
11. Total recommended contribution, payable biweekly	15,045,845	N/A	25,340,184	N/A
12. Projected payroll used for developing normal cost rate	33,303,205		N/A	

(1) *UAAL rate is calculated using the City's total payroll of $1,527,221,319.*

(2) *Amounts are revised to reflect payroll as of June 30, 2018.*

(3) *Decrease in contribution to amortize the UAAL is primarily as a result of Experience Loss layers (with payment of $23.4 million for Tier 3 and payment of $9.2 million for Tier 4) established as of 6/30/2003 being fully amortized.*

CHART 14
Recommended Contribution (Continued)

Tier 5 Members (without Harbor Port Police and Airport Police)	June 30, 2018 Amount	June 30, 2018 % of Payroll	June 30, 2017 Amount[1]	June 30, 2017 % of Payroll
1. Total normal cost	$339,359,953	29.23%	$339,243,872	29.22%
2. Expected employee contributions, discounted to beginning of year	-113,114,163	-9.74%	-113,197,390	-9.75%
3. Employer normal cost: (1) + (2)	226,245,790	19.49%	226,046,482	19.47%
4. 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.*	
5. Valuation value of assets				
6. Unfunded actuarial accrued liability				
7. Amortization of unfunded accrued liability	152,578,982	13.14%	114,242,289	9.84%
8. Allocated amount for admin expenses, calculated with payroll in (12)	13,004,425	1.12%	13,003,187	1.12%
9. Total recommended contribution, payable July 1	391,829,197	33.75%	353,291,958	30.43%
10. Total recommended contribution, payable July 15	392,973,576	33.85%	354,323,784	30.52%
11. Total recommended contribution, payable biweekly	405,784,491	34.95%	365,874,719	31.51%
12. Projected payroll used for developing normal cost rate	1,160,998,876		N/A	

Tier 6 Members (without Harbor Port Police and Airport Police)	June 30, 2018 Amount	June 30, 2018 % of Payroll	June 30, 2017 Amount[1]	June 30, 2017 % of Payroll
1. Total normal cost	$65,065,137	26.74%	$65,027,743	26.72%
2. Expected employee contributions, discounted to beginning of year	-25,849,745	-10.62%	-25,845,607	-10.62%
3. Employer normal cost: (1) + (2)	39,215,392	16.12%	39,182,136	16.10%
4. 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.*	
5. Valuation value of assets				
6. Unfunded actuarial accrued liability				
7. Amortization of unfunded accrued liability	31,983,437	13.14%	23,947,342	9.84%
8. Allocated amount for admin expenses, calculated with payroll in (12)	2,725,973	1.12%	2,725,714	1.12%
9. Total recommended contribution, payable July 1	73,924,802	30.38%	65,855,192	27.06%
10. Total recommended contribution, payable July 15	74,140,707	30.46%	66,047,529	27.14%
11. Total recommended contribution, payable biweekly	76,557,690	31.46%	68,200,675	28.02%
12. Projected payroll used for developing normal cost rate	243,367,301		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2018.*

CHART 14
Recommended Contribution (Continued)

Combined Tiers 5 and 6 UAAL Contribution Rate Calculations for the City	June 30, 2018				June 30, 2017	
	Tier 5	Tier 6	Combined Tiers 5 and 6		Combined Tiers 5 and 6	
			Amount	% of Payroll	Amount[1]	% of Payroll
4. Actuarial accrued liability	$14,220,610,084	$156,217,614	$14,376,827,698		$13,426,132,513	
5. Valuation value of assets			12,872,909,998		11,869,712,478	
6. Unfunded actuarial accrued liability			1,503,917,700		1,556,420,035	
7. Amortization of unfunded accrued liability			184,562,419[2]	13.14%	138,189,631[2]	9.84%
12. Projected payroll used for developing normal cost rate	1,160,998,876	243,367,301	1,404,366,177		N/A	

All Tiers Combined (without Harbor Port Police and Airport Police)	June 30, 2018		June 30, 2017	
	Amount	% of Payroll	Amount[3]	% of Payroll
1. Total normal cost	$436,149,803	28.55%	$436,057,855	28.55%
2. Expected employee contributions, discounted to beginning of year	-149,104,468	-9.76%	-149,547,890	-9.79%
3. Employer normal cost: (1) + (2)	287,045,335	18.79%	286,509,965	18.76%
4. Actuarial accrued liability	21,288,615,370		20,347,684,370	
5. Valuation value of assets	19,769,166,569		18,621,053,905	
6. Unfunded actuarial accrued liability	1,519,448,801		1,726,630,465	
7. Amortization of unfunded accrued liability	221,124,044	14.48%	215,035,912	14.08%
8. Allocated amount for admin expenses, calculated with payroll in (12)	17,106,506	1.12%	17,104,878	1.12%
9. Total recommended contribution, payable July 1	525,275,885	34.39%	518,650,755	33.96%
10. Total recommended contribution, payable July 15	526,810,009	34.49%	520,165,529	34.06%
11. Total recommended contribution, payable biweekly	543,983,984	35.62%	537,122,896	35.17%
12. Projected payroll used for developing normal cost rate	1,527,221,319		N/A	

(1) *Amounts are revised to reflect payroll as of June 30, 2018.*

(2) *Increase in contribution to amortize the UAAL is primarily as a result of Experience Gain layer (with credit of $48.4 million) established as of 6/30/2003 being fully amortized.*

(3) *Amounts are recalculated to reflect payroll of active members enrolled in the different tiers as of June 30, 2018. There is a change in the total aggregate rate determined in the June 30, 2017 valuation calculated using the 2017 projected payroll by tier compared to that recalculated above using the 2018 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, 2017 valuation report, the aggregate rate (all Tiers combined without Harbor Port Police) is 34.04% payable July 1, based on June 30, 2017 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, 2018 has increased, the total aggregate rate is decreased slightly to 33.96%, payable July 1, using the June 30, 2018 projected payroll.*

CHART 14
Recommended Contribution (Continued)

Harbor Port Police Tier 5	June 30, 2018 Amount	June 30, 2018 % of Payroll	June 30, 2017 Amount[1]	June 30, 2017 % of Payroll
1. Total normal cost	$3,605,106	30.18%	$3,613,124	30.24%
2. Expected employee contributions, discounted to beginning of year	-1,238,803	-10.37%	-1,236,635	-10.35%
3. Employer normal cost: (1) + (2)	2,366,303	19.81%	2,376,489	19.89%
4. 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.*	
5. Valuation value of assets				
6. Unfunded actuarial accrued liability				
7. Amortization of unfunded accrued liability	702,587	5.88%	768,267	6.43%
8. Allocated amount for admin expenses, calculated with payroll in (12)	133,832	1.12%	133,819	1.12%
9. Total recommended contribution, payable July 1	3,202,722	26.81%	3,278,575	27.44%
10. Total recommended contribution, payable July 15	3,212,076	26.88%	3,288,150	27.52%
11. Total recommended contribution, payable biweekly	3,316,789	27.76%	3,395,344	28.42%
12. Projected payroll used for developing normal cost rate	11,948,161		N/A	

Harbor Port Police Tier 6	June 30, 2018 Amount	June 30, 2018 % of Payroll	June 30, 2017 Amount[1]	June 30, 2017 % of Payroll
1. Total normal cost	$549,619	26.76%	$540,101	26.30%
2. Expected employee contributions, discounted to beginning of year	-218,129	-10.62%	-218,094	-10.62%
3. Employer normal cost: (1) + (2)	331,490	16.14%	322,007	15.68%
4. 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.*	
5. Valuation value of assets				
6. Unfunded actuarial accrued liability				
7. Amortization of unfunded accrued liability	120,759	5.88%	132,047	6.43%
8. Allocated amount for admin expenses, calculated with payroll in (12)	23,003	1.12%	23,000	1.12%
9. Total recommended contribution, payable July 1	475,252	23.14%	477,054	23.23%
10. Total recommended contribution, payable July 15	476,640	23.21%	478,447	23.30%
11. Total recommended contribution, payable biweekly	492,178	23.97%	494,045	24.06%
12. Projected payroll used for developing normal cost rate	2,053,615		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2018.*

CHART 14
Recommended Contribution (Continued)

Combined Tiers 5 and 6 UAAL Contribution Rate Calculations for the Harbor Port Police	June 30, 2018				June 30, 2017	
	Tier 5	Tier 6	Combined Tiers 5 and 6		Combined Tiers 5 and 6	
			Amount	% of Payroll	Amount[1]	% of Payroll
4. Actuarial accrued liability	$69,795,576	$975,231	$70,770,807		$63,339,932	
5. Valuation value of assets			66,863,513		58,167,088	
6. Unfunded actuarial accrued liability			3,907,294		5,172,844	
7. Amortization of unfunded accrued liability			823,346	5.88%	900,314	6.43%
12. Projected payroll used for developing normal cost rate	11,948,161	2,053,615	14,001,776		N/A	

Harbor Port Police Combined (Tiers 5 and 6)	June 30, 2018		June 30, 2017	
	Amount	% of Payroll	Amount[1]	% of Payroll
1. Total normal cost	$4,154,725	29.68%	$4,153,225	29.66%
2. Expected employee contributions, discounted to beginning of year	-1,456,932	-10.41%	-1,454,729	-10.39%
3. Employer normal cost: (1) + (2)	2,697,793	19.27%	2,698,496	19.27%
4. Actuarial accrued liability	70,770,807		63,339,932	
5. Valuation value of assets	66,863,513		58,167,088	
6. Unfunded actuarial accrued liability	3,907,294		5,172,844	
7. Amortization of unfunded accrued liability	823,346	5.88%	900,314	6.43%
8. Allocated amount for admin expenses, calculated with payroll in (12)	156,835	1.12%	156,819	1.12%
9. Total recommended contribution, payable July 1	3,677,974	26.27%	3,755,629	26.82%
10. Total recommended contribution, payable July 15	3,688,716	26.34%	3,766,597	26.90%
11. Total recommended contribution, payable biweekly	3,808,967	27.20%	3,889,389	27.78%
12. Projected payroll used for developing normal cost rate	14,001,776		N/A	

(1) *Amounts are revised to reflect payroll as of June 30, 2018.*

CHART 14
Recommended Contribution (Continued)

Airport Police Officers Tier 6	June 30, 2018 Amount	June 30, 2018 % of Payroll	June 30, 2017[1] Amount[2]	June 30, 2017[1] % of Payroll
1. Total normal cost	$1,289,359	26.75%	$1,284,497	26.65%
2. Expected employee contributions, discounted to beginning of year	-511,952	-10.62%	-511,871	-10.62%
3. Employer normal cost: (1) + (2)	777,407	16.13%	772,626	16.03%
4. Actuarial accrued liability	5,417,442		6,326,292[3]	
5. Valuation value of assets	4,040,001		4,664,151[3]	
6. Unfunded actuarial accrued liability	1,377,441		1,662,141[3]	
7. Amortization of unfunded accrued liability	94,575	1.96%	116,641	2.42%
8. Allocated amount for admin expenses, calculated with payroll in (12)	53,988	1.12%	53,983	1.12%
9. Total recommended contribution, payable July 1	925,970	19.21%	943,250	19.57%
10. Total recommended contribution, payable July 15	928,674	19.27%	946,005	19.63%
11. Total recommended contribution, payable biweekly	958,949	19.90%	976,845	20.27%
12. Projected payroll used for developing normal cost rate	4,819,877		N/A	

All Tiers Combined	June 30, 2018 Amount	June 30, 2018 % of Payroll	June 30, 2017 Amount[2]	June 30, 2017 % of Payroll
1. Total normal cost	$441,593,887	28.56%	$441,495,577	28.56%
2. Expected employee contributions, discounted to beginning of year	-151,073,352	-9.77%	-151,514,490	-9.80%
3. Employer normal cost: (1) + (2)	290,520,535	18.79%	289,981,087	18.76%
4. Actuarial accrued liability	21,364,803,619		20,411,024,302	
5. Valuation value of assets	19,840,070,083		18,679,220,993	
6. Unfunded actuarial accrued liability	1,524,733,536		1,731,803,309	
7. Amortization of unfunded accrued liability	222,041,965	14.36%	216,052,867	13.97%
8. Allocated amount for admin expenses, calculated with payroll in (12)	17,317,329	1.12%	17,315,680	1.12%
9. Total recommended contribution, payable July 1	529,879,829	34.27%	523,349,634	33.85%
10. Total recommended contribution, payable July 15	531,427,399	34.37%	524,878,131	33.95%
11. Total recommended contribution, payable biweekly	548,751,900	35.49%	541,989,129	35.06%
12. Projected payroll used for developing normal cost rate	1,546,042,972		N/A	

(1) *Contribution rates for the Airport Police Officers for the 2018-2019 plan year were shown in the February 22, 2018 letter.*

(2) *Amounts are revised to reflect payroll as of June 30, 2018.*

(3) *Actuarial accrued liability, Valuation value of assets and Unfunded actuarial accrued liability were shown in our February 22, 2018 letter after we completed our June 30, 2017 valuation. These numbers are not included in the "All Tiers Combined" total as of June 30, 2017 and are provided for comparison purposes only.*

If paid by the City at the beginning of the year, the calculated normal cost is 18.79% payroll, and the explicit contribution rate for administrative expense is 1.12% of payroll. The remaining contribution of 14.36% of payroll will amortize the unfunded actuarial accrued liability over an equivalent single amortization period of about 7.7 years.

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

Reconciliation of Recommended Contribution

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

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

CHART 15

Reconciliation of Recommended Contribution Rate from June 30, 2017 to June 30, 2018

Recommended Contribution as of June 30, 2017 (Assuming Payment at the Beginning of the Year)	33.85%[1]
Effect of actual contributions less than expected	0.23%
Effect of investment gain on smoothed value of assets	-0.95%
Effect of higher than expected salary increases	0.22%
Effect of amortizing prior year's UAAL over a larger than expected projected total payroll	-0.17%
Effect of higher than expected COLA increases for retirees, beneficiaries, and DROP members	0.13%
Effect of gain layers from June 30, 2003 valuation being fully amortized, offset to some degree by loss layers from June 30, 2003 valuation being fully amortized	1.03%
Effect of other actuarial gains	-0.07%
Total change	0.42%
Recommended Contribution as of June 30, 2018 (Assuming Payment at the Beginning of the Year)	34.27%

(1) *Revised using payroll as of June 30, 2018.*

E. FUNDED RATIO

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

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

CHART 16

Funded Ratio for Years Ended June 30, 2007 – 2018

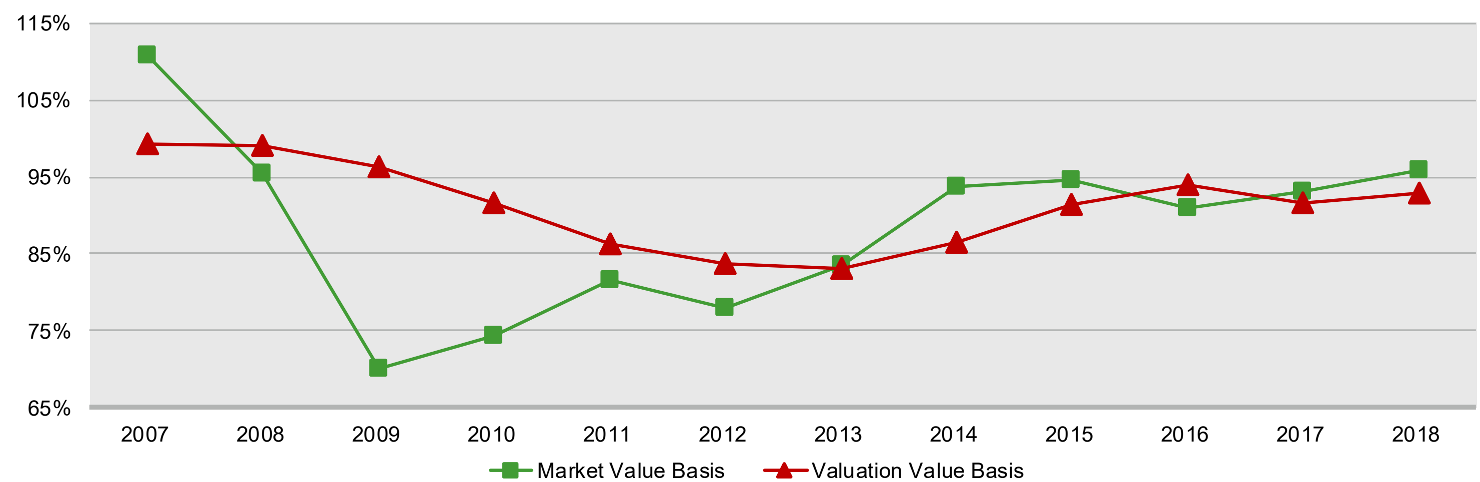


CHART 17

Schedule of Funding Progress

Retirement Benefits (Dollar Amounts in Thousands)

Actuarial Valuation Date	Valuation Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c)
06/30/2009	$14,256,611	$14,817,146	$560,535	96.2%	$1,357,249	41.3%
06/30/2010	14,219,581	15,520,625	1,301,044	91.6%	1,356,986	95.9%
06/30/2011	14,337,669	16,616,476	2,278,807	86.3%	1,343,963	169.6%
06/30/2012	14,251,913	17,030,833	2,778,920	83.7%	1,341,914	207.1%
06/30/2013	14,657,713	17,632,425	2,974,712	83.1%	1,367,237	217.6%
06/30/2014	15,678,480	18,114,229	2,435,749	86.6%	1,402,715	173.6%
06/30/2015	16,770,060	18,337,507	1,567,447	91.5%	1,405,171	111.5%
06/30/2016	17,645,338	18,798,510	1,153,172	93.9%	1,400,808	82.3%
06/30/2017	18,679,221	20,411,024	1,731,803	91.5%	1,475,539	117.4%
06/30/2018	19,840,070	21,364,804	1,524,734	92.9%	1,546,043	98.6%

F. VOLATILITY RATIOS

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

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

For LAFPP, the current AVR is about 13.2. This means that a 1% asset gain/(loss) (relative to the assumed investment return) translates to about 13.2% of one-year's payroll. Based on the LAFPP policy to amortize actuarial gains and losses over a period of 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. For example, if a plan is 50% funded on a market value basis, the liability volatility ratio would be double the asset volatility ratio and the plan sponsor should expect contribution volatility to increase over time as the plan becomes better funded.

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

For LAFPP, the current LVR is about 13.8. This is about 5% higher than the AVR. Therefore, we would expect that contribution volatility will increase over the long-term.

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

CHART 18

Volatility Ratios for Years Ended June 30, 2009 – 2018

Year Ended June 30	Asset Volatility Ratio	Liability Volatility Ratio
2009	7.6	10.9
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
2015	12.3	13.1
2016	12.2	13.4
2017	12.9	13.8
2018	13.2	13.8

EXHIBIT A

Table of Plan Coverage

Total

Category	Year Ended June 30 2018	Year Ended June 30 2017	Change From Prior Year
Active members in valuation:			
Number	13,442	13,327	0.9%
Average age	42.3	42.3	0.0
Average service	15.3	15.3	0.0
Projected total payroll	$1,546,042,972	$1,475,539,139	4.8%
Projected average payroll	$115,016	$110,718	3.9%
Account balances	$1,995,703,585	$1,918,183,368	4.0%
Total active vested members	4,718	4,660	1.2%
Vested terminated members:			
Number[1]	534	374	42.8%
Average age[2]	47.2	46.8	0.4
Average monthly benefit at age 50[2]	$2,945	$2,717	8.4%
Retired members:			
Number in pay status	8,623	8,462	1.9%
Average age at retirement	52.0	51.9	0.1
Average age	69.9	69.8	0.1
Average monthly benefit (includes July COLA)	$6,512	$6,265	3.9%
Disabled members:			
Number in pay status	1,883	1,942	-3.0%
Average age at retirement	43.8	43.9	-0.1
Average age	71.3	70.6	0.7
Average monthly benefit (includes July COLA)	$5,015	$4,859	3.2%
Beneficiaries:			
Number in pay status	2,384	2,432	-2.0%
Average age	76.4	76.4	0.0
Average monthly benefit (includes July COLA)	$4,518	$4,333	4.3%

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

(2) *Excludes terminated members due only a refund of member contributions.*

EXHIBIT A

Table of Plan Coverage

i. Tier 1

Category	Year Ended June 30 2018	Year Ended June 30 2017	Change From Prior Year
Active members in valuation:			
Number	0	0	N/A
Average age	N/A	N/A	N/A
Average service	N/A	N/A	N/A
Projected total payroll	N/A	N/A	N/A
Projected average payroll	N/A	N/A	N/A
Account balances	N/A	N/A	N/A
Total active vested members	N/A	N/A	N/A
Vested terminated 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	46	54	-14.8%
Average age at retirement	47.1	46.8	0.3
Average age	85.7	85.5	0.2
Average monthly benefit (includes July COLA)	$2,694	$2,546	5.8%
Disabled members:			
Number in pay status	52	54	-3.7%
Average age at retirement	35.9	36.0	-0.1
Average age	83.6	82.8	0.8
Average monthly benefit (includes July COLA)	$3,444	$3,338	3.2%
Beneficiaries:			
Number in pay status	208	241	-13.7%
Average age	84.6	84.8	-0.2
Average monthly benefit (includes July COLA)	$2,854	$2,730	4.5%

EXHIBIT A

Table of Plan Coverage

ii. Tier 2

Category	Year Ended June 30 2018	Year Ended June 30 2017	Change From Prior Year
Active members in valuation:			
Number	8	10	-20.0%
Average age	63.9	62.3	1.6
Average service	39.9	38.8	1.1
Projected total payroll	$1,159,950	$1,452,955	-20.2%
Projected average payroll	$144,994	$145,296	-0.2%
Account balances	$2,206,562	$2,740,000	-19.5%
Total active vested members	8	10	-20.0%
Vested terminated 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	4,057	4,223	-3.9%
Average age at retirement	50.2	50.3	-0.1
Average age	76.3	75.6	0.7
Average monthly benefit (includes July COLA)	$5,519	$5,315	3.8%
Disabled members:			
Number in pay status	1,387	1,446	-4.1%
Average age at retirement	44.8	45.0	-0.2
Average age	75.6	74.8	0.8
Average monthly benefit (includes July COLA)	$5,286	$5,116	3.3%
Beneficiaries:			
Number in pay status	1,818	1,850	-1.7%
Average age	79.7	79.5	0.2
Average monthly benefit (includes July COLA)	$4,674	$4,508	3.7%

EXHIBIT A

Table of Plan Coverage

iii. Tier 3

Category	Year Ended June 30 2018	Year Ended June 30 2017	Change From Prior Year
Active members in valuation:			
Number	712	759	-6.2%
Average age	51.0	50.3	0.7
Average service	23.9	23.0	0.9
Projected total payroll	$88,391,987	$89,992,649	-1.8%
Projected average payroll	$124,146	$118,567	4.7%
Account balances	$152,919,769	$151,539,985	0.9%
Total active vested members	712	759	-6.2%
Vested terminated members:			
Number[1]	56	44	27.3%
Average age[2]	47.1	46.8	0.3
Average monthly benefit at age 50[2]	$2,474	$2,212	11.8%
Retired members:			
Number in pay status	331	290	14.1%
Average age at retirement	53.2	53.1	0.1
Average age	60.9	60.6	0.3
Average monthly benefit (includes July COLA)	$3,649	$3,372	8.2%
Disabled members:			
Number in pay status	251	254	-1.2%
Average age at retirement	40.1	40.0	0.1
Average age	58.7	57.8	0.9
Average monthly benefit (includes July COLA)	$3,851	$3,738	3.0%
Beneficiaries:			
Number in pay status	94	95	-1.1%
Average age	55.3	52.7	2.6
Average monthly benefit (includes July COLA)	$3,481	$3,297	5.6%

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

(2) *Excludes terminated members due only a refund of member contributions.*

EXHIBIT A

Table of Plan Coverage

iv. Tier 4

Category	Year Ended June 30 2018	Year Ended June 30 2017	Change From Prior Year
Active members in valuation:			
Number	265	285	-7.0%
Average age	47.3	46.6	0.7
Average service	22.1	21.6	0.5
Projected total payroll	$33,303,205	$34,328,299	-3.0%
Projected average payroll	$125,672	$120,450	4.3%
Account balances	$52,592,292	$54,089,398	-2.8%
Total active vested members	115	110	4.5%
Vested terminated 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	251	235	6.8%
Average age at retirement	47.1	47.0	0.1
Average age	56.9	56.2	0.7
Average monthly benefit (includes July COLA)	$5,371	$5,176	3.8%
Disabled members:			
Number in pay status	47	47	0.0%
Average age at retirement	42.2	42.2	0.0
Average age	55.5	54.8	0.7
Average monthly benefit (includes July COLA)	$4,831	$4,701	2.8%
Beneficiaries:			
Number in pay status	10	7	42.9%
Average age	46.2	40.2	6.0
Average monthly benefit (includes July COLA)	$3,654	$3,641	0.4%

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Table of Plan Coverage

v. Tier 5 (without Harbor Port Police)

Category	Year Ended June 30 2018	Year Ended June 30 2017	Change From Prior Year
Active members in valuation:			
Number	9,427	9,775	-3.6%
Average age	45.5	44.8	0.7
Average service	18.5	17.8	0.7
Projected total payroll	$1,160,998,876	$1,147,616,857	1.2%
Projected average payroll	$123,157	$117,403	4.9%
Account balances	$1,715,208,893	$1,661,626,114	3.2%
Total active vested members	3,876	3,778	2.6%
Vested terminated members:			
Number[1]	296	210	41.0%
Average age[2]	47.5	46.8	0.7
Average monthly benefit at age 50[2]	$4,045	$3,963	2.1%
Retired members:			
Number in pay status	3,926	3,648	7.6%
Average age at retirement	54.0	54.0	0.0
Average age	64.7	64.4	0.3
Average monthly benefit (includes July COLA)	$7,895	$7,717	2.3%
Disabled members:			
Number in pay status	143	138	3.6%
Average age at retirement	43.7	43.7	0.0
Average age	52.7	51.9	0.8
Average monthly benefit (includes July COLA)	$5,077	$4,895	3.7%
Beneficiaries:			
Number in pay status	253	238	6.3%
Average age	55.9	54.8	1.1
Average monthly benefit (includes July COLA)	$5,182	$5,023	3.2%

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

(2) *Excludes terminated members due only a refund of member contributions.*

EXHIBIT A

Table of Plan Coverage

vi. Tier 6 (without Harbor Port Police and Airport Police)

Category	Year Ended June 30 2018	Year Ended June 30 2017	Change From Prior Year
Active members in valuation:			
Number	2,851	2,380	19.8%
Average age	29.4	29.0	0.4
Average service	2.4	1.9	0.5
Projected total payroll	$243,367,301	$189,013,409	28.8%
Projected average payroll	$85,362	$79,417	7.5%
Account balances	$56,957,147	$37,186,455	53.2%
Total active vested members	0	0	N/A
Vested terminated members:			
Number[(1)]	173	112	54.5%
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	31.5	30.5	1.0
Average monthly benefit (includes July COLA)	$6,855	$6,616	3.6%

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

(2) *Excludes terminated members due only a refund of member contributions.*

EXHIBIT A

Table of Plan Coverage

vii. Harbor Port Police (Tier 5)

Category	Year Ended June 30 2018	Year Ended June 30 2017	Change From Prior Year
Active members in valuation:			
Number	99	99	0.0%
Average age	41.8	41.1	0.7
Average service	12.4	11.4	1.0
Projected total payroll	$11,948,161	$11,422,366	4.6%
Projected average payroll	$120,688	$115,377	4.6%
Account balances	$12,146,303	$10,692,734	13.6%
Total active vested members	5	3	66.7%
Vested terminated members:			
Number[(1)]	4	3	33.3%
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	12	12	0.0%
Average age at retirement	55.1	55.1	0.0
Average age	62.5	61.5	1.0
Average monthly benefit (includes July COLA)	$7,351	$7,137	3.0%
Disabled members:			
Number in pay status	3	3	0.0%
Average age at retirement	40.1	40.1	0.0
Average age	50.2	49.2	1.0
Average monthly benefit (includes July COLA)	$4,731	$4,593	3.0%
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 terminated members due only a refund of member contributions.*

(2) *Excludes terminated members due only a refund of member contributions.*

EXHIBIT A

Table of Plan Coverage

viii. Harbor Port Police (Tier 6)

Category	Year Ended June 30 2018	2017	Change From Prior Year
Active members in valuation:			
Number	22	19	15.8%
Average age	31.5	31.9	-0.4
Average service	2.2	1.7	0.5
Projected total payroll	$2,053,615	$1,712,603	19.9%
Projected average payroll	$93,346	$90,137	3.6%
Account balances	$437,341	$308,682	41.7%
Total active vested members	0	0	N/A
Vested terminated members:			
Number[1]	5	5	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	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 terminated members due only a refund of member contributions.*

(2) *Excludes terminated members due only a refund of member contributions.*

EXHIBIT A

Table of Plan Coverage

ix. Airport Police Officers (Tier 6)

Category	Year Ended June 30 2018	Year Ended June 30 2017	Change From Prior Year
Active members in valuation:			
Number	58	0	N/A
Average age	30.9	N/A	N/A
Average service[(1)]	3.3	N/A	N/A
Projected total payroll	$4,819,877	N/A	N/A
Projected average payroll	$83,101	N/A	N/A
Account balances[(1)]	$3,235,280	N/A	N/A
Total active vested members	2	N/A	N/A
Vested terminated 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	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.*

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2018

By Age and Years of Service

Total

		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	450	450	- -	- -	- -	- -	- -	- -	- -	- -
	$72,224	$72,224	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,401	1,270	131	- -	- -	- -	- -	- -	- -	- -
	84,020	82,128	$102,358	- -	- -	- -	- -	- -	- -	- -
30 - 34	1,749	575	766	407	1	- -	- -	- -	- -	- -
	102,155	88,576	106,064	$113,907	$133,134	- -	- -	- -	- -	- -
35 - 39	1,965	174	432	1,145	214	- -	- -	- -	- -	- -
	111,912	87,879	107,467	115,046	123,657	- -	- -	- -	- -	- -
40 - 44	2,026	37	172	641	907	268	1	- -	- -	- -
	119,265	88,020	107,725	115,246	123,159	$127,438	$113,599	- -	- -	- -
45 - 49	2,441	17	61	278	649	1,297	139	- -	- -	- -
	125,144	86,318	107,621	114,307	122,794	128,543	138,525	- -	- -	- -
50 - 54	2,091	2	19	86	222	677	813	271	1	- -
	130,965	151,668	106,297	110,307	122,691	126,881	135,276	$143,060	$153,464	- -
55 - 59	1,059	3	5	8	54	204	419	307	58	1
	133,946	151,521	114,177	110,234	122,356	124,654	133,024	141,160	148,507	$218,187
60 - 64	231	1	- -	1	8	43	73	64	36	5
	131,518	233,366	- -	114,464	123,259	119,534	128,481	133,944	144,466	150,876
65 - 69	26	- -	- -	- -	1	5	3	6	5	6
	141,807	- -	- -	- -	127,652	118,378	124,475	138,662	143,801	173,838
70 & over	3	- -	- -	- -	- -	1	- -	1	- -	1
	127,652	- -	- -	- -	- -	127,652	- -	127,652	- -	127,652
Total	13,442	2,529	1,586	2,566	2,056	2,495	1,448	649	100	13
	$115,016	$82,539	$106,408	$114,661	$123,031	$127,479	$134,556	$141,198	$146,867	$164,865

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2018
By Age and Years of Service
i. Tier 2

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	- -
	$137,980	- -	- -	- -	- -	- -	- -	- -	$137,980	- -
60 - 64	4	- -	- -	- -	- -	- -	- -	- -	3	1
	159,019	- -	- -	- -	- -	- -	- -	- -	171,855	$120,512
65 - 69	2	- -	- -	- -	- -	- -	- -	- -	1	1
	129,121	- -	- -	- -	- -	- -	- -	- -	116,672	141,570
70 & over	1	- -	- -	- -	- -	- -	- -	- -	- -	1
	127,652	- -	- -	- -	- -	- -	- -	- -	- -	127,652
Total	8	- -	- -	- -	- -	- -	- -	- -	5	3
	$144,994	- -	- -	- -	- -	- -	- -	- -	$154,043	$129,911

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2018
By Age and Years of Service
ii. Tier 3

		Years of Service								
Age	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
35 - 39	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
40 - 44	50	- -	- -	- -	1	49	- -	- -	- -	- -
	$125,617	- -	- -	- -	$113,869	$125,857	- -	- -	- -	- -
45 - 49	271	- -	- -	- -	9	249	13	- -	- -	- -
	123,149	- -	- -	- -	114,096	123,323	$126,067	- -	- -	- -
50 - 54	252	- -	- -	2	1	138	104	7	- -	- -
	125,052	- -	- -	$101,361	120,865	124,000	126,978	$124,548	- -	- -
55 - 59	99	- -	- -	- -	- -	35	51	13	- -	- -
	125,402	- -	- -	- -	- -	125,559	125,282	125,454	- -	- -
60 - 64	34	- -	- -	- -	- -	23	10	1	- -	- -
	120,202	- -	- -	- -	- -	118,663	120,749	150,146	- -	- -
65 - 69	5	- -	- -	- -	- -	4	- -	1	- -	- -
	119,060	- -	- -	- -	- -	116,060	- -	131,061	- -	- -
70 & over	1	- -	- -	- -	- -	1	- -	- -	- -	- -
	127,652	- -	- -	- -	- -	127,652	- -	- -	- -	- -
Total	712	- -	- -	2	11	499	178	22	- -	- -
	$124,146	- -	- -	$101,361	$114,691	$123,652	$126,076	$126,543	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2018
By Age and Years of Service
iii. 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	10	- -	- -	- -	10	- -	- -	- -	- -	- -
	$121,501	- -	- -	- -	$121,501	- -	- -	- -	- -	- -
40 - 44	112	- -	- -	- -	96	16	- -	- -	- -	- -
	120,501	- -	- -	- -	119,923	$123,967	- -	- -	- -	- -
45 - 49	50	- -	- -	1	27	14	8	- -	- -	- -
	123,579	- -	- -	$111,071	116,094	123,005	$151,410	- -	- -	- -
50 - 54	73	- -	- -	1	10	3	35	24	- -	- -
	134,677	- -	- -	127,641	122,039	113,882	134,024	$143,787	- -	- -
55 - 59	18	- -	- -	- -	5	- -	2	9	2	- -
	129,730	- -	- -	- -	118,970	- -	126,982	139,637	$114,799	- -
60 - 64	2	- -	- -	- -	- -	- -	- -	- -	2	- -
	123,294	- -	- -	- -	- -	- -	- -	- -	123,294	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	265	- -	- -	2	148	33	45	33	4	- -
	$125,672	- -	- -	$119,356	$119,442	$122,642	$136,802	$142,655	$119,046	- -

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2018
By Age and Years of Service
iv. 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	16	- -	16	- -	- -	- -	- -	- -	- -	- -
	$106,526	- -	$106,526	- -	- -	- -	- -	- -	- -	- -
30 - 34	973	- -	574	398	1	- -	- -	- -	- -	- -
	109,998	- -	107,226	$113,936	$133,134	- -	- -	- -	- -	- -
35 - 39	1,687	- -	368	1,117	202	- -	- -	- -	- -	- -
	114,512	- -	108,065	115,003	123,540	- -	- -	- -	- -	- -
40 - 44	1,782	- -	148	622	808	203	1	- -	- -	- -
	119,871	- -	108,029	115,163	123,606	$128,093	$113,599	- -	- -	- -
45 - 49	2,075	- -	57	263	605	1,033	117	- -	- -	- -
	125,844	- -	107,981	114,125	123,194	129,871	139,026	- -	- -	- -
50 - 54	1,751	- -	14	82	206	535	674	239	1	- -
	131,658	- -	105,524	110,247	122,554	127,638	136,621	$143,296	$153,464	- -
55 - 59	934	1	4	8	47	168	365	285	55	1
	134,723	$83,699	101,276	110,234	121,134	124,501	134,080	141,924	149,924	$218,187
60 - 64	189	- -	- -	1	8	19	63	63	31	4
	132,398	- -	- -	114,464	123,259	118,749	129,709	133,686	143,182	158,467
65 - 69	19	- -	- -	- -	1	1	3	5	4	5
	149,128	- -	- -	- -	127,652	127,652	124,475	140,183	150,583	180,292
70 & over	1	- -	- -	- -	- -	- -	- -	1	- -	- -
	127,652	- -	- -	- -	- -	- -	- -	127,652	- -	- -
Total	9,427	1	1,181	2,491	1,878	1,959	1,223	593	91	10
	$123,157	$83,699	$107,575	$114,608	$123,295	$128,508	$135,688	$141,563	$147,695	$175,351

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2018
By Age and Years of Service
v. 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	448	448	- -	- -	- -	- -	- -	- -	- -	- -
	$72,211	$72,211	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,344	1,229	115	- -	- -	- -	- -	- -	- -	- -
	83,918	82,246	$101,778	- -	- -	- -	- -	- -	- -	- -
30 - 34	740	554	184	2	- -	- -	- -	- -	- -	- -
	92,395	89,009	102,410	$109,080	- -	- -	- -	- -	- -	- -
35 - 39	226	170	56	- -	- -	- -	- -	- -	- -	- -
	91,759	88,130	102,776	- -	- -	- -	- -	- -	- -	- -
40 - 44	58	36	18	3	1	- -	- -	- -	- -	- -
	95,319	88,742	105,254	111,214	$105,622	- -	- -	- -	- -	- -
45 - 49	27	17	3	5	2	- -	- -	- -	- -	- -
	95,204	86,318	103,364	105,673	132,319	- -	- -	- -	- -	- -
50 - 54	6	1	4	- -	1	- -	- -	- -	- -	- -
	113,951	112,869	109,882	- -	131,312	- -	- -	- -	- -	- -
55 - 59	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	105,214	105,214	- -	- -	- -	- -	- -	- -	- -	- -
60 - 64	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	233,366	233,366	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	2,851	2,457	380	10	4	- -	- -	- -	- -	- -
	$85,362	$82,555	$102,494	$108,016	$125,393	- -	- -	- -	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2018

By Age and Years of Service

vi. 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	13	--	6	7	--	--	--	--	--	--
	$111,283	--	$108,515	$113,655	--	--	--	--	--	--
35 - 39	35	--	5	28	2	--	--	--	--	--
	118,250	--	115,338	116,773	$146,203	--	--	--	--	--
40 - 44	23	--	6	16	1	--	--	--	--	--
	115,342	--	107,663	119,230	99,198	--	--	--	--	--
45 - 49	14	--	1	8	5	--	--	--	--	--
	121,632	--	99,860	122,668	124,328	--	--	--	--	--
50 - 54	8	--	1	1	4	1	--	1	--	--
	136,804	--	102,774	115,803	129,673	$158,505	--	$198,658	--	--
55 - 59	5	--	1	--	2	1	1	--	--	--
	151,621	--	165,783	--	159,549	118,729	$154,497	--	--	--
60 - 64	1	--	--	--	--	1	--	--	--	--
	154,497	--	--	--	--	154,497	--	--	--	--
65 - 69	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
70 & over	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
Total	99	--	20	60	14	3	1	1	--	--
	$120,688	--	$112,109	$117,834	$132,217	$143,910	$154,497	$198,658	--	--

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2018
By Age and Years of Service
vii. 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	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	14	14	- -	- -	- -	- -	- -	- -	- -	- -
	$79,076	$79,076	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	4	4	- -	- -	- -	- -	- -	- -	- -	- -
	78,959	78,959	- -	- -	- -	- -	- -	- -	- -	- -
35 - 39	2	1	1	- -	- -	- -	- -	- -	- -	- -
	87,298	65,450	$109,147	- -	- -	- -	- -	- -	- -	- -
40 - 44	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
45 - 49	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
50 - 54	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	190,467	190,467	- -	- -	- -	- -	- -	- -	- -	- -
55 - 59	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	265,651	265,651	- -	- -	- -	- -	- -	- -	- -	- -
60 - 64	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	22	21	1	- -	- -	- -	- -	- -	- -	- -
	$93,346	$92,594	$109,147	- -	- -	- -	- -	- -	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2018
By Age and Years of Service
viii. Airport Police Officers (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	2	2	- -	- -	- -	- -	- -	- -	- -	- -
	$74,988	$74,988	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	27	27	- -	- -	- -	- -	- -	- -	- -	- -
	78,319	78,319	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	19	17	2	- -	- -	- -	- -	- -	- -	- -
	79,331	76,748	$101,284	- -	- -	- -	- -	- -	- -	- -
35 - 39	5	3	2	- -	- -	- -	- -	- -	- -	- -
	91,927	81,133	108,118	- -	- -	- -	- -	- -	- -	- -
40 - 44	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	62,050	62,050	- -	- -	- -	- -	- -	- -	- -	- -
45 - 49	4	- -	- -	1	1	1	1	- -	- -	- -
	131,580	- -	- -	$141,752	$112,903	$132,830	$138,834	- -	- -	- -
50 - 54	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
55 - 59	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
60 - 64	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	58	50	4	1	1	1	1	- -	- -	- -
	$83,101	$77,495	$104,701	$141,752	$112,903	$132,830	$138,834	- -	- -	- -

* *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]	Vested Former Members[2]	Disableds	Retired Members	Beneficiaries	Total
Number as of June 30, 2017	13,327	374	1,942	8,462	2,432	26,537
New members	638	N/A	N/A	N/A	140	778
Terminations – with vested rights	(108)	108	0	0	0	0
Refund of member contributions	(54)	(44)	0	0	0	(98)
Retirements	(348)	(11)	N/A	359	N/A	0
New disabilities	(6)	(1)	8	(1)	N/A	0
Died with or without beneficiary	(9)	0	(65)	(195)	(174)	(443)
Rehired	2	(2)	0	0	N/A	0
Certain period expired	N/A	N/A	0	0	(14)	(14)
Data adjustments	0	110[3]	(2)	(2)	0	106
Number as of June 30, 2018	13,442	534	1,883	8,623	2,384	26,866

(1) *Includes DROP members.*

(2) *Includes 322 and 484 terminated members due only a refund of member contributions as of June 30, 2017 and June 30, 2018, respectively.*

(3) *These are terminated members due only a refund of member contributions that were not included in the membership data provided for the June 30, 2017 valuation.*

EXHIBIT D

Summary Statement of Income and Expenses on an Actuarial Value Basis for All Retirement and Health Subsidy Benefits Assets

	Year Ended June 30, 2018		Year Ended June 30, 2017	
Contribution income:				
Employer contributions	$639,945,905		$619,479,274	
Employee contributions	146,282,682		128,900,736	
Contribution income		$786,228,587		$748,380,010
Investment income:				
Interest, dividends and other income	$1,743,935,819		$1,416,457,386	
Recognition of capital appreciation	54,591,188		187,435,433	
Less investment fees	(95,217,452)		(86,151,220)	
Net investment income		1,703,309,555		1,517,741,599
Total income available for benefits		$2,489,538,142		$2,266,121,609
Less benefit payments		$(1,125,521,496)		$(1,052,639,705)
Less administrative expenses		(21,654,037)		(22,563,327)
Change in reserve for future benefits		$1,342,362,609		$1,190,918,577

EXHIBIT E

Summary Statement of Assets for Retirement and Health Subsidy Benefits

	Year Ended June 30, 2018		Year Ended June 30, 2017	
Cash equivalents		$1,907,884		$1,595,842
Accounts receivable:				
Accrued interest and dividends	$74,516,264		$67,873,889	
Contributions	8,560,537		2,945,722	
Due from brokers	120,224,468		141,051,560	
Total accounts receivable		203,301,269		211,871,171
Investments:				
Equities	$14,486,973,615		$13,145,475,978	
Fixed income investments	6,704,268,155		6,250,264,420	
Real estate	1,417,018,290		1,533,900,296	
Total investments at market value		22,608,260,060		20,929,640,694
Total assets		$22,813,469,213		$21,143,107,707
Less accounts payable:				
Accounts payable and benefits in process	$(34,428,662)		$(23,153,856)	
Due to brokers	(244,400,114)		(252,664,835)	
Mortgage payable	(174,270,234)		(204,882,420)	
Total accounts payable		$(453,099,010)		$(480,701,111)
Net assets at market value		$22,360,370,203		$20,662,406,596
Net assets at actuarial value		$21,659,429,558		$20,317,066,949
Net assets at valuation value (retirement benefits)		$19,840,070,083		$18,679,220,993

EXHIBIT F

Development of the Fund Through June 30, 2018 for All Retirement and Health Subsidy Benefits Assets

Year Ended June 30	Employer Contributions	Employee Contributions	Net Investment Return[1]	Administrative Expenses	Benefit Payments	Actuarial Value of Assets at End of Year
2009	$326,876,839	$103,685,447	$557,346,783	-	$842,565,358	$15,066,287,394
2010	357,165,140	106,411,630	360,741,904	-	853,749,429	15,036,856,639
2011	388,773,459	105,471,264	568,411,044	-	878,952,809	15,220,559,597
2012	444,565,284	120,099,124	320,400,668	-	926,349,506	15,179,275,167
2013	508,387,283	121,777,655	827,790,619	-	966,118,502	15,671,112,222
2014	578,805,107	124,394,889	1,468,399,449	-	963,356,954	16,879,354,713
2015	628,808,763	126,770,882	1,527,957,644	$19,178,885	1,029,319,785	18,114,393,332
2016	628,700,812	129,733,559	1,381,259,601	20,897,310	1,107,041,622	19,126,148,372
2017	619,479,274	128,900,736	1,517,741,599	22,563,327	1,052,639,705	20,317,066,949
2018	639,945,905	146,282,682	1,703,309,555	21,654,037	1,125,521,496	21,659,429,558

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

EXHIBIT G

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

1.	Unfunded actuarial accrued liability at beginning of year		$1,731,803,309
2.	Total normal cost at beginning of year[1]		438,843,117
3.	Expected contributions at beginning of year[1]		(645,409,550)
4.	Interest		110,579,674
5.	Expected unfunded actuarial accrued liability: (1) + (2) + (3) + (4)		$1,635,816,550
6	Actuarial (gain)/loss due to all changes:		
	(a) Loss due to actual contributions less than expected[2]	$51,713,244	
	(b) Investment gain on smoothed value of assets	(213,587,572)	
	(c) COLA increases greater than expected for retirees, beneficiaries and DROP members	29,174,386	
	(d) Salary increases higher than expected	49,315,706	
	(e) Other experience gain	(27,698,778)	
	(f) Total changes		(111,083,014)
7.	Unfunded actuarial accrued liability at end of year: (5) + (6f)		$1,524,733,536

(1) *Includes $16,527,613 in assumed administrative expenses (1.12% of projected payroll at beginning of the year).*

(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, 2017 valuation for FY 2019. (The actual contributions would have been greater than expected due to the one-year lag if lower contribution rates were calculated in the June 30, 2017 valuation.)*

EXHIBIT H

Table of Amortization Bases

Tier 1

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Unfunded Actuarial Accrued Liability	06/30/2018	$157,964,824	19	$157,964,824	19	$14,518,696
Total				**$157,964,824**		**$14,518,696**

(1) *Level dollar amortization.*

EXHIBIT H

Table of Amortization Bases (Continued)

Tier 2

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Unfunded Actuarial Accrued Liability	06/30/2008	$(632,245,519)	29	$(716,545,402)	19	$(50,977,915)
Experience Loss	06/30/2009	53,442,825	15	35,332,008	6	6,424,769
Experience Loss	06/30/2010	210,742,926	15	153,306,544	7	24,307,138
Assumption Change	06/30/2010	1,450,331	27	1,577,067	19	112,199
Experience Loss	06/30/2011	203,104,597	15	159,426,866	8	22,497,163
Assumption Change	06/30/2011	344,553,091	26	367,972,737	19	26,179,057
Experience Loss	06/30/2012	238,453,071	20	231,324,259	14	20,611,177
Experience Loss	06/30/2013	73,947,281	20	72,613,993	15	6,137,696
Experience Gain	06/30/2014	(212,930,921)	20	(210,727,498)	16	(16,970,672)
Assumption Change	06/30/2014	(65,152,628)	25	(67,577,027)	21	(4,488,593)
Experience Gain	06/30/2015	(288,914,220)	20	(287,742,798)	17	(22,163,059)
Experience Gain	06/30/2016	(82,781,971)	20	(82,690,968)	18	(6,112,109)
Experience Gain	06/30/2017	(51,873,536)	20	(51,814,513)	19	(3,686,292)
Assumption Change	06/30/2017	218,182,660	20	217,934,409	19	15,504,728
Experience Gain	06/30/2018	(48,125,276)	20	(48,125,276)	20	(3,304,280)
Total				**$(225,735,598)** [2]		**$14,071,007** [2]

(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 H

Table of Amortization Bases (Continued)

Tier 3

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Assumption Change	06/30/1989[3]	$(15,977,993)	14	$(2,403,950)	1	$(2,403,950)
Plan Amendment	06/30/1990[3]	279,608	15	78,429	2	39,912
Assumption Change	06/30/1990[3]	(6,281,127)	15	(1,761,845)	2	(896,597)
Assumption Change	06/30/1992[3]	2,454,735	17	1,212,073	4	319,382
Assumption Change	06/30/1995[3]	(20,329,471)	20	(14,876,324)	7	(2,358,679)
Plan Amendment	06/30/1996[3]	2,832,341	21	2,253,108	8	317,942
Asset Method Change	06/30/1996[3]	(18,309,076)	21	(14,564,746)	8	(2,055,271)
Plan Amendment	06/30/1998[3]	5,510,715	23	4,990,882	10	582,729
Assumption Change	06/30/1998[3]	9,268,417	23	8,394,113	10	980,086
Plan Amendment	06/30/2000[3]	949,873	25	947,413	12	95,301
Assumption Change	06/30/2001[3]	(29,148,684)	26	(30,247,596)	13	(2,855,257)
Experience Loss	06/30/2003[3]	151,681,782	13	0	0	0
Experience Loss	06/30/2004[3]	10,104,562	14	1,520,270	1	1,520,270
Assumption Change	06/30/2004[3]	(8,698,728)	29	(9,924,190)	16	(799,232)
Experience Loss	06/30/2005[3]	21,605,884	15	6,060,413	2	3,084,125
Assumption Change	06/30/2005[3]	27,253,819	30	31,896,774	17	2,456,813
Experience Loss	06/30/2006	16,400,257	15	6,465,822	3	2,232,421
Assumption Change	06/30/2006	29,340,123	30	34,114,477	18	2,521,574
Experience Gain	06/30/2007	(20,934,587)	21	(18,412,511)	10	(2,149,822)
Assumption Change	06/30/2007	(5,027,630)	30	(5,826,908)	19	(414,550)

EXHIBIT H

Table of Amortization Bases (Continued)

Tier 3(continued)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Experience Gain	06/30/2008	$(18,292,189)	17	$(13,175,797)	7	$(2,089,056)
Assumption Change	06/30/2008	8,034,472	30	9,256,986	20	635,584
Experience Loss	06/30/2009	10,158,177	15	6,715,754	6	1,221,192
Experience Loss	06/30/2010	2,144,522	15	1,560,049	7	247,350
Assumption Change	06/30/2010	25,997,606	30	29,396,227	22	1,893,005
Plan Amendment[2]	06/30/2011	(18,044)	30	(20,166)	23	(1,261)
Experience Loss	06/30/2011	1,095,451	15	859,873	8	121,339
Assumption Change	06/30/2011	25,593,931	30	28,604,017	23	1,789,328
Experience Loss	06/30/2012	10,983,184	20	10,654,829	14	949,354
Experience Loss	06/30/2013	6,011,719	20	5,903,327	15	498,979
Experience Gain	06/30/2014	(15,610,972)	20	(15,449,429)	16	(1,244,200)
Assumption Change	06/30/2014	(3,528,915)	25	(3,660,230)	21	(243,119)
Experience Gain	06/30/2015	(46,361,062)	20	(46,173,088)	17	(3,556,429)
Experience Gain	06/30/2016	(18,410,183)	20	(18,389,944)	18	(1,359,294)
Experience Loss	06/30/2017	4,575,201	20	4,569,996	19	325,128
Assumption Change	06/30/2017	39,171,149	20	39,126,579	19	2,783,622
Experience Gain	06/30/2018	(31,108,341)	20	(31,108,341)	20	(2,135,898)
Total				**$8,586,346**		**$52,821**

(1) *Level percentage of payroll amortization.*

(2) *Gain due to new retirees from non-DROP status and new DROP members during 7/1/2011 – 7/14/2011.*

(3) *Initial amount and initial period were values as of 06/30/2005 (i.e., the year before Segal was appointed as the actuary starting with 6/30/2006).*

EXHIBIT H
Table of Amortization Bases (Continued)

Tier 4

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Assumption Change	06/30/1989[3]	$(6,262,457)	14	$(942,211)	1	$(942,211)
Plan Amendment	06/30/1990[3]	109,592	15	30,741	2	15,644
Assumption Change	06/30/1990[3]	(2,461,841)	15	(690,542)	2	(351,414)
Assumption Change	06/30/1992[3]	962,115	17	475,064	4	125,180
Assumption Change	06/30/1995[3]	(7,967,987)	20	(5,830,665)	7	(924,467)
Plan Amendment	06/30/1996[3]	1,110,115	21	883,091	8	124,615
Asset Method Change	06/30/1996[3]	(7,176,108)	21	(5,708,547)	8	(805,549)
Plan Amendment	06/30/1998[3]	2,159,884	23	1,956,141	10	228,397
Assumption Change	06/30/1998[3]	3,632,689	23	3,290,014	10	384,138
Plan Amendment	06/30/2000[3]	370,129	25	369,171	12	37,135
Assumption Change	06/30/2001[3]	(4,878,745)	26	(5,062,675)	13	(477,897)
Experience Loss	06/30/2003[3]	59,690,449	13	0	0	0
Experience Loss	06/30/2004[3]	10,147,466	14	1,526,726	1	1,526,726
Assumption Change	06/30/2004[3]	(5,220,974)	29	(5,956,499)	16	(479,699)
Experience Loss	06/30/2005[3]	13,244,413	15	3,715,035	2	1,890,570
Assumption Change	06/30/2005[3]	14,033,320	30	16,424,034	17	1,265,042
Experience Loss	06/30/2006	6,063,600	15	2,390,583	3	825,384
Assumption Change	06/30/2006	14,561,746	30	16,931,297	18	1,251,478
Experience Gain	06/30/2007	(8,926,309)	21	(7,850,921)	10	(916,664)
Assumption Change	06/30/2007	(3,015,790)	30	(3,495,231)	19	(248,665)

EXHIBIT H

Table of Amortization Bases (Continued)

Tier 4 (Continued)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Experience Gain	06/30/2008	$(4,429,445)	17	$(3,190,513)	7	$(505,864)
Assumption Change	06/30/2008	10,599,393	30	12,212,180	20	838,488
Experience Loss	06/30/2009	11,924,683	15	7,883,622	6	1,433,557
Experience Loss	06/30/2010	4,794,050	15	3,487,469	7	552,947
Assumption Change	06/30/2010	12,948,180	30	14,640,871	22	942,816
Plan Amendment[2]	06/30/2011	1,483,135	30	1,657,565	23	103,689
Experience Loss	06/30/2011	5,867,945	15	4,606,042	8	649,971
Assumption Change	06/30/2011	12,753,767	30	14,253,730	23	891,644
Experience Loss	06/30/2012	9,377,426	20	9,097,077	14	810,557
Experience Loss	06/30/2013	6,625,380	20	6,505,922	15	549,913
Experience Gain	06/30/2014	(11,060,872)	20	(10,946,412)	16	(881,555)
Assumption Change	06/30/2014	9,988,189	25	10,359,859	21	688,121
Experience Gain	06/30/2015	(16,640,244)	20	(16,572,775)	17	(1,276,499)
Experience Gain	06/30/2016	(3,718,134)	20	(3,714,046)	18	(274,524)
Experience Gain	06/30/2017	(2,332,922)	20	(2,330,268)	19	(165,785)
Assumption Change	06/30/2017	20,682,003	20	20,658,470	19	1,469,726
Experience Gain	06/30/2018	(6,347,869)	20	(6,347,869)	20	(435,844)
Total				**$74,715,529**		**$7,919,101**

(1) *Level percentage of payroll amortization.*

(2) *Gain due to new retirees from non-DROP status and new DROP members during 7/1/2011 – 7/14/2011.*

(3) *Initial amount and initial period were values as of 06/30/2005 (i.e., the year before Segal was appointed as the actuary starting with 6/30/2006).*

EXHIBIT H

Table of Amortization Bases (Continued)

Tiers 5 and 6 (without Harbor Port Police and Airport Police)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[(1)]
Original Base	06/30/2002[(3)]	$(157,564,364)	27	$(169,353,705)	14	$(15,089,551)
Experience Gain	06/30/2003[(3)]	(314,459,851)	13	0	0	0
Experience Loss	06/30/2004[(3)]	106,500,938	14	16,023,474	1	16,023,474
Assumption Change	06/30/2004[(3)]	(242,147,820)	29	(276,261,174)	16	(22,248,343)
Experience Loss	06/30/2005[(3)]	241,854,245	15	67,839,695	2	34,523,403
Assumption Change	06/30/2005[(3)]	421,011,169	30	492,734,554	17	37,952,315
Experience Loss	06/30/2006	64,026,458	15	25,242,516	3	8,715,353
Assumption Change	06/30/2006	291,388,037	30	338,803,982	18	25,042,721
Experience Gain	06/30/2007	(200,979,530)	21	(176,766,695)	10	(20,639,058)
Assumption Change	06/30/2007	(71,262,522)	30	(82,591,622)	19	(5,875,899)
Experience Gain	06/30/2008	(79,435,149)	17	(57,216,843)	7	(9,071,874)
Assumption Change	06/30/2008	312,669,142	30	360,244,332	20	24,734,363
Experience Loss	06/30/2009	357,256,711	15	236,188,810	6	42,948,548
Experience Loss	06/30/2010	207,594,800	15	151,016,415	7	23,944,033
Assumption Change	06/30/2010	277,673,454	30	313,973,195	22	20,218,675
Plan Amendment[(2)]	06/30/2011	5,693,576	30	6,363,195	23	398,050
Experience Loss	06/30/2011	125,215,079	15	98,287,523	8	13,869,622
Assumption Change	06/30/2011	244,615,700	30	273,384,813	23	17,101,618
Experience Loss	06/30/2012	248,617,082	20	241,184,407	14	21,489,724
Experience Loss	06/30/2013	115,390,840	20	113,310,317	15	9,577,552
Experience Gain	06/30/2014	(246,417,577)	20	(243,867,633)	16	(19,639,570)
Assumption Change	06/30/2014	35,896,722	25	37,232,477	21	2,473,051

EXHIBIT H

Table of Amortization Bases (Continued)

Tiers 5 and 6 (without Harbor Port Police and Airport Police) (Continued)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Experience Gain	06/30/2015	$(458,582,182)	20	$(456,722,830)	17	$(35,178,553)
Experience Gain	06/30/2016	(228,076,007)	20	(227,825,281)	18	(16,839,722)
Experience Gain	06/30/2017	(34,033,779)	20	(33,995,055)	19	(2,418,545)
Assumption Change	06/30/2017	481,534,488	20	480,986,592	19	34,219,316
Experience Gain	06/30/2018	(24,297,763)	20	(24,297,763)	20	(1,668,284)
Total				**$1,503,917,700**		**$184,562,419**

(1) *Level percentage of payroll amortization.*

(2) *Gain due to new retirees from non-DROP status and new DROP members during 7/1/2011 – 7/14/2011.*

(3) *Initial amount and initial period were values as of 06/30/2005 (i.e., the year before Segal was appointed as the actuary starting with 6/30/2006).*

EXHIBIT H

Table of Amortization Bases (Continued)

Harbor Port Police (Tiers 5 and 6)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Experience Gain	06/30/2008	$(169,104)	17	$(121,805)	7	$(19,312)
Assumption Change	06/30/2008	126,433	30	145,671	20	10,002
Experience Loss	06/30/2009	6,588,231	15	4,355,598	6	792,021
Experience Loss	06/30/2010	1,742,728	15	1,267,760	7	201,007
Assumption Change	06/30/2010	1,043,633	30	1,180,066	22	75,992
Plan Amendment[2]	06/30/2011	41,208	30	46,055	23	2,881
Experience Gain	06/30/2011	(447,574)	15	(351,322)	8	(49,576)
Assumption Change	06/30/2011	734,993	30	821,436	23	51,385
Experience Loss	06/30/2012	1,311,840	20	1,272,620	14	113,392
Experience Loss	06/30/2013	1,253,385	20	1,230,787	15	104,032
Experience Gain	06/30/2014	(2,336,763)	20	(2,312,581)	16	(186,241)
Assumption Change	06/30/2014	(476,026)	25	(493,740)	21	(32,795)
Experience Gain	06/30/2015	(2,306,059)	20	(2,296,709)	17	(176,901)
Experience Gain	06/30/2016	(1,753,214)	20	(1,751,286)	18	(129,446)
Experience Loss	06/30/2017	104,388	20	104,269	19	7,418
Assumption Change	06/30/2017	1,547,341	20	1,545,581	19	109,959
Experience Gain	06/30/2018	(735,107)	20	(735,107)	20	(50,472)
Total				**$3,907,294**		**$823,346**

(1) *Level percentage of payroll amortization.*

(2) *Gain due to new retirees from non-DROP status and new DROP members during 7/1/2011 – 7/14/2011.*

EXHIBIT H

Table of Amortization Bases (Continued)

Airport Police (Tier 6)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Experience Loss	06/30/2018	$1,377,441	20	$1,377,441	20	$94,575
Total				**$1,377,441**		**$94,575**

[1] *Level percentage of payroll amortization.*

EXHIBIT I
Projection of UAAL Outstanding Balances and Payments

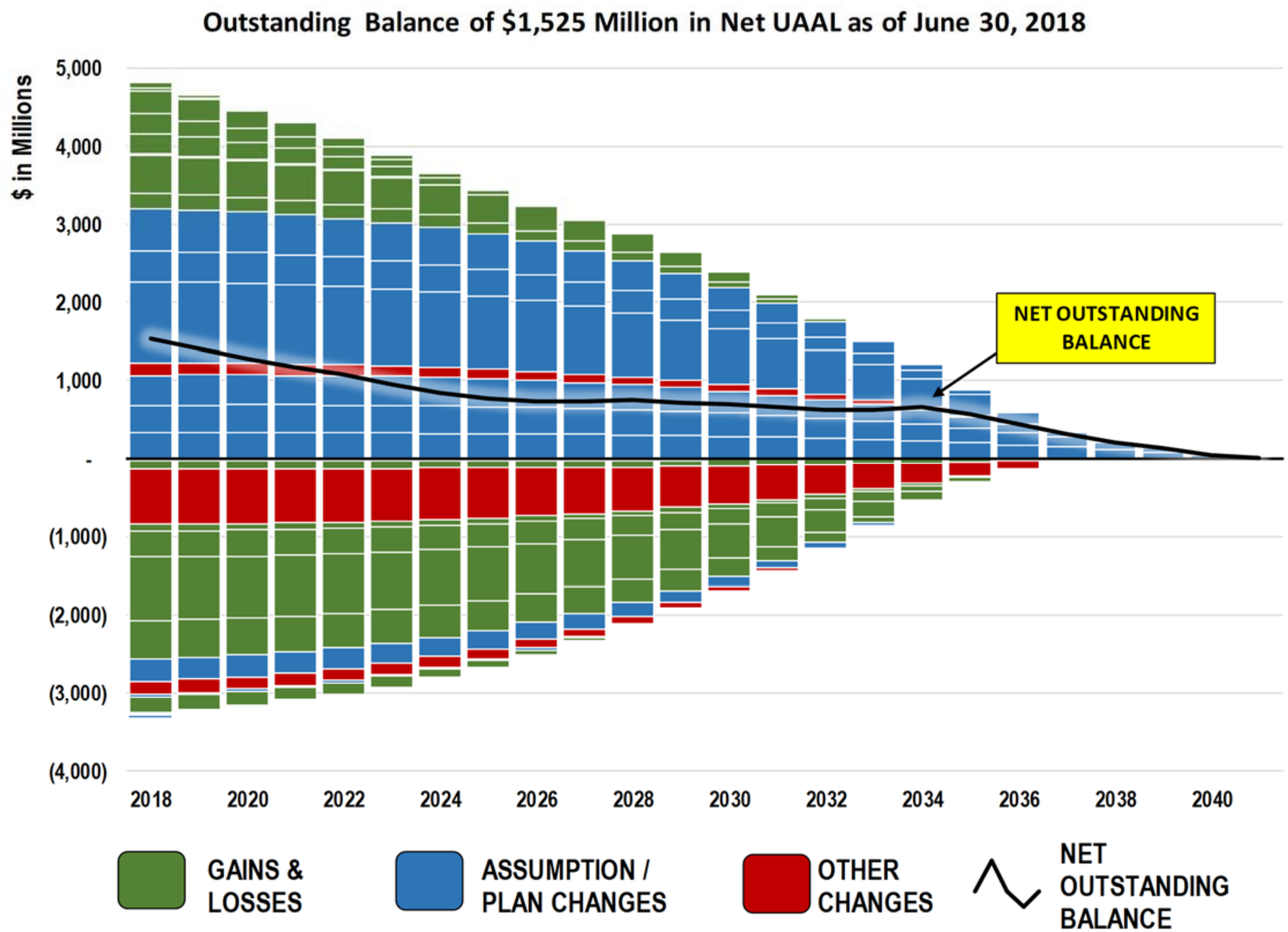

EXHIBIT I

Projection of UAAL Outstanding Balances and Payments (continued)

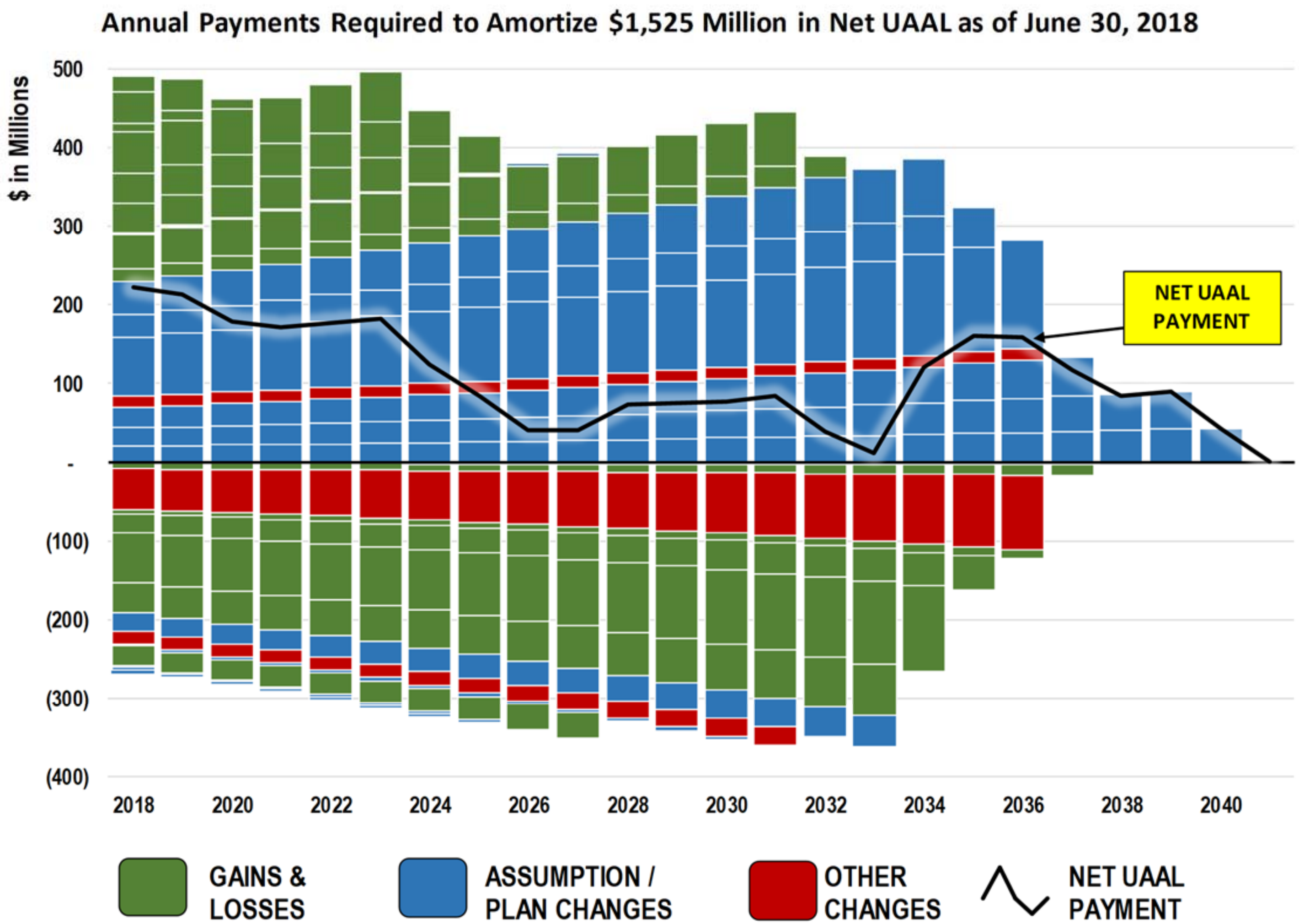

EXHIBIT J
Section 415 Limitations

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

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

In particular, Section 415(b) of the IRC limits the maximum annual benefit payable at the Normal Retirement Age to a dollar limit of $160,000 indexed for inflation. That limit is $220,000 for 2018 and $225,000 for 2019. 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.

EXHIBIT K
Definitions of Pension Terms

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

Assumptions or Actuarial Assumptions: The estimates on which the cost of the Plan is calculated including:

(a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;

(b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;

(c) Retirement rates — the rate or probability of retirement at a given age; and

(d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Normal Cost: The amount of contributions required to fund the cost of benefits allocated to the current year of service.

Actuarial Accrued Liability For Actives: The equivalent of the accumulated normal costs allocated to the years before the valuation date.

Actuarial Accrued Liability For Pensioners: The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

Unfunded Actuarial Accrued Liability: The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

Amortization of the Unfunded Actuarial Accrued Liability:	Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.
Investment Return:	The rate of earnings of the Plan from its investments, including interest, dividends and market gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the market gains and losses to avoid significant swings in the value of assets from one year to the next.

EXHIBIT I
Summary of Actuarial Valuation Results

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

1.	Retired members as of the valuation date (including 2,384 beneficiaries in pay status)		12,890
2.	Members inactive during year ended June 30, 2018 with vested rights[(1)]		534
3.	Members active during the year ended June 30, 2018		13,442
	Fully vested	4,718	
	Not vested	8,724	

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

	Assets		
1.	Valuation value of retirement assets ($22,360,370,203 at market value[(2)] as reported by LAFPP and $21,659,429,558 at actuarial value[(2)])		$19,840,070,083
2.	Present value of future normal costs		
	Employee	$1,525,926,997	
	Employer	3,011,642,389	
	Total		4,537,569,386
3.	Unfunded actuarial accrued liability		1,524,733,536
4.	Present value of current and future assets		$25,902,373,005
	Liabilities		
5.	Present value of future benefits		
	Retired members and beneficiaries	$11,899,136,569	
	Inactive members with vested rights	39,997,203	
	Active members not currently in DROP	11,346,158,136	
	Active members currently in DROP[(3)]	2,617,081,097	
	Total		$25,902,373,005

(1) *Includes 484 terminated members due only a refund of member contributions.*

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

(3) *Includes $299,626,972 attributable to the value of the DROP account balances as of June 30, 2018.*

EXHIBIT I (continued)

Summary of Actuarial Valuation Results

The determination of the recommended contribution is as follows:

1.	Total normal cost	$441,593,887
2.	Expected employee contributions	-151,073,352
3.	Employer normal cost: (1) + (2)	$290,520,535
4.	Payment on unfunded actuarial accrued liability	222,041,965
5.	Payment for administrative expenses	17,317,329
6.	Total recommended contribution: (3) + (4) + (5), payable beginning of year	$529,879,829
7.	Total recommended contribution: adjusted for July 15 payment	$531,427,399
8.	Total recommended contribution: adjusted for biweekly payment	$548,751,900
9.	Projected payroll	$1,546,042,972
10.	Item 6 as a percentage of projected payroll: (6) ÷ (9)	34.27%
11.	Item 7 as a percentage of projected payroll: (7) ÷ (9)	34.37%
12.	Item 8 as a percentage of projected payroll: (8) ÷ (9)	35.49%

EXHIBIT II
Schedule of Employer Contributions

Retirement Benefits

Plan Year Ended June 30	Actuarially Determined Contributions[1]	Actual Contributions	Percentage Contributed
2009	$238,697,929	$238,697,929	100.00%
2010	250,516,858	250,516,858	100.00%
2011	277,092,251	277,092,251	100.00%
2012	321,593,433	321,593,433	100.00%
2013	375,448,092	375,448,092	100.00%
2014	440,698,260	440,698,260	100.00%
2015	480,332,251	480,332,251	100.00%
2016	478,385,438	478,385,438	100.00%
2017	454,308,852	454,308,852	100.00%
2018[2]	460,966,593	460,966,593	100.00%

(1) *Prior to plan year ending June 30, 2015, this amount was the Annual Required Contribution.*

(2) *Figures include amounts transferred that were related to the transfer of certain Airport Police members from the Los Angeles City Employees' Retirement System (LACERS) into LAFPP.*

EXHIBIT III
Actuarial Assumptions and Actuarial Cost Method

Rationale for Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the July 1, 2013 through June 30, 2016 Actuarial Experience Study dated May 23, 2017. Unless otherwise noted, all actuarial assumptions and methods shown below apply to all members. These assumptions have been adopted by the Board.
<u>Economic Assumptions</u>:	
Net Investment Return:	7.25%, net of investment expenses
Consumer Price Index:	Increase of 3.00% per year; benefit increases due to CPI subject to a 3.0% maximum for Tiers 3 through 6.
Member Contribution and Matching Account Crediting Rate:	4.00%
Administrative Expenses:	Out of the total 1.25% of payroll 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.
Payroll Growth:	Inflation of 3.00% per year plus "across-the-board" real salary increases of 0.50% per year.
Increase in Internal Revenue Code Section 401(a)(17) Compensation Limit:	Increase of 3.00% per year from the valuation date.

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.	
Years of Service	**Additional Salary Increase**
0	8.50%
1	7.50
2	6.00
3	5.50
4	4.00
5	2.75
6	2.50
7	2.00
8	1.75
9	1.75
10	1.25
11	1.00
12	1.00
13	1.00
14	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.

<u>Demographic Assumptions</u>:

Mortality Rates – Pre-Retirement

Employee Mortality	Headcount-Weighted RP-2014 Employee Mortality Table times 90%, projected 20 years with two-dimensional Scale MP-2016.

Mortality Rates – Post-Retirement

Healthy Mortality	Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table projected 20 years with two-dimensional Scale MP-2016, set back one year.
Disabled Mortality	Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table projected 20 years with two-dimensional Scale MP-2016, set forward one year.
Beneficiary Mortality	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.

The RP-2014 mortality tables and adjustments as shown above reflect the mortality experience as of the measurement date. The 20-year projection is a provision for future mortality improvement.

[(1)] *The Headcount-Weighted RP-2014 Healthy Annuitant Mortality tables have rates only for ages 50 and later.*

Mortality Rates Before Retirement:

	Rate (%)	
	Mortality	
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.

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

Termination Rates:

Rate (%)		
Less Than 5 Years of Service		
Years of Service	**Fire**	**Police**
0 – 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	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. Of all members expected to retire with a service retirement benefit, we project a 95% probability that members have elected DROP before retirement if they will have also satisfied the requirements for participating in the DROP for 5 years.

Retirement Age and Benefit for Deferred Vested Members: For deferred vested members, retirement assumption is age 50.

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.

Percent Married/Domestic Partner: 80% of male members, 55% of female members.

Age of Spouse: Male retirees are 3 years older than their spouses. Female retirees are 2 years younger than their spouses.

Service Connected Disability Benefits:

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.

Actuarial Methods:

Actuarial Value of Assets: The market value of assets less unrecognized returns. Unrecognized return is equal to the difference between the actual and expected returns on a market value basis, and is recognized over a seven-year period. Deferred gains and losses as of June 30, 2013 have been combined and will be recognized in equal amounts over a period of six years from that date. The actuarial value of assets is further adjusted, if necessary, to be within 40% of the market value of assets.

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, with Normal Cost determined as if the current benefit accrual rate had always been in effect.

Funding Policy: The City of Los Angeles Fire & Police Pension Plan makes contributions equal to the Normal Cost adjusted by an amount to amortize any Surplus or Unfunded Actuarial Accrued Liability. Both the Normal Cost and the Actuarial Accrued Liability are determined under the Entry Age Cost Method.

Any Surplus is amortized over an open (non-decreasing) thirty-year period. Any changes in Unfunded Actuarial Accrued Liability due to actuarial gains or losses are amortized over separate twenty-year periods as a level percentage of payroll. Any changes in Unfunded Actuarial Accrued Liability from plan amendments are amortized over separate fifteen-year periods as a level percentage of payroll. Any changes in Unfunded Actuarial Accrued Liability from plan assumption changes are amortized over separate twenty-year periods as a level percentage of payroll.

Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by service. For Tier 1, the Unfunded Actuarial Accrued Liability is amortized using level dollar amortization ending on June 30, 2037. For Tiers 2, 3 and 4, the Unfunded Actuarial Accrued Liability is amortized using level percent of payroll as a percent of total valuation payroll from the respective employer (i.e., the City or Harbor Port Police). For Tiers 5 and 6, the Unfunded Actuarial Accrued Liability is amortized using level percent of payroll as a percent of combined payroll for these tiers from the respective employer (i.e., City, Harbor Port Police or Airport Police Officer).

Change in Actuarial Assumptions: There have been no changes in actuarial assumptions since the prior valuation.

EXHIBIT IV
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

Service Retirement Benefit:

Tier 1 (§ 1304)

Age & Service Requirement — 20 years of service

Amount

Years of Service	Benefit
20	40% of Normal Pension Base
20 to 25	Additional 2% for each year over 20 and under 25
25	50% of Normal Pension Base
25 to 35	Additional 1 2/3% for each year over 25 and under 35
35+	66 2/3% of Normal Pension Base

Tier 2 (§ 1408)

Age & Service Requirement	20 years of service	
Amount	<u>Years of Service</u>	<u>Benefit</u>
	Less than 25	2% of Normal Pension Base per year of service
	25+	55% plus 3% per year over 25 to a maximum of 70% of Normal Pension Base

Tier 3 (§ 1504)

Age & Service Requirement	Age 50 and 10 years of service	
Amount	<u>Years of Service</u>	<u>Benefit</u>
	Less than 20	2% of Final Average Salary per year of service
	20+	For each additional year over 20, 3% of Final Average Salary per year over 20 to a maximum of 70% Final Average Salary

Tier 4 (§ 1604)

Age & Service Requirement	20 years of service	
Amount	<u>Years of Service</u>	<u>Benefit</u>
	20	40% of Final Average Salary
	20+	For each additional year over 20, 3% of Final Average Salary per year over 20 to a maximum of 70% Final Average Salary

Tier 5 (§ 4.2004)

Age & Service Requirement	Age 50 and 20 years of service	
Amount	<u>Years of Service</u>	<u>Benefit</u>
	20	50% of Final Average Salary
	20+	For each additional year over 20, 3% of Final Average Salary per year over 20, except 30th year where 4% is provided, to a maximum of 90% Final Average Salary

Tier 6 (§ 1704)		
Age & Service Requirement	Age 50 and 20 years of service	
Amount	Years of Service	Benefit
	20	40% of Final Average Salary
	21 to 25	Additional 3% of Final Average Salary for years 21 through 25
	26 to 30	Additional 4% of Final Average Salary for years 26 through 30
	31+	Additional 5% of Final Average Salary per year over 30, to a maximum of 90% of Final Average Salary

Deferred Retirement Option Plan (DROP) (§4.2100 - 4.2109):

Eligibility	Tier 2:	25 years of service
	Tier 3:	Age 50 and 25 years of service
	Tier 4:	25 years of service
	Tier 5:	Age 50 and 25 years of service
	Tier 6:	Age 50 and 25 years of service
Benefits 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 with interest at 5% annually. Members are required to make normal member contributions. DROP benefits receive annual COLA while in DROP (limited to 3% for all Tiers). Members may participate in DROP for up to five years.	

Normal Pension Base:

Tier 1, 2 (§ 1302, § 1406)	Final monthly salary rate

Final Average Salary:

Tier 3, 4, 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 $275,000 for Plan year beginning July 1, 2018. The limit is indexed for inflation on an annual basis.
Cost of Living Adjustment (COLA):	
Tier 1, 2 (§ 1328, § 1422)	Commencing July 1 based on changes to Los Angeles area consumer price index.
Tier 3, 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, 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.
Death After Retirement:	
Tier 1 (§ 1314, § 1316)	
Service Retirement	Pension equal to the same percentage of the Member's Normal Pension Base to a maximum of 50%.
Service Connected Disability	50% of Member's Normal Pension Base.
Nonservice Connected Disability	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 2 (§ 1414)	
Service Retirement	Pension equal to the same percentage of the Member's Normal Pension Base to a maximum of 55%.
Service Connected Disability	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.
Nonservice Connected Disability	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 (nonservice connected pension base).

Tier 3, 4 (§ 1508, § 1608)	
Service Retirement	Pension equal to 60% of the pension received by the deceased Member.
Service Connected Disability	If death occurs within three years of the Member's effective date of pension, then the eligible spouse or designated beneficiary shall receive 75% of the Final Average Salary. Otherwise, a pension equal to 60% of the pension received by the deceased Member immediately preceding the date of death.
Nonservice Connected Disability	Pension equal to 60% of the pension received by the deceased Member.
Tier 5 (§ 4.2008, § 4.2008.5)	If former Tier 2 member, see Tier 2. Otherwise, see Tier 3.
Tier 6 (§ 1708)	
Service Retirement	Pension equal to 70% of the pension received by the deceased Member.
Service Connected Disability	If death occurs within three years of the Member's effective date of pension, then the eligible spouse or designated beneficiary shall receive 80% of the Final Average Salary. Otherwise, a pension equal to 80% of the pension received by the deceased Member immediately preceding the date of death.
Nonservice Connected Disability	Pension equal to 70% of the pension received by the deceased Member.

Death Before Retirement:

Tier 1 (§ 1314, § 1316)	
Eligible for Service Retirement	
Service Requirement	20 years of service.
Amount	100% of Member's accrued service retirement Member would have received, not to exceed 50% of Normal Pension Base.
Service Connected	
Service Requirement	None.
Amount	50% of Member's Normal Pension Base.

Nonservice Connected	
Service Requirement	5 years of service.
Amount	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 2 (§ 1414)	
Eligible for Service Retirement	
Service Requirement	20 years of service.
Amount	100% of Member's accrued service retirement Member would have received, not to exceed 55% of Normal Pension Base.
Service Connected	
Service Requirement	None.
Amount	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.
Nonservice Connected	
Service Requirement	5 years of service.
Amount	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 (nonservice connected pension base).
Tier 3, 4 (§ 1508, § 1608)	
Eligible for Service Retirement	
Service Requirement	10 years of service for Tier 3. 20 years of service for Tier 4.
Amount	80% of service retirement Member would have received, not to exceed 40% of the Member's Final Average Salary.
Service Connected	
Service Requirement	None.
Amount	75% of the Member's Final Average Salary.

Nonservice Connected	
Service Requirement	5 years of service.
Amount	30% of the Member's Final Average Salary.
Basic Death Benefit	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).
Tier 5 (§ 4.2008, § 4.2008.5)	
Eligible for Service Retirement	
Service Requirement	20 years of service.
Amount	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.
Service Connected	
Service Requirement	None.
Amount	For former Tier 2, 75% of the Member's Normal Pension Base payable to an eligible spouse or designated beneficiary. For members who are not former Tier 2, 75% of the Member's Final Average Salary payable to an eligible spouse or designated beneficiary.
Nonservice Connected	
Service Requirement	5 years of service.
Amount	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.
Basic Death Benefit	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).

Tier 6 (§ 1708)

Eligible for Service Retirement	
Service Requirement	20 years of service.
Amount	50% of the Member's Final Average Salary.
Service Connected	
Service Requirement	None.
Amount	80% of the Member's Final Average Salary.
Nonservice Connected	
Service Requirement	5 years of service.
Amount	50% of the Member's Final Average Salary.
Basic Death Benefit	If Member has at least one year of service, in addition to return of contributions, beneficiary receives the Member's two-year average monthly salary times years of completed service (not to exceed 6 years).

Disability:

Tier 1 (§ 1310, § 1312)

Service Connected	
Service Requirement	None.
Amount	50% to 90% of Normal Pension Base depending on severity of disability, with a minimum of Member's service pension percentage rate.
Nonservice Connected	
Service Requirement	5 years of service.
Amount	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 2 (§ 1412)

Service Connected

Service Requirement	None.
Amount	50% to 90% of Normal Pension Base depending on severity of disability, with a minimum of Member's service pension percentage rate.

Nonservice Connected

Service Requirement	5 years of service.
Amount	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, 4, 5, 6 (§ 1506, § 1606, § 4.2006, § 1706)

Service Connected

Service Requirement	None.
Amount	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.

Nonservice Connected

Service Requirement	5 years of service.
Amount	30% to 50% of Final Average Salary depending on severity of disability.

Deferred Withdrawal Retirement Benefit (Vested):

Tier 3 (§ 1504)

Age & Service Requirement	10 years of service. Receive service pension at age 50.
Amount	See Tier 3 Service Retirement.

Tier 5, Tier 6 (§ 4.2004, § 1704)

Age & Service Requirement	20 years of service. Receive service pension at age 50.
Amount	Member is entitled to receive a service pension using Tier 3 retirement formula.

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 LAFPP 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:	There have been no changes in plan provisions since the last valuation. However, effective January 7, 2018, eligible Airport Police Officers are allowed to join Tier 6.

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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, 2018

Segal Consulting

Segal Consulting
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November 9, 2018

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, 2018. 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 Bissett, FSA, MAAA.

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions used in this 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
Senior Vice President and Actuary

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

JAC/bbf

SECTION 1

EXECUTIVE SUMMARY

SECTION 2

VALUATION RESULTS

SECTION 3

VALUATION DETAILS

SECTION 4

SUPPORTING INFORMATION

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, 2018. The results are also consistent with the Governmental Accounting Standards, which prescribe an accrual methodology for accumulating the value of other postemployment benefits (OPEB) over participants' active working lifetimes.

HIGHLIGHTS OF THE VALUATION

- The recommended contribution rate has increased from 12.73% of payroll ($196.8 million) to 12.82% 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 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.
- The funded ratio has increased from 49.3% to 51.3% in this valuation. On a market value of asset basis, the funded ratio has increased from 50.1% to 52.9%. The unfunded actuarial accrued liability (UAAL) has increased from $1.685 billion to $1.728 billion. A reconciliation of the change in the UAAL is provided in Section 2, Chart 2.
- 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.
- The impact of updated 2018/2019 premiums and subsidy levels, adopted future medical trend rates, anticipated Health Insurance Tax (HIT) and other actuarial experience during 2018/2019 on the UAAL and ADC is shown in Section 2, Chart 2 and Section 3, Exhibit I respectively.
- Contributions will generally increase with payroll growth. Other factors such as gains or losses, or changes in trend assumptions will also change the ADC for future years.
- As indicated in Section 3, Exhibit H of this report, the total unrecognized investment gain as of June 30, 2018 is $700.9 million for the assets for Retirement and Health Subsidy Benefits. For comparison purposes, the total unrecognized investment gain as of June 30, 2017 was $345.3 million.
- The unrecognized gains of $700.9 million represent 3.1% of the market value of assets as of June 30,2018. Unless offset by future investment losses, or other unfavorable experience, the recognition of the $700.9 million market losses 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 51.3% to 52.9%. For comparison purposes, if the deferred gains in the June 30, 2017 valuation had been recognized immediately in the June 30, 2017 valuation, the funded percentage in that valuation would have been increased from 49.3% to 50.1%.
  - 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 13.23% to 12.96% of payroll. For comparison purposes, if the deferred gains in the June 30, 2017 valuation had been recognized immediately in the June 30, 2017 valuation, the aggregate employer rate (payable throughout the fiscal year) would have decreased from 13.08% to 12.95% or payroll.

- The actuarial valuation report as of June 30, 2018 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 GAS 74 report with a measurement date of June 30, 2018 for financial reporting purposes for the Plan was provided as a separate report.
- The GAS 75 report with a measurement date of June 30, 2018 for financial reporting purposes for the employer (with a reporting date of June 30, 2019) will be provided in the next few months.
- Pursuant to Ordinance No. 184853 ("the Ordinance"), which was adopted by the City Council on March 28, 2017, Airport Peace Officers (APO) at Los Angeles City Employees' Retirement System (LACERS) can elect to remain in LACERS or transfer to LAFPP Tier 6 prior to January 7, 2018. All new APO hired after that date would be enrolled in LAFPP Tier 6, rather than in LACERS. Under the Ordinance, APO members who elect to transfer to LAFPP are required to convert all of their prior LACERS service to LAFPP service at their own cost. This valuation, prepared using actual membership information, is the first valuation to reflect these new APO members.

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

SUMMARY OF VALUATION RESULTS

	June 30, 2018	June 30, 2017
Actuarially Determined Contribution (ADC) for coming year		
Determined as a percent of pay		
At the beginning of year	12.78%	12.69%[1]
On July 15	12.82%	12.73%[1]
At the end of each biweekly pay period	13.23%	13.14%[1]
Funding elements for plan year beginning July 1:		
Normal cost (beginning of year)	$71,346,682	$71,848,737[1]
Actuarial Value of Assets	1,819,359,475	1,637,845,956
Market Value of Assets	1,878,237,434	1,665,685,267
Actuarial Accrued Liability (AAL)	3,547,776,597	3,322,745,937
Unfunded Actuarial Accrued Liability on actuarial value of assets basis	1,728,417,122	1,684,899,981
Unfunded Actuarial Accrued Liability on market value of assets basis	1,669,539,163	1,657,060,670
Funded Ratio on Actuarial Value of Assets[2]	51.28%	49.29%
Funded Ratio on Market Value of Assets	52.94%	50.13%
Demographic data for plan year beginning July 1:		
Number of retired members and beneficiaries	10,913	10,832
Number of inactive members eligible for deferred benefits	899	882
Number of active members	13,442	13,327
Projected total payroll	$1,546,042,972	$1,475,539,138

(1) *Recalculated to reflect payroll of active members enrolled in different tiers as of June 30, 2018. There is a change in the total aggregate rate determined in the June 30, 2017 valuation calculated using the 2017 projected payroll by tier compared to that recalculated above using the 2018 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 51.17% and 49.19% for 2018 and 2017 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.

November 9, 2018

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, 2018, 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 (GASB) 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 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.

Thomas Bergman
Thomas Bergman, ASA, MAAA, EA
Retiree Health Actuary

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

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

CHART 1

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

	Actuarial Present Value of Total Projected Benefits (APB)	
	June 30, 2018	**June 30, 2017**
Participant Category		
Current retirees, beneficiaries, and dependents	$1,944,377,905	$1,827,498,663
Current active members	2,238,373,013	2,103,008,838
Terminated members entitled but not yet eligible and retirees and beneficiaries with deferred health benefits	137,803,541	120,601,907
Total	$4,320,554,459	$4,051,109,408

		June 30, 2018	June 30, 2017
Actuarial Balance Sheet			
The actuarial balance sheet as of the valuation date is as follows:			
	Assets		
1.	Actuarial value of assets	$1,819,359,475	$1,637,845,956
2.	Present value of future normal costs	772,777,862	728,363,471
3.	Unfunded actuarial accrued liability	1,728,417,122	1,684,899,981
4.	Present value of current and future assets	$4,320,554,459	$4,051,109,408
	Liabilities		
5.	Actuarial Present Value of total Projected Benefits	$4,320,554,459	$4,051,109,408

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

CHART 2

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

	June 30, 2018	June 30, 2017
Participant Category		
Current retirees, beneficiaries, and dependents	$1,944,377,905	$1,827,498,663
Current active members	1,465,595,151	1,374,645,367
Terminated members entitled but not yet eligible and retirees and beneficiaries with deferred health benefits	137,803,541	120,601,907
Total actuarial accrued liability	$3,547,776,597	$3,322,745,937
Actuarial value of assets	1,819,359,475	1,637,845,956
Unfunded actuarial accrued liability	$1,728,417,122	$1,684,899,981

Development of Unfunded Actuarial Accrued Liability for the Year Ended June 30, 2017	
1. Unfunded actuarial accrued liability at beginning of year	$1,684,899,981
2. Normal cost and allocated administrative expenses from prior valuation	68,757,185
3. Expected employer contributions during 2016/2017 fiscal year	186,321,663
4. Interest on prior year UAAL, normal cost and contributions	113,631,824
5. Expected unfunded actuarial accrued liability (1 + 2 – 3 + 4)	$1,680,967,327
6. Change due to investment experience	-8,647,728
7. Change due to actual contributions less than expected	8,433,665
8. Change due to updated 2018/2019 premiums and subsidy levels	3,244,769
9. Change due to new medical election assumption	-6,321,533
10. Change due to adopted future medical trend rates and HIT after 2018/2019[(1)]	63,331,870
11. Change due to miscellaneous demographic gains and losses	-12,591,248
12. Unfunded actuarial accrued liability at end of year	$1,728,417,122

[(1)] *The 2020-2021 premium increases include additional estimated increases of 2.00% (non-Medicare) and 1.75% (Medicare) from the impact of the Health Insurance Tax (HIT).*

The unfunded actuarial accrued liability may be amortized over periods of up to 30 years. Amortization payments may be calculated as level dollar amounts or as amounts designed to remain level as a percent of a growing payroll base. 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 rules:

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	$22,918,925	18	$2,162,897
Experience Gain	06/30/2012	-3,862,723	20	-3,218,272	14	-348,279
Experience Loss	06/30/2013	568,696	20	492,363	15	51,203
Experience Gain	06/30/2014	-116,336	20	-104,244	16	-10,460
Assumption change	06/30/2014	-170,349	25	-159,042	21	-13,962
Experience Gain	06/30/2015	-350,770	20	-324,373	17	-31,517
Experience Gain	06/30/2016	-1,578,952	20	-1,502,271	18	-141,772
Assumption change	06/30/2017	967,229	20	944,272	19	86,789
Experience Gain	06/30/2017	-1,175,982	20	-1,148,070	19	-105,520
Experience Gain	06/30/2018	-980,558	20	-980,558	20	-87,985
Total				$16,918,730		$1,561,394

Tier 2

Type	Date Established	Initial Balance	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[3]
Combined Base	06/30/2011[2]	$892,673,992	25	$939,897,129	18	$69,472,566
Experience Gain	06/30/2012	-78,975,844	20	-76,614,778	14	-6,826,438
Experience Loss	06/30/2013	11,740,672	20	11,528,985	15	974,487
Experience Gain	06/30/2014	-19,495,604	20	-19,293,862	16	-1,553,807
Assumption change	06/30/2014	9,333,499	25	9,680,809	21	643,018
Experience Loss	06/30/2015	34,495,425	20	34,355,562	17	2,646,198
Experience Gain	06/30/2016	-26,904,116	20	-26,874,540	18	-1,986,434
Assumption change	06/30/2017	65,323,379	20	65,249,053	19	4,642,079
Experience Gain	06/30/2017	-42,827,148	20	-42,778,419	19	-3,043,428
Experience Loss	06/30/2018	17,399,406	20	17,399,406	20	1,194,643
Total				$912,549,345		$66,162,884

(1) *Level dollar amortization.*

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

(3) *Level percentage of payroll amortization.*

CHART 3 - Table of Amortization Bases (Continued)

Tier 3

Type	Date Established	Initial Balance	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Experience Gain	06/30/2011[2]	$68,153,341	20	$71,758,705	18	$5,304,050
Experience Loss	06/30/2012	-4,428,062	20	-4,295,681	14	-382,749
Experience Gain	06/30/2013	13,070,888	20	12,835,216	15	1,084,896
Assumption Change	06/30/2014	-7,497,023	25	-7,419,442	16	-597,515
Experience Gain	06/30/2014	2,693,968	20	2,794,212	21	185,597
Experience Loss	06/30/2015	-1,747,416	20	-1,740,330	17	-134,047
Experience Gain	06/30/2016	2,480,551	20	2,477,824	18	183,149
Assumption change	06/30/2017	11,598,633	20	11,585,436	19	824,234
Experience Gain	06/30/2017	-10,568,753	20	-10,556,728	19	-751,048
Experience Loss	06/30/2018	2,430,745	20	2,430,745	20	166,895
Total				$79,869,957		5,883,462

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	$51,992,990	18	$3,843,066
Experience Gain	06/30/2012	-3,240,833	20	-3,143,945	14	-280,128
Experience Loss	06/30/2013	1,622,876	20	1,593,614	15	134,700
Experience Gain	06/30/2014	-6,372,636	20	-6,306,693	16	-507,902
Assumption Change	06/30/2014	4,070,034	25	4,221,484	21	280,399
Experience Gain	06/30/2015	-3,458,772	20	-3,444,748	17	-265,328
Experience Loss	06/30/2016	2,516,035	20	2,513,270	18	185,769
Assumption change	06/30/2017	6,027,503	20	6,020,645	19	428,333
Experience Gain	06/30/2017	-4,896,151	20	-4,890,580	19	-347,935
Experience Loss	06/30/2018	1,422,225	20	1,422,225	20	97,650
Total				$49,978,262		$3,568,624

(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	$669,284,309	18	$49,470,199
Experience Gain	06/30/2012	-36,520,953	20	-35,429,119	14	-3,156,763
Experience Gain	06/30/2013	-195,938	20	-192,404	15	-16,263
Experience Gain	06/30/2014	-85,025,359	20	-84,145,512	16	-6,776,552
Assumption change	06/30/2014	45,164,286	25	46,844,896	21	3,111,526
Experience Gain	06/30/2015	-5,944,485	20	-5,920,382	17	-456,011
Experience Gain	06/30/2016	-6,139,038	20	-6,132,289	18	-453,269
Assumption change	06/30/2017	128,177,438	20	128,031,597	19	9,108,681
Experience Gain	06/30/2017	-72,934,341	20	-72,851,356	19	-5,182,938
Experience Loss	06/30/2018	26,485,437	20	26,485,437	20	1,818,489
Total				$665,975,177		$47,467,099

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	$2,690,224	18	$198,848
Experience Gain	06/30/2012	-481,777	20	-467,374	14	-41,643
Experience Gain	06/30/2013	-71,817	20	-70,522	15	-5,961
Experience Gain	06/30/2014	-232,604	20	-230,197	16	-18,539
Assumption change	06/30/2014	296,216	25	307,238	21	20,407
Experience Gain	06/30/2015	-64,131	20	-63,872	17	-4,920
Experience Loss	06/30/2016	181,052	20	180,852	18	13,368
Assumption change	06/30/2017	873,251	20	872,258	19	62,056
Experience Gain	06/30/2017	-786,387	20	-785,493	19	-55,883
Experience Loss	06/30/2018	30,735	20	30,735	20	2,110
Total				$2,463,849		$169,843

(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)

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	$661,802	20	$45,439
Total				$661,802		$45,439

[1] *Level percentage of payroll amortization.*

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)

Cost Element	2018 Amount	2018 Percentage of Compensation	2017 Amount	2017 Percentage of Compensation
1. Normal cost	$71,346,682	4.61%	$71,848,737	4.64%
2. Amortization of the unfunded actuarial accrued liability	124,858,745	8.08%	123,013,506	7.96%
3. Allocated amount for administrative expenses	1,343,586	0.09%	1,343,586	0.09%
4. Total Actuarially Determined Contribution at beginning of year	$197,549,013	12.78%	$196,205,829	12.69%
5. Adjustment for timing (payable July 15)	576,963	0.04%	573,040	0.04%
6. Total Actuarially Determined Contribution (payable July 15)	$198,125,976	12.82%	$196,778,869	12.73%
7. Adjustment for timing (payable throughout the year)	7,035,858	0.45%	6,988,020	0.45%
8. Total Actuarially Determined Contribution (payable throughout the year)	$204,584,871	13.23%	$203,193,849	13.14%
9. Projected Total Payroll	$1,546,042,972		N/A	

CHART 5

Schedule of Employer Contributions

Fiscal Year Ended June 30	Actuarially Determined Contributions[1]	Actual Contributions[1]	Percentage Contributed
2013	$132,939,191	$132,939,191	100.00%
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

[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)]
06/30/2013	$1,013,400	$2,633,793	$1,620,393	38.48%	$1,367,237	118.52%
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%

EXHIBIT A

Summary of Participant Data – Retiree Health Actuarial Valuation

	June 30, 2018	June 30, 2017
Retired members:		
Number of non-disabled retirees	7,971	7,818
Number of disabled retirees	1,293	1,327
Total Number of retirees	9,264	9,145
Average age of retirees	71.2	71.0
Number of spouses/domestic partners of retirees receiving subsidy	6,247	6,202
Average age of spouses/domestic partners of retirees receiving subsidy	67.4	67.0
Beneficiaries:		
Number	1,649	1,687
Average age	79.8	79.8
Active members in valuation:		
Number	13,442	13,327
Average age	42.3	42.3
Average years of service	15.3	15.7
Vested terminated members:		
Number		
Eligible for deferred pension and health benefits	105	73
Retirees and beneficiaries not in pay status but eligible for deferred health benefits	794	809
Total	899	882
Average age	51.9	52.1

EXHIBIT A (Continued)

Summary of Participant Data – Pension Actuarial Valuation

	June 30, 2018	June 30, 2017
Retired members:		
Number of non-disabled retirees	8,623	8,462
Number of disabled retirees	1,883	1,942
Total Number of retirees	10,506	10,404
Average age of retirees	70.2	69.9
Number of spouses/domestic partners of retirees receiving health subsidy	6,247	6,202
Average age of spouses/domestic partners of retirees receiving health subsidy	67.4	67.0
Beneficiaries:		
Number	2,384	2,432
Average age	76.4	76.4
Active members in valuation:		
Number	13,442	13,327
Average age	42.3	42.3
Average years of service	15.3	15.3
Vested terminated members[1]:		
Number	105	73
Average age	46.9	46.8

[1] *Excludes 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, 2018	June 30, 2017
Retired members:		
Pension valuation	8,623	8,462
Retirees with no subsidy due to service or decision not to enroll	-189	-194
Deferred retirees eligible for future health benefits	-463	-450
Health valuation	7,971	7,818
Disabled members:		
Pension valuation	1,883	1,942
Disableds with no subsidy due to service or decision not to enroll	-437	-443
Deferred disableds eligible for future health benefits	-153	-172
Health valuation	1,293	1,327
Beneficiaries:		
Pension valuation	2,384	2,432
Surviving spouses with no subsidy due to service or decision not to enroll	-557	-558
Deferred surviving spouses eligible for future health benefits	-178	-187
Health valuation	1,649	1,687
Active members:		
Pension valuation	13,442	13,327
Health valuation	13,442	13,327
Vested terminated members:		
Pension valuation*	105	73
Retirees eligible for deferred health benefits	+463	+450
Disableds eligible for deferred health benefits	+153	+172
Beneficiaries eligible for deferred health benefits	+178	+187
Health valuation	899	882

** Excludes terminated members due only a refund of member contributions.*

EXHIBIT C

Allocation of ADC by Tier

Tier 1 Members		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount	% of Payroll
1	Employer normal cost	$0	N/A	$0	N/A
2	Actuarial accrued liability	11,977,630		13,299,460	
3	Valuation value of assets	-4,941,100		-5,039,230	
4	Unfunded actuarial accrued liability	16,918,730		18,338,690	
5	Amortization of unfunded accrued liability	1,561,394	N/A	1,649,378	N/A
6	Allocated amount for admin expenses, calculated with payroll in 10	0		0	
7	Total recommended contribution, July 1	$1,561,394	N/A	$1,649,378	N/A
8	Total recommended contribution, July 15	1,565,954	N/A	1,654,195	N/A
9	Total recommended contribution, biweekly	1,617,004	N/A	1,708,122	N/A
10	Projected payroll used for developing normal cost rate	N/A		N/A	

Tier 2 Members		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount(2)	% of Payroll
1	Employer normal cost	$32,701	2.82%	$37,814	3.26%
2	Actuarial accrued liability	926,902,758		918,182,159	
3	Valuation value of assets	14,353,413		20,772,274	
4	Unfunded actuarial accrued liability	912,549,345		897,409,885	
5	Amortization of unfunded accrued liability (1)	66,162,884	4.33%	65,517,795	4.29%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,008	0.09%	1,008	0.09%
7	Total recommended contribution, July 1	66,196,593	N/A	65,556,617	N/A
8	Total recommended contribution, July 15	66,389,927	N/A	65,748,082	N/A
9	Total recommended contribution, biweekly	68,554,235	N/A	67,891,466	N/A
10	Projected payroll used for developing normal cost rate	1,159,950		N/A	

(1) *UAAL rate is calculated using the City's total payroll of $1,527,221,319.*

(2) *Amounts are revised to reflect payroll as of June 30, 2018.*

Tier 3 Members		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount[2]	% of Payroll
1	Employer normal cost	$3,996,087	4.52%	$3,977,639	4.50%
2	Actuarial accrued liability	224,478,833		204,831,238	
3	Valuation value of assets	144,608,876		127,103,592	
4	Unfunded actuarial accrued liability	79,869,957		77,727,646	
5	Amortization of unfunded accrued liability [1]	5,883,462	0.39%	5,803,441	0.38%
6	Allocated amount for admin expenses, calculated with payroll in 10	76,817	0.09%	76,817	0.09%
7	Total recommended contribution, payable July 1	9,956,366	N/A	9,857,897	N/A
8	Total recommended contribution, payable July 15	9,985,445	N/A	9,886,688	N/A
9	Total recommended contribution, payable biweekly	10,310,970	N/A	10,208,993	N/A
10	Projected payroll used for developing normal cost rate	88,391,987		N/A	

Tier 4 Members		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount[2]	% of Payroll
1	Employer normal cost	$1,444,959	4.34%	$1,448,689	4.35%
2	Actuarial accrued liability	114,218,478		105,780,068	
3	Valuation value of assets	64,240,216		57,152,776	
4	Unfunded actuarial accrued liability	49,978,262		48,627,292	
5	Amortization of unfunded accrued liability [1]	3,568,624	0.23%	3,512,609	0.23%
6	Allocated amount for admin expenses, calculated with payroll in 10	28,942	0.09%	28,942	0.09%
7	Total recommended contribution, payable July 1	5,042,525	N/A	4,990,240	N/A
7	Total recommended contribution, payable July 15	5,057,252	N/A	5,004,815	N/A
9	Total recommended contribution, payable biweekly	5,222,118	N/A	5,167,971	N/A
10	Projected payroll used for developing normal cost rate	33,303,205		N/A	

[1] *UAAL rate is calculated using the City's total payroll of $1,527,221,319.*

[2] *Amounts are revised to reflect payroll as of June 30, 2018.*

Tier 5 Members (without Harbor Port Police)

		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$48,765,423	4.20%	$49,110,252	4.23%
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	39,241,284	3.38%	38,312,963	3.30%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,008,964	0.09%	1,008,964	0.09%
7	Total recommended contribution, payable July 1	89,015,671	7.67%	88,432,179	7.62%
8	Total recommended contribution, payable July 15	89,275,651	7.69%	88,690,455	7.64%
9	Total recommended contribution, payable biweekly	92,186,032	7.94%	91,581,758	7.89%
10	Projected payroll used for developing normal cost rate	1,160,998,876		N/A	

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

		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$15,942,013	6.55%	$16,110,915	6.62%
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	8,225,815	3.38%	8,031,121	3.30%
6	Allocated amount for admin expenses, calculated with payroll in 10	211,498	0.09%	211,498	0.09%
7	Total recommended contribution, payable July 1	24,379,326	10.02%	24,353,534	10.01%
8	Total recommended contribution, payable July 15	24,450,528	10.05%	24,424,661	10.04%
9	Total recommended contribution, payable biweekly	25,247,614	10.37%	25,220,904	10.37%
10	Projected payroll used for developing normal cost rate	243,367,301		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2018.*

Combined Tiers 5 and 6 UAAL Contribution Rate Calculations for the City		June 30, 2018				June 30, 2017	
		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	$2,218,418,358	$37,261,760	$2,255,680,118		$2,069,146,451	
3	Valuation value of assets			1,589,704,941		1,428,780,683	
4	Unfunded actuarial accrued liability			665,975,177		640,365,768	
5	Amortization of unfunded accrued liability			47,467,099	3.38%	46,344,084	3.30%
	Projected payroll used for developing combined UAAL rate	1,160,998,876	243,367,301	1,404,366,177		N/A	

All Tiers Combined (without Harbor Port Police and Airport Police)		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount[1][3]	% of Payroll
1	Employer normal cost	$70,181,183	4.59%	$70,685,309	4.63%
2	Actuarial accrued liability	3,533,257,817		3,311,239,376	
3	Valuation value of assets	1,807,966,346		1,628,770,095	
4	Unfunded actuarial accrued liability	1,725,291,471		1,682,469,281	
5	Amortization of unfunded accrued liability	124,643,463	8.16%	122,827,307	8.04%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,327,229	0.09%	1,327,229	0.09%
7	Total recommended contribution, payable July 1	196,151,875	12.84%	194,839,845	12.76%
8	Total recommended contribution, payable July 15	196,724,757	12.88%	195,408,896	12.80%
9	Total recommended contribution, payable biweekly	203,137,973	13.30%	201,779,214	13.21%
10	Projected payroll used for developing normal cost rate	1,527,221,319		N/A	

(1) *Amounts are revised to reflect payroll as of June 30, 2018.*

(2) *Amounts are recalculated to reflect payroll of active members enrolled in the different tiers as of June 30, 2018. There is a change in the total aggregate rate determined in the June 30, 2017 valuation calculated using the 2017 projected payroll by tier compared to that recalculated above using the 2018 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, 2017 valuation report, the aggregate rate (all Tiers combined without Harbor Port Police) is 12.68% payable July 1, based on June 30, 2017 projected payroll. The total aggregate rate is increased slightly to 12.76%, payable July 1, using the June 30, 2018 projected payroll.*

Harbor Port Police Tier 5

		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$689,924	5.77%	$684,630	5.73%
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	144,994	1.21%	146,962	1.23%
6	Allocated amount for admin expenses, calculated with payroll in 10	10,384	0.09%	10,384	0.09%
7	Total recommended contribution, payable July 1	845,302	7.07%	841,976	7.05%
8	Total recommended contribution, payable July 15	847,771	7.10%	844,435	7.07%
9	Total recommended contribution, payable biweekly	875,408	7.33%	871,964	7.30%
10	Projected payroll used for developing normal cost rate	11,948,161		N/A	

Harbor Port Police Tier 6

		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$130,020	6.33%	$121,163	5.90%
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	24,849	1.21%	25,259	1.23%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,785	0.09%	1,785	0.09%
7	Total recommended contribution, payable July 1	156,654	7.63%	148,207	7.22%
8	Total recommended contribution, payable July 15	157,112	7.65%	148,640	7.24%
9	Total recommended contribution, payable biweekly	162,233	7.90%	153,486	7.48%
10	Projected payroll used for developing normal cost rate	2,053,615		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2018.*

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

		June 30, 2018				June 30, 2017	
		Tier 5	*Tier 6*	*Combined Tiers 5 and 6*		*Combined Tiers 5 and 6*	
				Amount	% of Payroll	Amount	% of Payroll
2	Actuarial accrued liability	$12,902,979	$260,838	$13,163,817		$11,506,561	
3	Valuation value of assets			10,699,968		9,075,861	
4	Unfunded actuarial accrued liability			2,463,849		2,430,700	
5	Amortization of unfunded accrued liability			169,843	1.21%	172,221	1.23%
	Projected payroll used for developing combined UAAL rate	11,948,161	2,053,615	14,001,776		N/A	

Harbor Port Police Combined (Tiers 5 and 6)

		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount[(1)]	% of Payroll
1	Employer normal cost	$819,944	5.86%	$805,793	5.75%
2	Actuarial accrued liability	13,163,817		11,506,561	
3	Valuation value of assets	10,699,968		9,075,861	
4	Unfunded actuarial accrued liability	2,463,849		2,430,700	
5	Amortization of unfunded accrued liability	169,843	1.21%	172,221	1.23%
6	Allocated amount for admin expenses, calculated with payroll in 10	12,168	0.09%	12,169	0.09%
7	Total recommended contribution, payable July 1	1,001,955	7.16%	990,183	7.07%
8	Total recommended contribution, payable July 15	1,004,883	7.18%	993,075	7.09%
9	Total recommended contribution, payable biweekly	1,037,641	7.41%	1,025,450	7.32%
10	Projected payroll used for developing normal cost rate	14,001,776		N/A	

[(1)] *Amounts are revised to reflect payroll as of June 30, 2018.*

Airport Police Officers Tier 6

		June 30, 2018		June 30, 2017[2]	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$345,555	7.17%	$357,635	7.42%
2	Actuarial accrued liability	1,354,963		1,100,508 [3]	
3	Valuation value of assets	693,161		901,498 [3]	
4	Unfunded actuarial accrued liability	661,802		199,010 [3]	
5	Amortization of unfunded accrued liability	45,439	0.94%	13,978	0.29%
6	Allocated amount for admin expenses, calculated with payroll in 10	4,189	0.09%	4,189	0.09%
7	Total recommended contribution, payable July 1	395,183	8.20%	375,950	7.80%
8	Total recommended contribution, payable July 15	396,337	8.22%	376,914	7.82%
9	Total recommended contribution, payable biweekly	409,258	8.49%	389,446	8.08%
10	Projected payroll used for developing normal cost rate	4,819,877		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2018.*

[2] *Contribution rates for the Airport Police Officers for the 2018-2019 plan year were shown in the February 22, 2018 letter.*

[3] *Actuarial accrued liability, Valuation value of assets and Unfunded actuarial accrued liability were shown in the February 22, 2018 letter. These numbers are not included in the all tiers combined total and are provided for comparison purposes only.*

All Tiers Combined

		June 30, 2018		June 30, 2017	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$71,346,682	4.61%	$71,848,737	4.64%
2	Actuarial accrued liability	3,547,776,597		3,322,745,937	
3	Valuation value of assets	1,819,359,475		1,637,845,956	
4	Unfunded actuarial accrued liability	1,728,417,122		1,684,899,981	
5	Amortization of unfunded accrued liability	124,858,745	8.08%	123,013,506	7.96%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,343,586	0.09%	1,343,586	0.09%
7	Total recommended contribution, payable July 1	197,549,013	12.78%	196,205,829	12.69%
8	Total recommended contribution, payable July 15	198,125,976	12.82%	196,778,869	12.73%
9	Total recommended contribution, payable biweekly	204,584,871	13.23%	203,193,849	13.14%
10	Projected payroll used for developing normal cost rate	1,546,042,972		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2018.*

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
2019	17,160	248	17,408	$136,138,133	$2,213,863	$138,351,996
2020	17,151	1,078	18,229	140,832,900	10,562,086	151,394,986
2021	16,713	2,004	18,717	147,741,504	21,292,299	169,033,803
2022	16,264	2,893	19,157	151,385,590	32,628,727	184,014,317
2023	15,803	3,939	19,742	154,549,189	46,781,837	201,331,026
2024	15,332	4,904	20,236	157,087,164	61,316,623	218,403,787
2025	14,849	5,481	20,330	158,907,780	71,752,069	230,659,849
2026	14,356	6,103	20,459	160,565,086	82,873,048	243,438,134
2027	13,855	6,739	20,594	161,795,160	94,902,667	256,697,827
2028	13,339	7,428	20,767	162,558,840	107,981,163	270,540,003

* *Includes spouses of retirees.*

EXHIBIT E

Summary Statement of Income and Expenses on an Actuarial Value Basis for All Retirement and Health Subsidy Benefits Assets

	Year Ended June 30, 2018		Year Ended June 30, 2017	
Contribution income:				
Employer contributions	$639,945,905		$619,479,274	
Employee contributions	146,282,682		128,900,736	
Net contribution income		$786,228,587		$748,380,010
Investment income:				
Interest, dividends and other income	$1,743,935,819		$1,416,457,386	
Recognition of capital appreciation	54,591,188		187,435,433	
Less investment and administrative fees	(95,217,452)		(86,151,220)	
Net investment fees*		1,703,309,555		1,517,741,599
Total income available for benefits		$2,489,538,142		$2,266,121,609
Less benefit payments		$(1,125,521,496)		$(1,052,639,705)
Less administrative expenses		(21,654,037)		(22,563,327)
Change in reserve for future benefits		$1,342,362,609		$1,190,918,577

EXHIBIT F

Summary Statement of Assets for Retirement and Health Subsidy Benefits

	Year Ended June 30, 2018		Year Ended June 30, 2017	
Cash equivalents		$1,907,884		$1,595,842
Accounts receivable:				
Accrued interest and dividends	$74,516,264		$67,873,889	
Contributions	8,560,537		2,945,722	
Due from brokers	120,224,468		141,051,560	
Total accounts receivable		203,301,269		211,871,171
Investments:				
Equities	$14,486,973,615		$13,145,475,978	
Fixed income investments	6,704,268,155		6,250,264,420	
Real estate	1,417,018,290		1,533,900,296	
Total investments at market value		22,608,260,060		20,929,640,694
Total assets		$22,813,469,213		$21,143,107,707
Less accounts payable:				
Accounts payable and benefits in process	$(34,428,662)		$(23,153,856)	
Due to brokers	(244,400,114)		(252,664,835)	
Mortgage payable	(174,270,234)		(204,882,420)	
Total accounts payable		$(453,099,010)		$(480,701,111)
Net assets at market value		$22,360,370,203		$20,662,406,596
Net assets at actuarial value		$21,659,429,558		$20,317,066,949
Net assets at valuation value (health benefits)		$1,819,359,475		$1,637,845,956

EXHIBIT G

Development of the Fund Through June 30, 2018 for All Retirement and Health Subsidy Benefits Assets

Year Ended June 30	Employer Contributions	Employee Contributions	Net Investment Return[1]	Administrative Expenses	Benefit Payments	Actuarial Value of Assets at End of Year
2009	$326,876,839	$103,685,447	$557,346,783	-	$842,565,358	$15,066,287,394
2010	357,165,140	106,411,630	360,741,904	-	853,749,429	15,036,856,639
2011	388,773,459	105,471,264	568,411,044	-	878,952,809	15,220,559,597
2012	444,565,284	120,099,124	320,400,668	-	926,349,506	15,179,275,167
2013	508,387,283	121,777,655	827,790,619	-	966,118,502	15,671,112,222
2014	578,805,107	124,394,889	1,468,399,449	-	963,356,954	16,879,354,713
2015	628,808,763	126,770,882	1,527,957,644	$19,178,885	1,029,319,785	18,114,393,332
2016	628,700,812	129,733,559	1,381,259,601	20,897,310	1,107,041,622	19,126,148,372
2017	619,479,274	128,900,736	1,517,741,599	22,563,327	1,052,639,705	20,317,066,949
2018	639,945,905	146,282,682	1,703,309,555	21,654,037	1,125,521,496	21,659,429,558

[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 for All Retirement and Health Subsidy Benefits

	Original Amount	Portion Not Recognized	Amount Not Recognized	
1. Market value of assets (for Retirement and Health Subsidy Benefits)				$22,360,370,203
2. Calculation of unrecognized return[1]				
(a) Year ended June 30, 2018	$552,799,174	6/7	$473,827,863	
(b) Year ended June 30, 2017	1,050,034,903	5/7	750,024,931	
(c) Year ended June 30, 2016	(1,240,953,883)	4/7	(709,116,505)	
(d) Year ended June 30, 2015	(643,447,599)	3/7	(275,763,257)	
(e) Year ended June 30, 2014	1,571,818,656	2/7	449,091,045	
(f) Combined Net Deferred Gain as of June 30, 2013[2]	77,259,408	1/6	12,876,568	
(g) Total unrecognized return				700,940,645
3. Preliminary actuarial value: (1) - (2g)				$21,659,429,558
4. Adjustment to be within 40% corridor				0
5. Final actuarial value of assets: (3) + (4)				$21,659,429,558
6. Actuarial value as a percentage of market value: (5) ÷ (1)				96.9%
7. Market value of health assets				$1,878,237,434
8. Valuation value of health assets: (5) ÷ (1) x (7)				$1,819,359,475
9. Deferred return recognized in each of the next 6 years (for Retirement and Health Subsidy Benefits):				
(a) Amount recognized on June 30, 2019				$197,198,175
(b) Amount recognized on June 30, 2020				184,321,608
(c) Amount recognized on June 30, 2021				(40,223,914)
(d) Amount recognized on June 30, 2022				51,697,170
(e) Amount recognized on June 30, 2023				228,976,298
(f) Amount recognized on June 30, 2024				78,971,308
(g) Subtotal (may not total exactly due to rounding)				$700,940,645

(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 the six-year period effective July 1, 2013*

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, 2017 to June 30, 2018[1]

Recommended Contribution as of June 30, 2017	12.69%
Effect of amortizing prior year's UAAL over a larger than expected projected total payroll	-0.10%
Change due to investment gain	-0.04%
Change due to actual contributions less than expected	0.04%
Effect of updated 2018/2019 premiums and subsidy levels	-0.01%
Change due to new medical election assumption	-0.05%
Change due to adopted future medical trend rates and HIT after 2018/2019[2]	0.35%
Change due to miscellaneous factors including demographic experience	-0.10%
Recommended Contribution as of June 30, 2018	12.78%

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

[2] *The 2020-2021 premium increases include additional estimated increases of 2.00% (non-Medicare) and 1.75% (Medicare) from the impact of the Health Insurance Tax (HIT).*

EXHIBIT I

Summary of Supplementary Information

Valuation date	June 30, 2018
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 less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a seven-year period. 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:	
Investment rate of return	7.25%
Inflation rate	3.00%
Across-the-board pay increase	0.50%
Projected payroll increases	3.50%
Health care cost trend rate (to calculate following year's premium)	
• Medical Non-Medicare[3]	7.00% in 2018-2019[2], then decreasing by 0.25% for each year for ten years until it reaches an ultimate rate of 4.50%.
• Medical Medicare[3]	6.50% in 2018-2019, then decreasing by 0.25% for each year for eight years until it reaches an ultimate rate of 4.50%.
• Dental	4.00% for all years
• Medicare Part B Premium	4.00% for all years

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

(2) *For example, the 7.00% assumption, when applied to the 2018/2019 non-Medicare medical premiums, would provide the projected 2019/2020 non-Medicare medical premiums.*

(3) *The 2020-2021 premium increases include additional estimated increases of 2.00% (non-Medicare) and 1.75% (Medicare) from the impact of the Health Insurance Tax (HIT).*

Actuarial assumptions (continued):

• Medical Subsidy Trend	▪ For all non-Medicare retirees, increase at lesser of 7% or 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, 2018 (e.g. Fire Kaiser), increase with medical trend. ▪ For Medicare retirees with 2-party premium greater than the maximum subsidy as of July 1, 2018 (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, 2018	June 30, 2017
Current retirees and beneficiaries	10,913	10,832
Current active participants	13,442	13,327
Terminated participants entitled but not yet enrolled in health benefits		
Eligible for deferred pension and health benefits	105	73
Retirees and beneficiaries not in pay status but eligible for deferred health benefits	794	809
Subtotal	899	882
Total	25,254	25,041

EXHIBIT II

Actuarial Assumptions and Actuarial Cost Method

Rationale for Assumptions: The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the July 1, 2013 through June 30, 2016 Actuarial Experience Study dated May 23, 2017 and retiree health assumptions letter dated September 12, 2018. 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 Headcount-Weighted RP-2014 Employee Mortality Table times 90%, projected 20 years with two-dimensional Scale MP-2016.

Mortality Rates – Post-Retirement

Healthy Mortality Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table projected 20 years with two-dimensional Scale MP-2016, set back one year.

Disabled Mortality Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table projected 20 years with two-dimensional Scale MP-2016, set forward one year.

Beneficiary Mortality 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 for Disabled and Beneficiary Mortality.

The RP-2014 mortality tables and adjustments as shown above reflect the mortality experience as of the measurement date. The 20-year projection is a provision for future mortality improvement.

[1] *The Headcount-Weighted RP-2014 Healthy Annuitant Mortality tables have rates only for ages 50 and later.*

Mortality Rates Before Retirement:

	Rate (%)	
	Mortality	
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.

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. 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**
0 – 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	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. Of all members expected to retire with a service retirement benefit, we project a 95% probability that members have elected DROP before retirement if they will have also satisfied the requirements for participating 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.

Years of Service	Additional Salary Increase
0	8.50%
1	7.50
2	6.00
3	5.50
4	4.00
5	2.75
6	2.50
7	2.00
8	1.75
9	1.75
10	1.25
11	1.00
12	1.00
13	1.00
14	1.00
15 & Over	0.80

Measurement Date: June 30, 2018

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 less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a seven-year period. 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 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 Fire & Police Pension Plan 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	60	85	62.50
20-24	75	90	60.00
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.

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

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 and 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) – but all children are assumed to age out at the valuation date.

2018 – 2019 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	80	$958.12	$1,725.39	**$958.12**	$1,551.22	$1,725.39	**$1,551.22**	$958.12	$853.39	**$853.39**
Fire Kaiser	10	$677.00	$1,725.39	**$677.00**	$1,344.00	$1,725.39	**$1,344.00**	$677.00	$853.39	**$677.00**
Fire Blue Cross	5	$1,706.66	$1,725.39	**$1,706.66**	$2,082.16	$1,725.39	**$1,725.39**	$1,409.73	$853.39	**$853.39**
Fire California Care	5	$1,610.22	$1,725.39	**$1,610.22**	$1,632.55	$1,725.39	**$1,632.55**	$994.32	$853.39	**$853.39**
Fire Vivity Value	0	$1,667.73	$1,725.39	**$1,667.73**	$1,671.74	$1,725.39	**$1,671.74**	$1,017.99	$853.39	**$853.39**
Fire HDHP PPO	0	$1,061.23	$1,725.39	**$1,061.23**	$1,653.20	$1,725.39	**$1,653.20**	$935.11	$853.39	**$853.39**
Police										
Blue Cross PPO	60	$970.75	$1,725.39	**$970.75**	$2,164.21	$1,725.39	**$1,725.39**	$970.75	$853.39	**$853.39**
Blue Cross HMO	15	$949.89	$1,725.39	**$949.89**	$1,844.61	$1,725.39	**$1,725.39**	$949.89	$853.39	**$853.39**
Police Kaiser	25	$630.19	$1,725.39	**$630.19**	$1,231.45	$1,725.39	**$1,231.45**	$630.19	$853.39	**$630.19**

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 44.

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 and 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) – but all children are assumed to age out at the valuation date.

2018 – 2019 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	$626.12	$542.51	**$542.51**	$887.22	$803.61	**$803.61**	$626.12	$542.51	**$542.51**
Fire Kaiser	15	$267.46	$542.51	**$267.46**	$524.92	$524.92	**$524.92**	$267.46	$542.51	**$267.46**
Fire Blue Cross	0	$983.60	$542.51	**$542.51**	$2,007.43	$1,566.34	**$1,566.34**	$983.60	$542.51	**$542.51**
Fire California Care	0	$622.43	$542.51	**$542.51**	$1,637.72	$1,557.80	**$1,557.80**	$622.43	$542.51	**$542.51**
Fire Vivity Value	0	$636.39	$542.51	**$542.51**	$1,677.35	$1,583.47	**$1,583.47**	$636.39	$542.51	**$542.51**
Fire HDHP PPO	0	$412.73	$542.51	**$412.73**	$633.89	$633.89	**$633.89**	$650.21	$542.51	**$542.51**
Police										
Blue Cross PPO	75	$597.75	$542.51	**$542.51**	$1,418.21	$1,362.97	**$1,362.97**	$597.75	$542.51	**$542.51**
Blue Cross HMO	10	$712.89	$542.51	**$542.51**	$1,370.61	$1,200.23	**$1,200.23**	$712.89	$542.51	**$542.51**
Police Kaiser	15	$237.57	$542.51	**$237.57**	$452.25	$452.25	**$452.25**	$237.57	$542.51	**$237.57**

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 44.

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	$741.51	$480.41
Fire Kaiser	267.46[1]	524.92	267.46[1]
Fire Blue Cross	480.41	917.68	480.41
Fire California Care	480.41	952.83	480.41
Fire Vivity Value	480.41	932.46	480.41
Fire HDHP PPO	412.73[1]	633.89	412.73[1]
Police Blue Cross PPO	480.41	795.07	480.41
Police Blue Cross HMO	480.41	734.93	480.41
Police Kaiser	237.57[1]	452.25	237.57[1]

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

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

Applied to Per Capita Costs in Table 2(a) for 2018-2019

	Retiree		Spouse	
Age	**Male**	**Female**	**Male**	**Female**
55	0.9255	0.9555	0.7284	0.8249
60	1.0991	1.0299	0.9751	0.9568
64	1.2609	1.0925	1.2309	1.0769

Applied to Per Capita Costs in Table 2(b) for 2018-2019

	Retiree		Spouse	
Age	**Male**	**Female**	**Male**	**Female**
65	0.9083	0.7721	0.9083	0.7721
70	1.0527	0.8320	1.0527	0.8320
75	1.1345	0.8956	1.1345	0.8956
80+	1.2217	0.9655	1.2217	0.9655

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, 2018 through June 30, 2019)

The fiscal year trend rates are the following:

	Trend (applied to calculate following year premium)	
Fiscal Year	**Non-Medicare**	**Medicare**
2018-2019	7.00%[2]	6.50%
2019-2020[3]	6.75%	6.25%
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	4.00% for all years

1 For example, the 7.00% assumption for fiscal year 2018-2019, when applied to the 2018-2019 non-Medicare medical premiums, would provide the projected 2019-2020 non-Medicare medical premiums.

2 The maximum non-Medicare health subsidy for 2019-2020 would be calculated by multiplying the maximum non-Medicare health subsidy for 2018-2019 by the 2018-2019 fiscal year trend assumption of 7.00%.

3 The trends for fiscal year 2019-2020 include additional estimated increases of 2.00% (non-Medicare) and 1.75% (Medicare) from the impact of the Health Insurance Tax (HIT).

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 (delayed from 2020) 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, 2018 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).

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 at the same rate as 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.

Medical election assumption was updated.

Future trend rate assumptions were updated. Different trends applied for Medicare and non-Medicare retirees.

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, 2018, maximum is $1,725.39 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, 2018, the single coverage maximum subsidy for retirees and surviving spouse or domestic partner is $542.51. The multi-person coverage maximum subsidy is $1,583.47 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, 2018 (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, 2018 (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 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.

EXHIBIT III

Summary of Plan (continued)

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 ($134.00 for calendar year 2018, 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, 2018, 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. However, effective January 7, 2018, eligible Airport Police Officers are enrolled in Tier 6.

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, 2018

This report has been prepared at the request of the Board of Commissioners to assist LAFPP 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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November 9, 2018

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, 2018. It contains various information that will need to be disclosed in order to comply with GAS 67.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the 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
Senior Vice President and Actuary

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

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SECTION 1

VALUATION SUMMARY

SECTION 2

GAS 67 INFORMATION

SECTION 3

APPENDIX A

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, 2018. This valuation is based on:

- The benefit provisions of LAFPP, as administered by the Board of Commissioners;
- The characteristics of covered active members, terminated vested members, and retired members and beneficiaries as of June 30, 2017, provided by LAFPP. For Airport Police members who transferred from Los Angeles City Employees' Retirement System (LACERS), the data as of their transfer date of January 7, 2018 was used;
- The assets of the Plan as of June 30, 2018, provided by LAFPP;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

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, 2018 and 2017 have been determined by rolling forward the results of the actuarial valuations as of June 30, 2017 and June 30, 2016, respectively.

Significant Issues in Valuation Year

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

- The NPL decreased from $1.817 billion as of June 30, 2017 to $1.255 billion as of June 30, 2018 mainly due to the gain from a return on the market value of assets of 9.96% during 2017/2018 that was more than the assumption of 7.25% used in the June 30, 2017 valuation (that gain was about $0.5 billion). Changes in these values during the last two fiscal years ending June 30, 2017 and June 30, 2018 can be found in Exhibit 3.

- Pursuant to Ordinance No. 184853 ("the Ordinance"), which was adopted by the City Council on March 28, 2017, Airport Peace Officers (APO) at Los Angeles City Employees' Retirement System (LACERS) can elect to remain in LACERS or transfer to LAFPP Tier 6 prior to January 7, 2018. All new APO hired after that date would be enrolled in LAFPP Tier 6, rather than in LACERS. Under the Ordinance, APO members who elect to transfer to LAFPP are required to convert all of their prior LACERS service to LAFPP service at their own cost. Since the effective date of this amendment is January 2018, the TPL as of June 30, 2018 includes a liability for the members who transferred into LAFPP Tier 6 from LACERS using the data as of January 7, 2018.

- The discount rate used to determine the TPL and NPL as of June 30, 2018 and 2017 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.

Summary of Key Valuation Results

	2018	2017
Disclosure elements for fiscal year ending June 30:		
Service Cost[1]	$390,743,068	$367,600,389
Total Pension Liability	21,736,849,050	20,814,044,544
Plan's Fiduciary Net Position	20,482,132,769	18,996,721,329
Net Pension Liability	1,254,716,281	1,817,323,215
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	94.23%	91.27%
Schedule of contributions for fiscal year ending June 30:		
Actuarially determined contributions	$459,631,946[2]	$454,308,852
Actual contributions	459,631,946[2]	454,308,852
Contribution deficiency (excess)	0	0
Demographic data for plan year ending June 30:[3]		
Number of retired members and beneficiaries	12,890	12,836
Number of vested terminated members[4]	534	374
Number of DROP members	1,442	1,303
Number of active members	12,000	12,024
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, 2018 and June 30, 2017 values are based on the assumptions as of June 30, 2017 and June 30, 2016, respectively. The actuarial assumptions used to determine the service cost in the June 30, 2016 valuation were as follows:*

Investment rate of return: 7.50%
Inflation rate: 3.25%
Projected salary increases: Ranges from 4.75% to 11.50% based on years of service

(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, 2017 is used in the measurement of the TPL as of June 30, 2018.*

(4) *Includes terminated 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 2018 and 2017.*

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 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 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, 2018, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	12,890
Vested terminated members entitled to, but not yet receiving benefits(1)	534
DROP members	1,442
Active members	12,000
Total	26,866

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

Note: Data as of June 30, 2018 is not used in the measurement of the TPL as of June 30, 2018.

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 2017 – 2018 (based on the June 30, 2016 valuation) was 31.66% of compensation if paid on July 15, 2017.

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 2017 – 2018 (based on the June 30, 2016 valuation) was 9.99% of compensation paid biweekly.

EXHIBIT 2

Net Pension Liability

	June 30, 2018	June 30, 2017
The components of the Net Pension Liability are as follows:		
Total Pension Liability	$21,736,849,050	$20,814,044,544
Plan's Fiduciary Net Position	20,482,132,769	18,996,721,329
Net Pension Liability	$1,254,716,281	$1,817,323,215
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	94.23%	91.27%

The Net Pension Liability (NPL) was measured as of June 30, 2018 and 2017. The Plan's Fiduciary Net Position (plan assets) was valued as of the measurement date while the Total Pension Liability (TPL) was determined based upon rolling forward the TPL from actuarial valuations as of June 30, 2017 and 2016, respectively.

Plan Provisions. The plan provisions used in the measurement of the NPL as of June 30, 2018 and 2017 are the same as those used in the LAFPP actuarial valuation as of June 30, 2018 and 2017, respectively.

Actuarial assumptions. The TPL as of June 30, 2018 was determined by an actuarial valuation as of June 30, 2017. The TPL as of June 30, 2017 that was determined by an actuarial valuation as of June 30, 2016, was re-measured as of June 30, 2017 to reflect the actuarial assumptions that the Board of Commissioners approved for use in the pension funding valuation as of June 30, 2017. Those 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 base mortality table recommended but with a static projection with increased margin. They are the same as the assumptions used in the June 30, 2018 funding actuarial valuations 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
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 for the actuarial valuations as of June 30, 2018 and June 30, 2017. 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, 2018 and June 30, 2017. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution 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, 2018 and June 30, 2017.

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the NPL of LAFPP as of June 30, 2018, 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, 2018	$4,210,904,095	$1,254,716,281	$(1,162,756,008)

EXHIBIT 3

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

	2018	2017
Total Pension Liability		
1. Service Cost	$390,743,068	$367,600,389
2. Interest	1,502,656,339	1,436,067,479
3. Change of benefit terms	0	0
4. Differences between expected and actual experience	21,699,834	(320,403,684)
5. Changes of assumptions	0	695,449,707
6. Benefit payments, including refunds of employee contributions	(994,799,584)	(930,078,065)
7. Other(1)	2,504,849	0
8. **Net change in Total Pension Liability**	$922,804,506	$1,248,635,826
9. **Total Pension Liability – beginning**	20,814,044,544	19,565,408,718
10. **Total Pension Liability – ending**	$21,736,849,050	$20,814,044,544
Plan's Fiduciary Net Position		
11. Contributions – employer(2)	$459,631,946	$454,308,852
12. Contributions – employee(2)	145,112,480	128,900,736
13. Net investment income	1,892,870,167	2,260,129,893
14. Benefit payments, including refunds of employee contributions	(994,799,584)	(930,078,065)
15. Administrative expense	(19,908,418)	(20,816,422)
16. Other(1)	2,504,849	0
17. **Net change in Plan's Fiduciary Net Position**	$1,485,411,440	$1,892,444,994
18. **Plan's Fiduciary Net Position – beginning**	18,996,721,329	17,104,276,335
19. **Plan's Fiduciary Net Position – ending**	$20,482,132,769	$18,996,721,329
20. **Net Pension Liability – ending (10) – (19)**	$1,254,716,281	$1,817,323,215
21. **Plan's Fiduciary Net Position as a percentage of the Total Pension Liability**	94.23%	91.27%
22. **Covered payroll(3)**	$1,451,995,822	$1,397,244,974
23. **Net Pension Liability as percentage of covered payroll**	86.41%	130.06%

(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]
2009	$238,697,929	$238,697,929	$0	$1,253,658,885	19.04%
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%

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, 2018 were based on the June 30, 2016 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 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, 2016 valuation	
Investment rate of return	7.50%, net of investment expenses
Inflation rate	3.25%
Administrative Expenses:	Out of the total 1.00% of paroll in administrative expense, 0.94% of payroll payable biweekly is allocated to the Retirement Plan. This is equal to 0.91% of payroll payable at beginning of the year.
Real across-the-board salary increase	0.75%
Projected salary increases[1]	Ranges from 4.75% to 11.50% based on years of service
Cost of living adjustments	3.25% of Tiers 1 and 2 retirement income and 3.00% of Tiers 3, 4, 5, and 6 retirement income.
Other assumptions	Same as those used in the June 30, 2016 funding actuarial valuation.

(1) *Includes inflation at 3.25% plus across-the-board salary increases of 0.75% 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, 2018 ($ 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)
2017	$18,997	$607	$995	$20	$1,893	$20,482
2018	20,482	650	1,031	17	1,488	21,573
2019	21,573	623	1,161	16	1,560	22,577
2020	22,577	565	1,257	16	1,624	23,493
2021	23,493	551	1,305	16	1,688	24,410
2022	24,410	543	1,379	15	1,751	25,309
2023	25,309	524	1,339	15	1,816	26,296
2024	26,296	452	1,403	15	1,880	27,209
2025	27,209	382	1,478	15	1,938	28,036
2026	28,036	376	1,557	15	1,994	28,834
2041	35,032	152	2,681	6	2,438	34,935
2042	34,935	133	2,730	6	2,428	34,760
2043	34,760	115	2,768	5	2,412	34,514
2044	34,514	98	2,803	4	2,392	34,197
2045	34,197	83	2,834	4	2,366	33,809
2085	2,218	0	444	0	142	1,916
2086	1,916	0	380	0	123	1,659
2087	1,659	0	321	0	107	1,446
2088	1,446	0	267	0	94	1,272
2089	1,272	0	220	0	83	1,135
2104	1,409	0	1	0	102	1,510
2105	1,510	0	1	0	109	1,619
2106	1,619	0	0 *	0	117	1,736
2107	1,736	0	0 *	0	126	1,861
2108	1,861	0	0 *	0	135	1,996
2128	7,546	0	0	0	547	8,093
2129	8,093					
2129	Discounted Value: 3 **					

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

** *$8,093 million when discounted with interest at the rate of 7.25% per annum has a value of $3 million as of June 30, 2018.*

EXHIBIT 5 (continued)

Projection of Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2018 ($ in millions)

Notes:

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

(2) Amounts shown in the year beginning July 1, 2017 row are actual amounts, based on the information provided by LAFPP.

(3) Years 2027-2040, 2046-2084, 2090-2103, and 2109-2127 have been omitted from this table.

(4) Column (a): Except for the "discounted value" shown for 2129, 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, 2017); 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, 2017. The projected benefit payments reflect the cost of living increase assumptions used in the June 30, 2018 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, 2017. 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 2017/2018.

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

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, 2018 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

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, 2018

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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November 9, 2018

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, 2018. It contains various information that will need to be disclosed in order to comply with GAS 74.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the 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 Bissett, FSA, MAAA. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and expectations for the 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/bqb

SECTION 1

VALUATION SUMMARY

SECTION 2

GAS 74 INFORMATION

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Segal Consulting

Purpose

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

- The benefit provisions of the OPEB plan, as administered by the Board of 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, 2018, 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, 2018.

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.

- The NOL has increased from $1,692 million as of June 30, 2017 to $1,710 million as of June 30, 2018. The June 30, 2018 and June 30, 2017 liabilities under GAS 74 reflect the excise tax from the Affordable Care Act (ACA) and related statutes which were excluded from the funding valuations as of June 30, 2018 and June 30, 2017.
- The NOLs measured as of June 30, 2018 and 2017 have been determined from the valuations as of June 30, 2018 and 2017, respectively.
- Pursuant to Ordinance No. 184853 ("the Ordinance"), which was adopted by the City Council on March 28, 2017, Airport Peace Officers (APO) at Los Angeles City Employees' Retirement System (LACERS) can elect to remain in LACERS or transfer to LAFPP Tier 6 prior to January 7, 2018. All new APO hired after that date would be enrolled in LAFPP Tier 6, rather than in LACERS. Under the Ordinance, APO members who elect to transfer to LAFPP are required to convert all of their prior LACERS service to LAFPP service at their own cost. Since the effective date of this amendment is January 2018, the TOL as of June 30, 2018 includes a liability for the members who transferred into LAFPP Tier 6 from LACERS using the data as of June 30, 2018.
- The discount rate used in the valuation for financial disclosure purposes as of June 30, 2018 is the assumed investment return on Plan assets (e.g. 7.25% for the June 30, 2018 funding valuation). As contributions that are required to be made by the City to amortize the Unfunded Actuarial Accrued Liability in the funding valuation are determined on an actuarial basis, the future Actuarially Determined Contributions and current Plan assets, when projected in accordance with the method prescribed by GAS 74, are expected to be sufficient to make all benefit payments to current members.

Summary of Key Valuation Results

	2018	2017
Disclosure elements for fiscal year ending June 30:		
Service cost[1]	$69,939,886	$65,407,443
Total OPEB Liability	3,588,131,652	3,357,827,513
Plan Fiduciary Net Position	1,878,237,434	1,665,685,267
Net OPEB Liability	1,709,894,218	1,692,142,246
Schedule of contributions for fiscal year ending June 30:		
Actuarially determined contributions	$178,462,244[2]	$165,170,422
Actual contributions	178,462,244[2]	165,170,422
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	17,160	17,034
Number of vested terminated members, retirees, and beneficiaries entitled to, but not yet receiving benefits	899	882
Number of active members	13,442	13,327
Key assumptions as of June 30:		
Discount rate	7.25%	7.25%
Health care premium trend rates		
Non-Medicare medical plan	Graded from 7.00% to ultimate 4.50% over 10 years[3]	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[3]	Graded from 6.50% to ultimate 4.50% over 8 years
Dental and Medicare Part B	4.00%	4.50%

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

Discount rate	*7.50%*
Health care premium trend rates	
Non-Medicare medical plan	*Graded from 7.00% to ultimate 5.00% over 9 years*
Medicare medical plan	*Graded from 7.00% to ultimate 5.00% over 9 years*
Dental and Medicare Part B	*5.00%*

[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 2020-2021 premium increases include additional estimated increases of 2.00% (non-Medicare) and 1.75% (Medicare) from the impact of the Health Insurance Tax (HIT).*

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the defining future uncertain obligations of a postretirement health plan. As such, it will never forecast the precise future stream of benefit payments. 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, 2018, OPEB plan membership consisted of the following:

Retired members, married dependents and beneficiaries currently receiving benefits	17,160
Vested terminated members, retirees and beneficiaries entitled to, but not yet receiving benefits	899
Active members	13,442
Total	31,501

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, 2018, maximum is $1,725.39 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.

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, 2018, the single coverage maximum subsidy for retirees and surviving spouse or domestic partner is $542.51. The multi-person coverage maximum subsidy is $1,583.47 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 item 12 of Summary of Key Valuation Results.
- For Medicare retirees with 2-party premium less than or equal to the maximum subsidy as of July 1, 2018 (e.g., Fire Kaiser), increase with medical trend as shown in item 12 of Summary of Key Valuation Results, and
- For Medicare retirees with 2-party premium greater than the maximum subsidy as of July 1, 2018 (e.g., Police Blue Cross), increase with lesser of 7% or medical trend as shown in item 12 of Summary of Key Valuation Results.

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.

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 ($134.00 for calendar year 2018, 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, 2018, 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, 2018	**June 30, 2017**
Total OPEB Liability	$3,588,131,652	$3,357,827,513
Plan Fiduciary Net Position	1,878,237,434	1,665,685,267
System's Net OPEB Liability	$1,709,894,218	$1,692,142,246
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	52.35%	49.61%

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

- The NOLs as of June 30, 2018 and 2017 reflect the impact of the excise tax on high-cost health plans imposed in 2022 (deferred from 2020) by ACA.

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

Actuarial assumptions. The TOL as of June 30, 2018 and 2017 were determined by actuarial valuations as of June 30, 2018 and 2017, 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 base mortality table recommended but with a static projection with increased margin. They are the same as the assumptions used in the June 30, 2018 and 2017 funding actuarial valuations 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, 2018 funding actuarial valuation

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, 2018 and June 30, 2017 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, 2018 and 2017. As contributions that are required to be made by the City to amortize the Unfunded Actuarial Accrued Liability in the funding valuation are determined on an actuarial basis, the future Actuarially Determined Contributions and current Plan assets, when projected in accordance with the method prescribed by GAS 74, are expected to be sufficient to make all benefit payments to current members.

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

	1% Decrease (6.25%)	Current Discount (7.25%)	1% Increase (8.25%)
Net OPEB Liability as of June 30, 2018	$2,236,260,291	$1,709,894,218	$1,280,840,622

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

	1% Decrease*	Current Trend Rates*	1% Increase*
Net OPEB Liability as of June 30, 2018	$1,242,017,521	$1,709,894,218	$2,349,669,196

** Current trend rates: 7.00% graded down to 4.50% over 10 years for Non-Medicare medical plan costs and 6.50% graded down to 4.50% over 8 years for Medicare medical plan costs. The 2020-2021 premium increases include additional estimated increases of 2.00% (non-Medicare) and 1.75% (Medicare) from the impact of the Health Insurance Tax (HIT). 4.00% for all years for Dental and Medicare Part B subsidy cost.*

EXHIBIT 3

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

	2018	2017
Total OPEB Liability		
Service cost[1]	$69,939,886	$65,407,443
Interest	243,768,983	231,284,711
Change of benefit terms	0	0
Difference between expected and actual experience	-16,531,756	-144,021,528
Changes of assumptions	63,331,870	248,049,010
Benefit payments	-130,721,912	-122,561,640
Other[2]	517,068	0
Net change in Total OPEB Liability	$230,304,139	$278,157,996
Total OPEB Liability – beginning	3,357,827,513	3,079,669,517
Total OPEB Liability – ending (a)	$3,588,131,652	$3,357,827,513
Plan Fiduciary Net Position		
Employer contributions[3]	$178,462,244	$165,170,422
Employee contributions	0	0
Net investment income	166,040,386	189,419,745
Benefit payments	-130,721,912	-122,561,640
Administrative expense	-1,745,619	-1,746,905
Other[2]	517,068	0
Net change in Plan Fiduciary Net Position	$212,552,167	$230,281,622
Plan Fiduciary Net Position – beginning	1,665,685,267	1,435,403,645
Plan Fiduciary Net Position – ending (b)	$1,878,237,434	$1,665,685,267
Plan's Net OPEB Liability – ending (a) – (b)	$1,709,894,218	$1,692,142,246
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	52.35%	49.61%
Covered payroll[3]	$1,451,995,822	$1,397,244,974
Plan Net OPEB Liability as percentage of covered payroll	117.76%	121.11%

(1) *The service cost is always based on the previous year's valuation, meaning the 2018 and 2017 values are based on the valuations as of June 30, 2017 (with an adjustment for service cost of APO members transferred from LACERS) and June 30, 2016, 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]
2009	$98,444,833	$88,178,910	$10,265,923	$1,253,658,885	7.03%
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%

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, 2018 were based on the June 30, 2016 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, 2016 valuation	
Investment rate of return	7.50%, net of investment expenses
Inflation rate	3.25%
Administrative Expenses:	Out of the total 1.00% of paroll in administrative expense, 0.94% of payroll payable biweekly is allocated to the Retirement Plan. This is equal to 0.91% of payroll payable at beginning of the year.
Real across-the-board salary increase	0.75%
Projected salary increases[1]	Ranges from 4.75% to 11.50% based on years of service
Other assumptions	Same as those used in the June 30, 2016 funding actuarial valuation.

(1) *Includes inflation at 3.25% plus across-the-board salary increases of 0.75% plus merit and promotional increases.*