City of Los Angeles Fire and Police Pension Plan

Actuarial Valuation and Review Of Retirement and Other Postemployment Benefits (OPEB) as of June 30, 2017

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. 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, 2017

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, 2017 Actuarial Valuations

Dear Board Members:

Enclosed please find the June 30, 2017 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/hy
Enclosures

5514517v1/07916.002

Exhibit A

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

		June 30, 2017	June 30, 2016	Percent Change
I.	**Total Membership**			
	A. Current Active Members (includes DROP members)	13,327	13,050	2.12%
	B. Current Vested Former Members[1]	374	128	192.19%
	C. Current Retirees, Beneficiaries, and Dependents	12,836	12,819	0.13%
II.	**Valuation Salary**			
	A. Total Projected Annual Payroll	$1,475,539,138	$1,400,808,351	5.33%
	B. Average Projected Monthly Salary	9,227	8,945	3.15%
III.	**Benefits to Current Retirees and Beneficiaries[2]**			
	A. Total Annual Benefits	$875,832,384	$846,011,184	3.52%
	B. Average Monthly Benefit Amount	5,686	5,500	3.38%
IV.	**Total System Assets[3]**			
	A. Actuarial Value	$20,317,066,949	$19,126,148,372	6.23%
	B. Market Value	20,662,406,596	18,539,679,980	11.45%
V.	**Unfunded Actuarial Accrued Liability (UAAL)**			
	A. Retirement Benefits	$1,731,803,309	$1,153,172,139	50.18%
	B. Health Subsidy Benefits	1,684,899,981	1,598,859,540	5.38%

(1) *The June 30, 2017 valuation includes 322 terminated members due only a refund of member contributions. The June 30, 2016 valuation included 77 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 2018-2019		FY 2017-2018		Change	
	Beginning of Year[1]	July 15	Beginning of Year	July 15	Beginning of Year	July 15
A. Retirement Benefits						
1. Normal Cost as a Percent of Pay	18.85%	18.91%	18.33%	18.38%	0.52%	0.53%
2. Amortization of UAAL	14.00%	14.04%	12.40%	12.44%	1.60%	1.60%
3. Allocated amount for administrative expenses	1.12%	1.12%	0.91%	0.91%	0.21%	0.21%
4. Total Retirement Contribution	33.97%	34.07%	31.64%	31.73%	2.33%	2.34%
B. Health Subsidy Contribution						
1. Normal Cost as a Percent of Pay	4.57%	4.58%	4.76%	4.77%	-0.19%	-0.19%
2. Amortization of UAAL	7.97%	7.99%	7.55%	7.58%	0.42%	0.41%
3. Allocated amount for administrative expenses	0.09%	0.09%	0.06%	0.06%	0.03%	0.03%
4. Total Health Contribution	12.63%	12.66%	12.37%	12.41%	0.26%	0.25%
C. Total Contribution (A+B)	46.60%	46.73%	44.01%	44.14%	2.59%	2.59%

[1] *Alternative contribution payment date for FY 2018-2019:*	*Retirement*	*Health*	*Total*
End of Pay Period	*35.18%*	*13.08%*	*48.26%*

Exhibit A (continued)

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

		June 30, 2017	June 30, 2016	Change
VII	**Funded Ratio**			
	(Based on Valuation Value of Assets)			
	A. Retirement Benefits	91.5%	93.9%	-2.4%
	B. Health Subsidy Benefits	49.3%	48.1%	1.2%
	C. Total	85.6%	87.4%	-1.8%

		June 30, 2017	June 30, 2016	Change
VIII	**Funded Ratio**			
	(Based on Market Value of Assets)			
	A. Retirement Benefits	93.1%	91.0%	2.1%
	B. Health Subsidy Benefits	50.1%	46.6%	3.5%
	C. Total	87.1%	84.7%	2.4%

Exhibit B

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

Valuation Date	Retirement	Health	Total	Valuation Payroll (In Thousands)
06/30/2008	20.58%	8.76%	29.34%	$1,206,589
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

(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.*

Segal Consulting

City of Los Angeles Fire and Police Pension Plan

Actuarial Valuation and Review as of June 30, 2017

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. 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, 2017

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, 2017. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal year 2018-2019 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 actuarial calculations were completed under the supervision of Andy Yeung, ASA, MAAA, FCA, Enrolled Actuary.

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.

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

EK/bbf

SECTION 1

VALUATION SUMMARY

SECTION 2

VALUATION RESULTS

SECTION 3

SUPPLEMENTAL INFORMATION

SECTION 4

REPORTING INFORMATION

Purpose

This report has been prepared by Segal Consulting ("Segal") to present a valuation of the City of Los Angeles Fire and Police Pension Plan as of June 30, 2017. 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, 2017, provided by LAFPP;
- The assets of the Plan as of June 30, 2017, provided by LAFPP;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Significant Issues in Valuation Year

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

Reference: Pg. 63

- The results of the valuation reflect changes in the economic and non-economic actuarial assumptions as recommended by Segal and adopted by the Board for the June 30, 2017 valuation. These changes were documented in our Actuarial Experience Study for both economic and non-economic assumptions (except for the mortality assumption where the Board adopted the base mortality table recommended but with a static projection with increased margin) and are also outlined in Section 4, Exhibit III of this report. In addition to these assumption changes, the Board also adopted a reduction in the amortization period for assumption changes from twenty-five years to twenty years, as outlined in Section 4, Exhibit IV of this report. These assumption changes resulted in an increase in the employer contribution rate of 4.35% of payroll (payable at the beginning of the year).

Reference: Pg. 22 and Pg. 46

- The ratio of the valuation value of assets to actuarial accrued liabilities decreased from 93.9% to 91.5%. On a market value of assets basis, the funded ratio increased from 91.0% to 93.1%. The Unfunded Actuarial Accrued Liability (UAAL) has increased from $1.153 billion to $1.732 billion. The decrease in funded ratio (on a valuation value basis) and the increase in the UAAL are primarily the results of (i) changes in actuarial assumptions and (ii) higher than expected salary increases for continuing active members, partially offset by (iii) higher than expected return on the valuation value of assets (after smoothing) and (iv) lower than expected COLAs granted to retirees, beneficiaries and DROP members. 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 31.64% of payroll to 33.97% of payroll. Using a projected annual payroll of $1.476 billion as of June 30, 2017, there would be an increase in contributions from $467 million to $501 million. The increase was due to: (i) changes in actuarial assumptions and (ii) higher than expected salary increases for continuing active members, partially offset by (iii) loss layers from the June 30, 2002 valuation being fully amortized, (iv) higher than expected return on the valuation value of assets (after smoothing), (v) lower than expected COLAs granted to retirees, beneficiaries and DROP members, 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. 47 – 55 and Pg. 56

- 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.

- 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).

Reference: Pg. 5

- As indicated in Section 2, Subsection B of this report, the total net unrecognized investment <u>gain</u> as of June 30, 2017 is $345.3 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 <u>loss</u> as of June 30, 2016 was $586.5 million.

- The net unrecognized investment gains represent about 1.7% of the market value of assets. Unless offset by future investment losses or other unfavorable experience, the recognition of the $345.3 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 91.5% to 93.1%.

    For comparison purposes, if all the net deferred losses for the Retirement Plan in the June 30, 2016 valuation had been recognized immediately in the June 30, 2016 valuation, the funded percentage would have decreased from 93.9% to 91.0%.

  - If the net deferred gains for the Retirement Plan were recognized immediately in the valuation value of assets, the aggregate beginning-of-year employer contribution rate would decrease from 33.97% of payroll to 32.49% of payroll.

    For comparison purposes, if all the net deferred losses for the Retirement Plan in the June 30, 2016 valuation had been recognized immediately in the June 30, 2016 valuation, the aggregate beginning-of-year employer contribution rate would have increased from 31.76% of payroll to 34.58% of payroll.

- The actuarial valuation report as of June 30, 2017 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 LAFPP's request, this valuation includes a liability of $3.6 million for 179 terminated members who were not included in the membership data provided for the June 30, 2016 valuation and are due only a refund of their member contributions. This liability represents only those former members who terminated in the most recent 10-year period and are entitled to a refund of their contributions and accrued interest. The member contributions for any other former members who terminated more than 10 years ago have already reverted back to the fund in accordance with Charter Section 1246 and are therefore not included in the amount above.
- 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.

  As noted in our July 7, 2016 and June 13, 2016 letters (which can be found in Appendix A of this report) Segal previously estimated the Normal Cost rates required to enroll the APO members in a stand-alone Tier 6 Plan by using the demographics and assumptions in effect for the June 30, 2015 LACERS and LAFPP valuations. Since the transfer date is January 2018, we do not yet have data on the actual members who would elect to transfer. Therefore, we have not recalculated the stand-alone normal cost rates at this time. Once actual data is available, we will coordinate with LAFPP in updating our prior study to reflect the actual demographic data as well as the new assumptions that were adopted for the June 30, 2017 valuation.

Summary of Key Valuation Results

	2017	2016
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	33.97%	31.64%[1]
On July 15	34.07%	31.73%[1]
At the end of each biweekly pay period	35.18%	32.80%[1]
Funding elements for plan year beginning July 1:		
Normal cost	$422,315,504	$414,919,226 [1]
Valuation value of retirement assets (VVA)	18,679,220,993	17,645,338,395
Market value of retirement assets	18,996,721,329	17,104,276,335
Actuarial accrued liability	20,411,024,302	18,798,510,534
Unfunded actuarial accrued liability on valuation value of retirement assets basis	1,731,803,309	1,153,172,139
Unfunded actuarial accrued liability on market value of retirement assets basis	1,414,302,973	1,694,234,199
Funded ratio on valuation value of retirement assets basis[2]	91.5%	93.9%
Funded ratio on market value of retirement assets basis	93.1%	91.0%
Demographic data for plan year beginning July 1:		
Number of retired members and beneficiaries	12,836	12,819
Number of vested former members[3]	374	128
Number of active members (includes DROP members)	13,327	13,050
Projected total payroll	$1,475,539,138	$1,400,808,351
Projected average payroll	110,718	107,342

(1) *Revised to reflect payroll as of June 30, 2017. The change in the total aggregate rate determined in the June 30, 2016 valuation using the 2016 projected payroll by tier compared to that provided above using the 2017 projected payroll by tier results from new members enrolling in Tier 6 and active members leaving the other Tiers.*

(2) *The funded ratios on VVA basis excluding Harbor Port Police are 91.5% and 93.9% for 2017 and 2016, respectively.*

(3) *The June 30, 2017 valuation includes 322 terminated members due only a refund of member contributions. The June 30, 2016 valuation included 77 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, 2017

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, 2017, 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, 2016. Other than a change to reflect the new 20-year amortization period approved by the Board for assumption changes starting with this valuation, 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: 2008 – 2017

Year Ended June 30	Active Members(1)	DROP Members	Vested Terminated Members(2)	Retired Members and Beneficiaries	Ratio of Non-Actives to Actives
2008	13,495	1,144	81	12,182	0.91
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

(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.*

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 13,327 active members with an average age of 42.3, average years of service of 15.3 years and average salary of $110,718. The 13,050 active members in the prior valuation had an average age of 42.3, average service of 15.3 years and average salary of $107,342.

Inactive Members
In this year's valuation, there were 374 members with a vested right to a deferred or immediate vested benefit or a return of member contributions versus 128 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, 2017

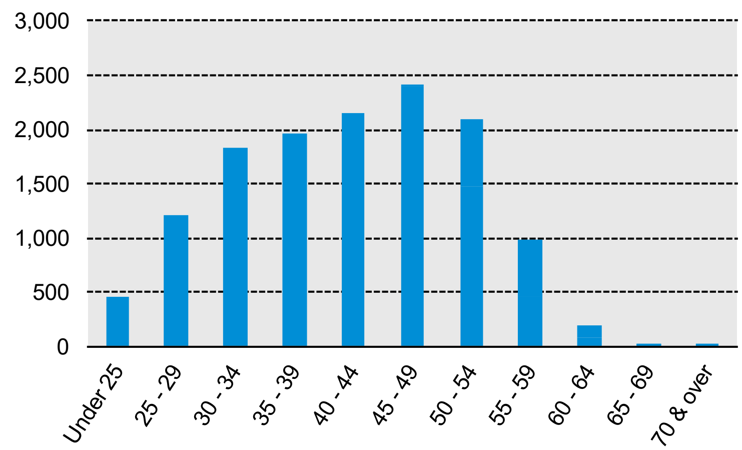
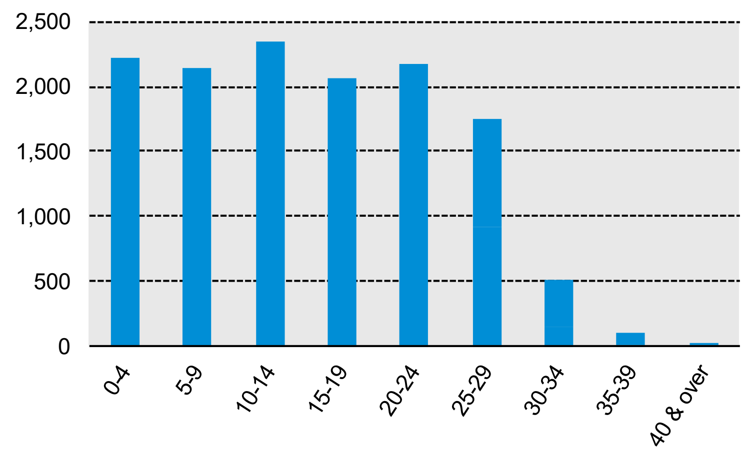


CHART 3

Distribution of Active Members (Including DROP Members) by Years of Service as of June 30, 2017



Retired Members and Beneficiaries
As of June 30, 2017, 10,404 retired members and 2,432 beneficiaries and survivors were receiving total monthly benefits of $72,986,032. For comparison, in the previous valuation there were 10,397 retired members and 2,422 beneficiaries and survivors receiving monthly benefits of $70,500,932.

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, 2017 (Includes July 1 COLA)

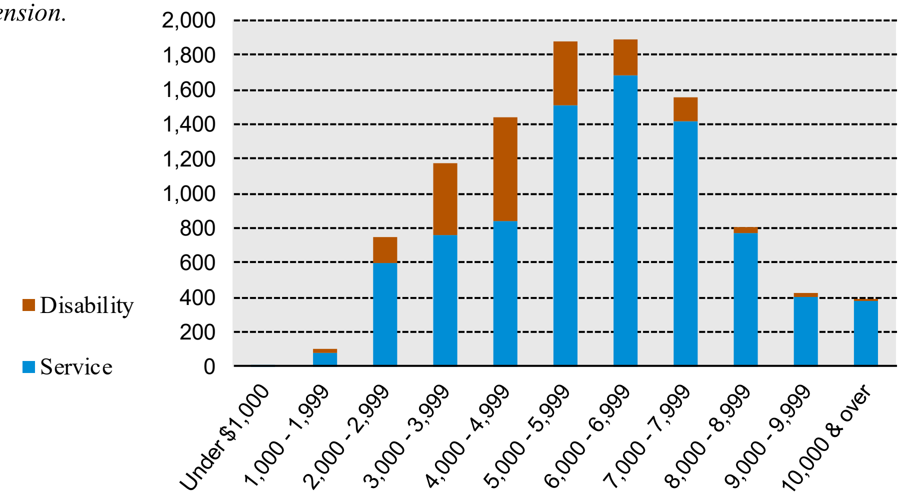
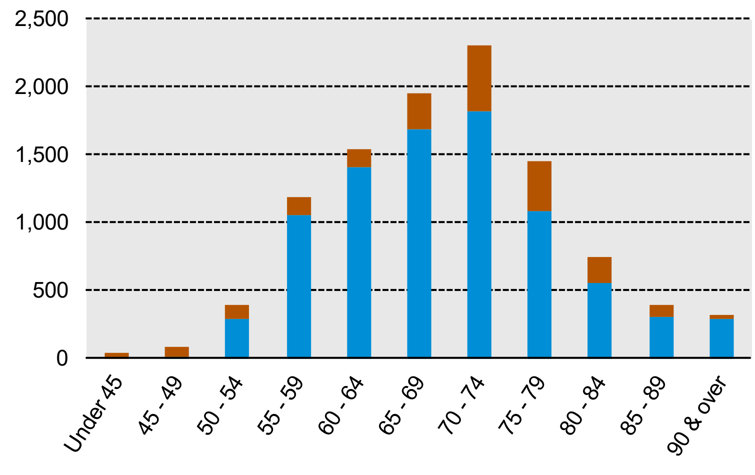


CHART 5

Distribution of Retired Members by Type and by Age as of June 30, 2017 (Includes July 1 COLA)



B. FINANCIAL INFORMATION

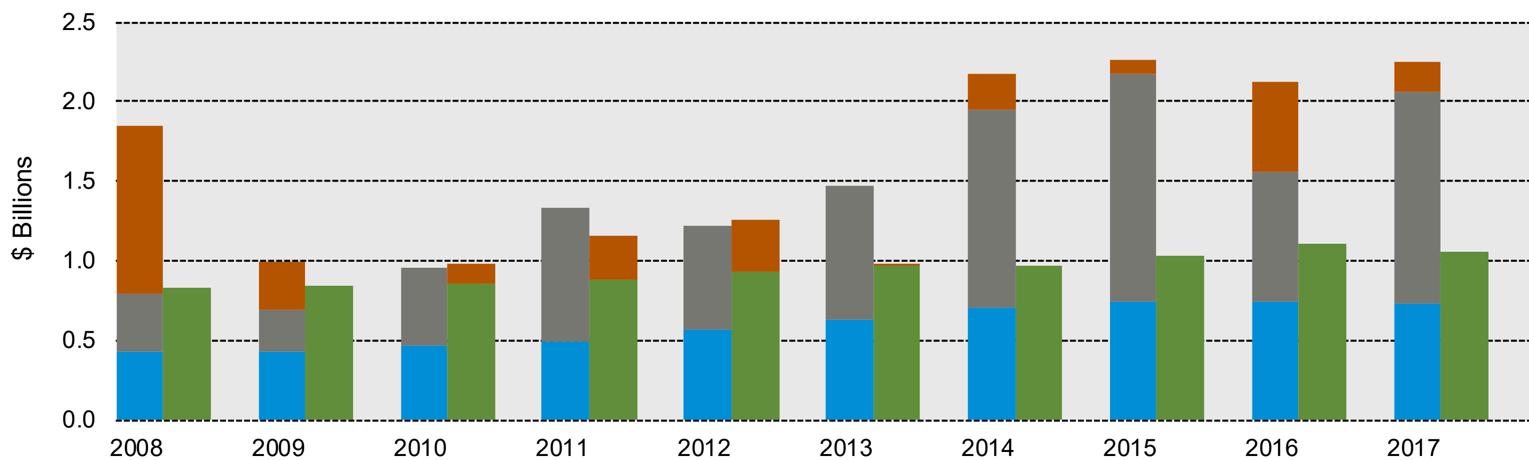
Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

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 the components of changes in the actuarial value of assets over the last ten years. Note: The first bar represents increases in assets during each year while the second bar details the decreases.

CHART 6

Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended June 30, 2008 – 2017



Note: *Interest and dividends are shown net of investment fees and administrative expenses prior to 2015. Starting in 2015, contributions are shown net of administrative expenses.*

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

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.

CHART 7

Determination of Actuarial Value of Assets for Year Ended June 30, 2017

	Original Amount	Portion Not Recognized	Amount Not Recognized	
1. Market value of assets (for Retirement and Health Subsidy Benefits)				$20,662,406,596
2. Calculation of unrecognized return[1]				
(a) Year ended June 30, 2017	$1,050,034,903	6/7	$900,029,917	
(b) Year ended June 30, 2016	(1,240,953,883)	5/7	(886,395,631)	
(c) Year ended June 30, 2015	(643,447,599)	4/7	(367,684,342)	
(d) Year ended June 30, 2014	1,571,818,656	3/7	673,636,567	
(e) Combined Net Deferred Gain as of June 30, 2013[2]	77,259,408	2/6	25,753,136	
(f) Total unrecognized return				345,339,647
3. Preliminary actuarial value: (1) - (2f)				20,317,066,949
4. Adjustment to be within 40% corridor				0
5. Final actuarial value of assets: (3) + (4)				$20,317,066,949
6. Actuarial value as a percentage of market value: (5) ÷ (1)				98.3%
7. Market value of retirement assets				$18,996,721,329
8. Valuation value of retirement assets: (5) ÷ (1) x (7)				$18,679,220,993
9. Deferred return recognized in each of the next 6 years (for Retirement and Health Subsidy Benefits):				
(a) Amount recognized on June 30, 2018				$118,226,864
(b) Amount recognized on June 30, 2019				118,226,864
(c) Amount recognized on June 30, 2020				105,350,297
(d) Amount recognized on June 30, 2021				(119,195,224)
(e) Amount recognized on June 30, 2022				(27,274,141)
(f) Amount recognized on June 30, 2023				150,004,987
(g) Subtotal (may not total exactly due to rounding)				$345,339,647

(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.*

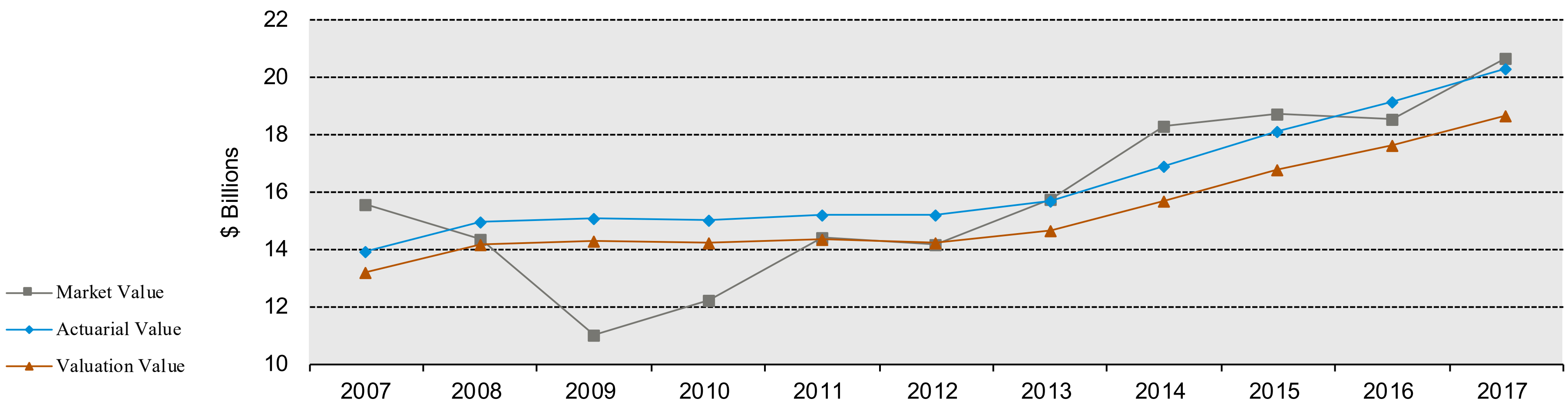
(2) *Net deferred unrecognized investment gains as of June 30, 2013 have been combined into a single layer to be recognized over the six-year period effective July 1, 2013*

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 eleven years.

CHART 8

Market Value of Assets(1), Actuarial Value of Assets(1) and Valuation Value of Assets(2) as of June 30, 2007 – 2017



(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 $86,294,598 was due mainly to an investment gain of $76,338,434 (after smoothing) and less than expected COLA increases for retirees, beneficiaries, and DROP members offset by 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, 2017

1.	Net gain from investments[1]	$76,338,434
2.	Net gain from other experience[2]	9,956,164
3.	Net experience gain: (1) + (2)	$86,294,598

(1) *Details in Chart 10.*

(2) *Details in Chart 13. The net gain is attributed to actual liability experience from June 30, 2016 to June 30, 2017, compared to the projected experience as predicted by the actuarial assumptions as of June 30, 2016.*

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 7.50% for the 2016-2017 plan year (based on the June 30, 2016 valuation). The actual rate of return on the actuarial value of assets basis for the 2016-2017 plan year was 7.89%.

Since the actual return for the year was greater than the assumed return, LAFPP experienced an actuarial gain during the year ended June 30, 2017 with regard to its investments.

This chart shows the gain due to investment experience.

CHART 10
Actuarial Value Investment Experience for Year Ended June 30, 2017

	All Assets[1]	Assets for Retirement Only
1. Actual return	$1,517,741,599	$1,401,567,497
2. Average value of assets	19,246,664,862	17,669,720,836
3. Actual rate of return: (1) ÷ (2)	7.89%	7.93%
4. Assumed rate of return	7.50%	7.50%
5. Expected return: (2) x (4)	$1,443,499,865	$1,325,229,063
6. Actuarial gain: (1) – (5)	$74,241,734	$76,338,434

[1] *Includes all assets for Retirement and Health Subsidy Benefits.*

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: 2008 – 2017

Year Ended June 30	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent
2008	$1,414,391,128	10.20%	$(776,503,003)	-5.01%
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%
Five-Year Average Return		7.82%		9.70%
Ten-Year Average Return		6.10%		5.29%

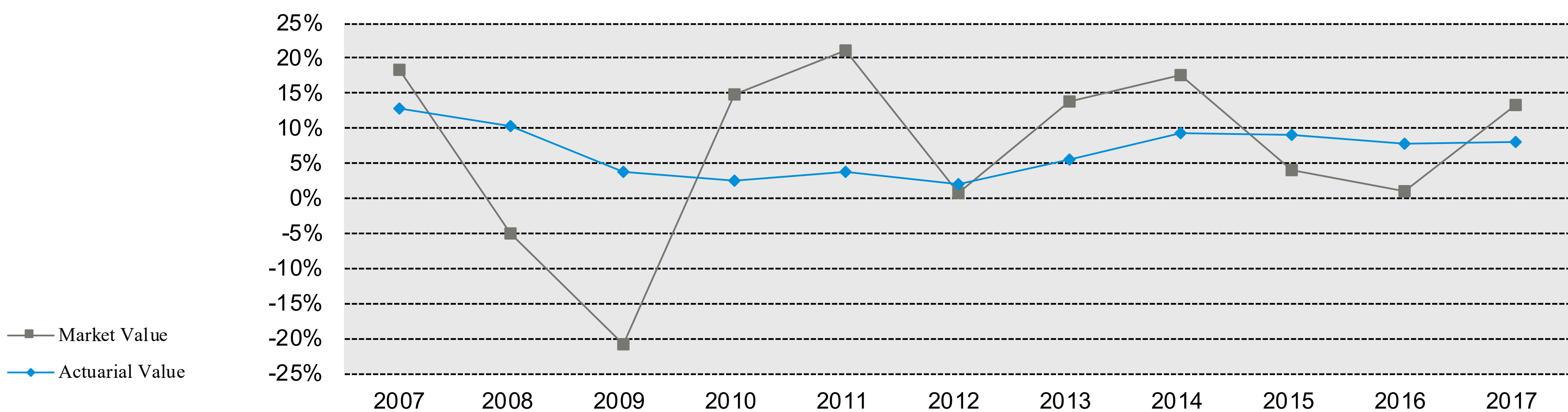
(1) *Includes all assets for Retirement and Health Subsidy Benefits*

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 eleven years.

CHART 12

Market and Actuarial Rates of Return for Years Ended June 30, 2007 - 2017



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 gain from this other experience for the year ended June 30, 2017 amounted to $9,956,164, which is 0.1% 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, 2017 is shown in the chart below.

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

CHART 13

Experience Due to Sources Other Than Investment Return for Year Ended June 30, 2017

1. Gain due to lower than expected COLA increases for retirees, beneficiaries, and DROP members	$45,342,737
2. Loss due to higher than expected salary increases for continuing actives	(21,363,349)
3. Miscellaneous loss	(14,023,224)
4. Net gain	$9,956,164

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 33.97% of payroll if paid at the beginning of the year.

CHART 14
Recommended Contribution

	June 30, 2017		June 30, 2016	
Tier 1 Members	Amount	% of Payroll	Amount	% 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	89,064,054		93,835,393	
5. Valuation value of assets	-74,632,173		-71,856,186	
6. Unfunded actuarial accrued liability	163,696,227		165,691,579	
7. Amortization of unfunded accrued liability	14,688,373	N/A	14,801,171	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	14,688,373	N/A	14,801,171	N/A
10. Total recommended contribution, payable July 15	14,731,272	N/A	14,845,840	N/A
11. Total recommended contribution, payable biweekly	15,211,511	N/A	15,346,181	N/A
12. Projected payroll used for developing normal cost rate	0		N/A	

	June 30, 2017		June 30, 2016	
Tier 2 Members	Amount	% of Payroll	Amount[2]	% of Payroll
1. Total normal cost	$376,948	25.94%	$370,649	25.51%
2. Expected employee contributions, discounted to beginning of year	-18,370	-1.26%	-17,871	-1.23%
3. Employer normal cost: (1) + (2)	358,578	24.68%	352,778	24.28%
4. Actuarial accrued liability	5,146,062,952		5,043,917,731	
5. Valuation value of assets	5,294,879,263		5,331,372,281	
6. Unfunded actuarial accrued liability	-148,816,311[3]		-287,454,550[3]	
7. Amortization of unfunded accrued liability[1]	16,787,719[3]	1.15%	5,995,857[3]	0.41%
8. Allocated amount for admin expenses, calculated with payroll in (12)	16,275	1.12%	13,222	0.91%
9. Total recommended contribution, payable July 1	17,162,572	N/A	6,361,857	N/A
10. Total recommended contribution, payable July 15	17,212,697	N/A	6,381,056	N/A
11. Total recommended contribution, payable biweekly	17,773,830	N/A	6,596,114	N/A
12. Projected payroll used for developing normal cost rate	1,452,955		N/A	

(1) *UAAL rate is calculated using the City's total payroll of $1,462,404,169.*
(2) *Amounts are revised to reflect payroll as of June 30, 2017.*
(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, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount[2]	June 30, 2016 % of Payroll
1. Total normal cost	$23,158,472	25.73%	$22,876,131	25.42%
2. Expected employee contributions, discounted to beginning of year	-7,965,318	-8.85%	-8,009,346	-8.90%
3. Employer normal cost: (1) + (2)	15,193,154	16.88%	14,866,785	16.52%
4. Actuarial accrued liability	1,126,049,720		1,016,373,682	
5. Valuation value of assets	1,063,566,723		959,964,927	
6. Unfunded actuarial accrued liability	62,482,997		56,408,755	
7. Amortization of unfunded accrued liability[1]	25,471,634	1.74%	41,093,557	2.81%
8. Allocated amount for admin expenses, calculated with payroll in (12)	1,008,014	1.12%	818,933	0.91%
9. Total recommended contribution, payable July 1	41,672,802	N/A	56,779,275	N/A
10. Total recommended contribution, payable July 15	41,794,512	N/A	56,950,629	N/A
11. Total recommended contribution, payable biweekly	43,157,010	N/A	58,870,005	N/A
12. Projected payroll used for developing normal cost rate	89,992,649		N/A	

Tier 4 Members	June 30, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount[2]	June 30, 2016 % of Payroll
1. Total normal cost	$9,009,328	26.25%	$8,705,657	25.36%
2. Expected employee contributions, discounted to beginning of year	-2,748,948	-8.01%	-2,804,622	-8.17%
3. Employer normal cost: (1) + (2)	6,260,380	18.24%	5,901,035	17.19%
4. Actuarial accrued liability	560,375,131		515,837,253	
5. Valuation value of assets	467,527,614		428,305,587	
6. Unfunded actuarial accrued liability	92,847,517		87,531,666	
7. Amortization of unfunded accrued liability[1]	17,263,929	1.18%	19,157,495	1.31%
8. Allocated amount for admin expenses, calculated with payroll in (12)	384,514	1.12%	312,388	0.91%
9. Total recommended contribution, payable July 1	23,908,823	N/A	25,370,918	N/A
10. Total recommended contribution, payable July 15	23,978,651	N/A	25,447,485	N/A
11. Total recommended contribution, payable biweekly	24,760,354	N/A	26,305,128	N/A
12. Projected payroll used for developing normal cost rate	34,328,299		N/A	

(1) *UAAL rate is calculated using the City's total payroll of $1,462,404,169.*
(2) *Amounts are revised to reflect payroll as of June 30, 2017.*

CHART 14
Recommended Contribution (Continued)

Tier 5 Members (without Harbor Port Police)	June 30, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount[1]	June 30, 2016 % of Payroll
1. Total normal cost	$335,359,367	29.22%	$329,595,561	28.72%
2. Expected employee contributions, discounted to beginning of year	-111,945,679	-9.75%	-112,236,929	-9.78%
3. Employer normal cost: (1) + (2)	223,413,688	19.47%	217,358,632	18.94%
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	112,913,560	9.84%	86,874,596	7.57%
8. Allocated amount for admin expenses, calculated with payroll in (12)	12,854,532	1.12%	10,443,313	0.91%
9. Total recommended contribution, payable July 1	349,181,780	30.43%	314,676,541	27.42%
10. Total recommended contribution, payable July 15	350,201,602	30.52%	315,626,205	27.50%
11. Total recommended contribution, payable biweekly	361,618,154	31.51%	326,263,582	28.43%
12. Projected payroll used for developing normal cost rate	1,147,616,857		N/A	

Tier 6 Members (without Harbor Port Police)	June 30, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount[1]	June 30, 2016 % of Payroll
1. Total normal cost	$50,506,168	26.72%	$49,521,513	26.20%
2. Expected employee contributions, discounted to beginning of year	-20,076,437	-10.62%	-20,054,323	-10.61%
3. Employer normal cost: (1) + (2)	30,429,731	16.10%	29,467,190	15.59%
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	18,596,953	9.84%	14,308,315	7.57%
8. Allocated amount for admin expenses, calculated with payroll in (12)	2,117,152	1.12%	1,720,022	0.91%
9. Total recommended contribution, payable July 1	51,143,836	27.06%	45,495,527	24.07%
10. Total recommended contribution, payable July 15	51,293,207	27.14%	45,632,828	24.15%
11. Total recommended contribution, payable biweekly	52,965,363	28.02%	47,170,766	24.96%
12. Projected payroll used for developing normal cost rate	189,013,409		N/A	

(1) *Amounts are revised to reflect payroll as of June 30, 2017.*

CHART 14
Recommended Contribution (Continued)

Combined Tiers 5 and 6 UAAL Contribution Rate Calculations for the City	June 30, 2017				June 30, 2016	
	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	$13,326,767,346	$99,365,167	$13,426,132,513		$12,073,886,009	
5. Valuation value of assets			11,869,712,478		10,946,866,177	
6. Unfunded actuarial accrued liability			1,556,420,035		1,127,019,832	
7. Amortization of unfunded accrued liability			131,510,513	9.84%	101,182,911	7.57%
12. Projected payroll used for developing normal cost rate	1,147,616,857	189,013,409	1,336,630,266		N/A	

All Tiers Combined (without Harbor Port Police)	June 30, 2017		June 30, 2016	
	Amount	% of Payroll	Amount[1]	% of Payroll
1. Total normal cost	$418,410,283	28.61%	$411,069,511	28.11%
2. Expected employee contributions, discounted to beginning of year	-142,754,752	-9.76%	-143,123,091	-9.79%
3. Employer normal cost: (1) + (2)	275,655,531	18.85%	267,946,420	18.32%
4. Actuarial accrued liability	20,347,684,370		18,743,850,068	
5. Valuation value of assets	18,621,053,905		17,594,652,786	
6. Unfunded actuarial accrued liability	1,726,630,465		1,149,197,282	
7. Amortization of unfunded accrued liability	205,722,168	14.07%	182,230,991	12.46%
8. Allocated amount for admin expenses, calculated with payroll in (12)	16,380,487	1.12%	13,307,878	0.91%
9. Total recommended contribution, payable July 1	497,758,186	34.04%	463,485,289	31.69%
10. Total recommended contribution, payable July 15	499,211,941	34.14%	464,884,044	31.79%
11. Total recommended contribution, payable biweekly	515,486,222	35.25%	480,551,776	32.86%
12. Projected payroll used for developing normal cost rate	1,462,404,169		N/A	

(1) *Amounts are revised to reflect payroll as of June 30, 2017.*

CHART 14
Recommended Contribution (Continued)

Harbor Port Police Tier 5	June 30, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount[1]	June 30, 2016 % of Payroll
1. Total normal cost	$3,454,756	30.24%	$3,409,576	29.85%
2. Expected employee contributions, discounted to beginning of year	-1,182,611	-10.35%	-1,181,073	-10.34%
3. Employer normal cost: (1) + (2)	2,272,145	19.89%	2,228,503	19.51%
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	734,186	6.43%	656,786	5.75%
8. Allocated amount for admin expenses, calculated with payroll in (12)	127,943	1.12%	103,944	0.91%
9. Total recommended contribution, payable July 1	3,134,274	27.44%	2,989,233	26.17%
10. Total recommended contribution, payable July 15	3,143,428	27.52%	2,998,254	26.25%
11. Total recommended contribution, payable biweekly	3,245,904	28.42%	3,099,303	27.14%
12. Projected payroll used for developing normal cost rate	11,422,366		N/A	

Harbor Port Police Tier 6	June 30, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount[1]	June 30, 2016 % of Payroll
1. Total normal cost	$450,465	26.30%	$440,139	25.70%
2. Expected employee contributions, discounted to beginning of year	-181,907	-10.62%	-181,707	-10.61%
3. Employer normal cost: (1) + (2)	268,558	15.68%	258,432	15.09%
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	110,079	6.43%	98,475	5.75%
8. Allocated amount for admin expenses, calculated with payroll in (12)	19,183	1.12%	15,585	0.91%
9. Total recommended contribution, payable July 1	397,820	23.23%	372,492	21.75%
10. Total recommended contribution, payable July 15	398,982	23.30%	373,616	21.81%
11. Total recommended contribution, payable biweekly	411,989	24.06%	386,208	22.55%
12. Projected payroll used for developing normal cost rate	1,712,603		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2017.*

CHART 14
Recommended Contribution (Continued)

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

	June 30, 2017				June 30, 2016	
	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	$62,781,223	$558,709	$63,339,932		$54,660,466	
5. Valuation value of assets			58,167,088		50,685,609	
6. Unfunded actuarial accrued liability			5,172,844		3,974,857	
7. Amortization of unfunded accrued liability			844,265	6.43%	755,261	5.75%
12. Projected payroll used for developing normal cost rate	11,422,366	1,712,603	13,134,969		N/A	

Harbor Port Police Combined (Tiers 5 and 6)	June 30, 2017		June 30, 2016	
	Amount	% of Payroll	Amount[1]	% of Payroll
1. Total normal cost	$3,905,221	29.73%	$3,849,715	29.31%
2. Expected employee contributions, discounted to beginning of year	-1,364,518	-10.39%	-1,362,780	-10.38%
3. Employer normal cost: (1) + (2)	2,540,703	19.34%	2,486,935	18.93%
4. Actuarial accrued liability	63,339,932		54,660,466	
5. Valuation value of assets	58,167,088		50,685,609	
6. Unfunded actuarial accrued liability	5,172,844		3,974,857	
7. Amortization of unfunded accrued liability	844,265	6.43%	755,261	5.75%
8. Allocated amount for admin expenses, calculated with payroll in (12)	147,126	1.12%	119,529	0.91%
9. Total recommended contribution, payable July 1	3,532,094	26.89%	3,361,725	25.59%
10. Total recommended contribution, payable July 15	3,542,410	26.97%	3,371,870	25.67%
11. Total recommended contribution, payable biweekly	3,657,893	27.85%	3,485,511	26.54%
12. Projected payroll used for developing normal cost rate	13,134,969		N/A	

(1) *Amounts are revised to reflect payroll as of June 30, 2017.*

CHART 14
Recommended Contribution (Continued)

All Tiers Combined	June 30, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount[1]	June 30, 2016 % of Payroll
1. Total normal cost	$422,315,504	28.62%	$414,919,226	28.12%
2. Expected employee contributions, discounted to beginning of year	-144,119,270	-9.77%	-144,485,871	-9.79%
3. Employer normal cost: (1) + (2)	278,196,234	18.85%	270,433,355	18.33%
4. Actuarial accrued liability	20,411,024,302		18,798,510,534	
5. Valuation value of assets	18,679,220,993		17,645,338,395	
6. Unfunded actuarial accrued liability	1,731,803,309		1,153,172,139	
7. Amortization of unfunded accrued liability	206,566,433	14.00%	182,986,252	12.40%
8. Allocated amount for admin expenses, calculated with payroll in (12)	16,527,613	1.12%	13,427,407	0.91%
9. Total recommended contribution, payable July 1	501,290,280	33.97%	466,847,014	31.64%
10. Total recommended contribution, payable July 15	502,754,351	34.07%	468,255,914	31.73%
11. Total recommended contribution, payable biweekly	519,144,115	35.18%	484,037,287	32.80%
12. Projected payroll used for developing normal cost rate	1,475,539,138		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2017.*

If paid by the City at the beginning of the year, the calculated normal cost is 18.85% payroll, and the explicit contribution rate for administrative expense is 1.12% of payroll. The remaining contribution of 14.00% of payroll will amortize the unfunded actuarial accrued liability over an equivalent single amortization period of about 9.7 years.

The contribution rates as of June 30, 2017 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, 2016 to June 30, 2017

Recommended Contribution as of June 30, 2016 (Assuming Payment at the Beginning of the Year)	31.64%[1]
Effect of actual contributions less than expected	0.02%
Effect of investment gain	-0.35%
Effect of higher than expected salary increases	0.10%
Effect of amortizing prior year's UAAL over a larger than expected projected total payroll	-0.20%
Effect of lower than expected COLA increases for retirees, beneficiaries, and DROP members	-0.21%
Effect of loss layers from June 30, 2002 valuation being fully amortized	-1.46%
Effect of change in actuarial assumptions	4.35%
Effect of other actuarial losses	0.08%
Total change	2.33%
Recommended Contribution as of June 30, 2017 (Assuming Payment at the Beginning of the Year)	33.97%

(1) *Revised using payroll as of June 30, 2017.*

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 – 2017

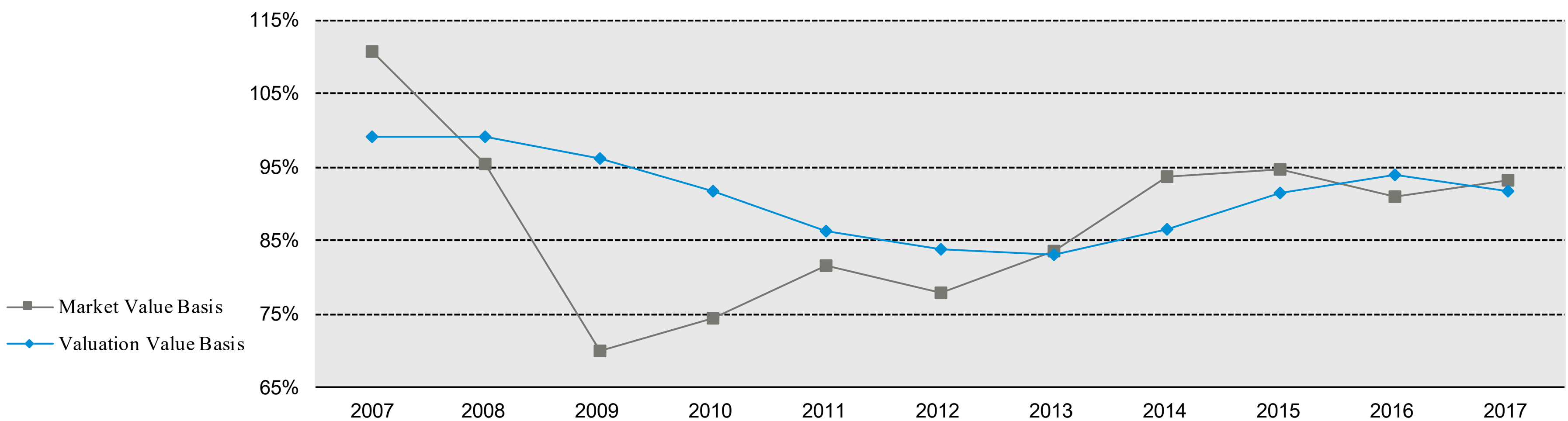


CHART 17
Schedule of Funding Progress

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)
06/30/2008	$14,153,296	$14,279,116	$125,820	99.1%	$1,206,589	10.4%
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%

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 12.9. This means that a 1% asset gain/(loss) (relative to the assumed investment return) translates to about 12.9% of one-year's payroll. Since LAFPP amortizes 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 7% 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 – 2017

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

EXHIBIT A

Table of Plan Coverage

Total

Category	Year Ended June 30 2017	Year Ended June 30 2016	Change From Prior Year
Active members in valuation:			
Number	13,327	13,050	2.1%
Average age	42.3	42.3	0.0
Average service	15.3	15.3	0.0
Projected total payroll	$1,475,539,138	$1,400,808,351	5.3%
Projected average payroll	$110,718	$107,342	3.1%
Account balances	$1,918,183,368	$1,822,646,982	5.2%
Total active vested members	4,660	4,503	3.5%
Vested terminated members:			
Number[1]	374	128	192.2%
Average age[2]	46.8	46.5	0.3
Average monthly benefit at age 50[2]	$2,717	$2,600	4.5%
Retired members:			
Number in pay status	8,462	8,414	0.6%
Average age at retirement	51.9	51.8	0.1
Average age	69.8	69.5	0.3
Average monthly benefit (includes July COLA)	$6,265	$6,056	3.5%
Disabled members:			
Number in pay status	1,942	1,983	-2.1%
Average age at retirement	43.9	44.0	-0.1
Average age	70.6	70.1	0.5
Average monthly benefit (includes July COLA)	$4,859	$4,740	2.5%
Beneficiaries:			
Number in pay status	2,432	2,422	0.4%
Average age	76.4	76.6	-0.2
Average monthly benefit (includes July COLA)	$4,333	$4,190	3.4%

(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 2017	Year Ended June 30 2016	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	54	66	-18.2%
Average age at retirement	46.8	46.3	0.5
Average age	85.5	86.0	-0.5
Average monthly benefit (includes July COLA)	$2,546	$2,427	4.9%
Disabled members:			
Number in pay status	54	61	-11.5%
Average age at retirement	36.0	35.9	0.1
Average age	82.8	82.1	0.7
Average monthly benefit (includes July COLA)	$3,338	$3,209	4.0%
Beneficiaries:			
Number in pay status	241	276	-12.7%
Average age	84.8	85.0	-0.2
Average monthly benefit (includes July COLA)	$2,730	$2,654	2.9%

EXHIBIT A

Table of Plan Coverage

ii. Tier 2

Category	Year Ended June 30 2017	Year Ended June 30 2016	Change From Prior Year
Active members in valuation:			
Number	10	12	-16.7%
Average age	62.3	61.3	1.0
Average service	38.8	37.5	1.3
Projected total payroll	$1,452,955	$1,668,603	-12.9%
Projected average payroll	$145,296	$139,050	4.5%
Account balances	$2,740,000	$3,193,889	-14.2%
Total active vested members	10	12	-16.7%
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	4,223	4,399	-4.0%
Average age at retirement	50.3	50.3	0.0
Average age	75.6	75.0	0.6
Average monthly benefit (includes July COLA)	$5,315	$5,160	3.0%
Disabled members:			
Number in pay status	1,446	1,487	-2.8%
Average age at retirement	45.0	45.0	0.0
Average age	74.8	74.0	0.8
Average monthly benefit (includes July COLA)	$5,116	$4,987	2.6%
Beneficiaries:			
Number in pay status	1,850	1,852	-0.1%
Average age	79.5	79.1	0.4
Average monthly benefit (includes July COLA)	$4,508	$4,375	3.0%

EXHIBIT A

Table of Plan Coverage

iii. Tier 3

Category	Year Ended June 30 2017	Year Ended June 30 2016	Change From Prior Year
Active members in valuation:			
Number	759	799	-5.0%
Average age	50.3	49.5	0.8
Average service	23.0	22.1	0.9
Projected total payroll	$89,992,649	$90,748,319	-0.8%
Projected average payroll	$118,567	$113,577	4.4%
Account balances	$151,539,985	$148,669,661	1.9%
Total active vested members	759	799	-5.0%
Vested terminated members:			
Number(1)	44	44	0.0%
Average age(2)	46.8	46.4	0.4
Average monthly benefit at age 50(2)	$2,212	$2,172	1.8%
Retired members:			
Number in pay status	290	253	14.6%
Average age at retirement	53.1	53.1	0.0
Average age	60.6	60.6	0.0
Average monthly benefit (includes July COLA)	$3,372	$3,119	8.1%
Disabled members:			
Number in pay status	254	252	0.8%
Average age at retirement	40.0	39.9	0.1
Average age	57.8	56.9	0.9
Average monthly benefit (includes July COLA)	$3,738	$3,632	2.9%
Beneficiaries:			
Number in pay status	95	89	6.7%
Average age	52.7	52.7	0.0
Average monthly benefit (includes July COLA)	$3,297	$3,313	-0.5%

(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		Change From Prior Year
	2017	2016	
Active members in valuation:			
Number	285	299	-4.7%
Average age	46.6	46.0	0.6
Average service	21.6	21.0	0.6
Projected total payroll	$34,328,299	$34,769,925	-1.3%
Projected average payroll	$120,450	$116,287	3.6%
Account balances	$54,089,398	$54,036,159	0.1%
Total active vested members	110	121	-9.1%
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	235	223	5.4%
Average age at retirement	47.0	46.8	0.2
Average age	56.2	55.3	0.9
Average monthly benefit (includes July COLA)	$5,176	$4,964	4.3%
Disabled members:			
Number in pay status	47	47	0.0%
Average age at retirement	42.2	42.2	0.0
Average age	54.8	53.8	1.0
Average monthly benefit (includes July COLA)	$4,701	$4,717	-0.3%
Beneficiaries:			
Number in pay status	7	5	40.0%
Average age	40.2	32.7	7.5
Average monthly benefit (includes July COLA)	$3,641	$3,863	-5.7%

EXHIBIT A

Table of Plan Coverage

v. Tier 5 (without Harbor Port Police)

Category	Year Ended June 30 2017	2016	Change From Prior Year
Active members in valuation:			
Number	9,775	10,059	-2.8%
Average age	44.8	44.0	0.8
Average service	17.8	17.0	0.8
Projected total payroll	$1,147,616,857	$1,129,982,660	1.6%
Projected average payroll	$117,403	$112,335	4.5%
Account balances	$1,661,626,114	$1,584,370,874	4.9%
Total active vested members	3,778	3,568	5.9%
Vested terminated members:			
Number(1)	210	46	356.5%
Average age(2)	46.8	46.7	0.1
Average monthly benefit at age 50(2)	$3,963	$3,991	-0.7%
Retired members:			
Number in pay status	3,648	3,461	5.4%
Average age at retirement	54.0	54.1	-0.1
Average age	64.4	63.9	0.5
Average monthly benefit (includes July COLA)	$7,717	$7,546	2.3%
Disabled members:			
Number in pay status	138	133	3.8%
Average age at retirement	43.7	44.0	-0.3
Average age	51.9	51.5	0.4
Average monthly benefit (includes July COLA)	$4,895	$4,795	2.1%
Beneficiaries:			
Number in pay status	238	200	19.0%
Average age	54.8	54.5	0.3
Average monthly benefit (includes July COLA)	$5,023	$5,000	0.5%

(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)

Category	Year Ended June 30 2017	Year Ended June 30 2016	Change From Prior Year
Active members in valuation:			
Number	2,380	1,764	34.9%
Average age	29.0	28.5	0.5
Average service	1.9	1.6	0.3
Projected total payroll	$189,013,409	$131,467,839	43.8%
Projected average payroll	$79,417	$74,528	6.6%
Account balances	$37,186,455	$22,774,519	63.3%
Total active vested members	0	0	N/A
Vested terminated members:			
Number(1)	112	36	211.1%
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	0	N/A
Average age	30.5	N/A	N/A
Average monthly benefit (includes July COLA)	$6,616	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

vii. Harbor Port Police (Tier 5)

Category	Year Ended June 30 2017	Year Ended June 30 2016	Change From Prior Year
Active members in valuation:			
Number	99	100	-1.0%
Average age	41.1	40.2	0.9
Average service	11.4	10.4	1.0
Projected total payroll	$11,422,366	$10,743,485	6.3%
Projected average payroll	$115,377	$107,435	7.4%
Account balances	$10,692,734	$9,431,058	13.4%
Total active vested members	3	3	0.0%
Vested terminated members:			
Number(1)	3	1	200.0%
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	12	12	0.0%
Average age at retirement	55.1	55.1	0.0
Average age	61.5	60.5	1.0
Average monthly benefit (includes July COLA)	$7,137	$6,950	2.7%
Disabled members:			
Number in pay status	3	3	0.0%
Average age at retirement	40.1	40.1	0.0
Average age	49.2	48.2	1.0
Average monthly benefit (includes July COLA)	$4,593	$4,472	2.7%
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 2017	Year Ended June 30 2016	Change From Prior Year
Active members in valuation:			
Number	19	17	11.8%
Average age	31.9	30.6	1.3
Average service	1.7	1.1	0.6
Projected total payroll	$1,712,603	$1,427,520	20.0%
Projected average payroll	$90,137	$83,972	7.3%
Account balances	$308,682	$170,822	80.7%
Total active vested members	0	0	N/A
Vested terminated members:			
Number(1)	5	1	400.0%
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 B

Members in Active Service and Projected Average Payroll as of June 30, 2017

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	463	463	- -	- -	- -	- -	- -	- -	- -	- -
	$67,702	$67,702	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,214	1,082	132	- -	- -	- -	- -	- -	- -	- -
	81,020	78,697	$100,061	- -	- -	- -	- -	- -	- -	- -
30 - 34	1,827	479	1,044	304	- -	- -	- -	- -	- -	- -
	98,944	83,530	102,790	$110,023	- -	- -	- -	- -	- -	- -
35 - 39	1,955	147	606	1,024	178	- -	- -	- -	- -	- -
	107,593	81,306	104,241	111,156	$120,213	- -	- -	- -	- -	- -
40 - 44	2,154	31	238	646	905	334	- -	- -	- -	- -
	114,325	85,232	104,512	110,018	118,059	$122,231	- -	- -	- -	- -
45 - 49	2,399	14	90	274	687	1,093	239	2	- -	- -
	119,971	79,245	102,200	110,570	117,230	124,038	$128,826	$153,099	- -	- -
50 - 54	2,104	4	27	77	213	553	1,016	212	2	- -
	125,974	91,863	104,088	108,347	117,131	122,607	129,344	137,271	$131,854	- -
55 - 59	995	3	5	14	61	157	423	256	75	1
	128,650	146,238	109,245	107,227	116,492	120,205	127,427	135,420	144,770	$115,943
60 - 64	194	2	- -	1	13	33	70	48	24	3
	128,003	196,448	- -	104,140	119,632	113,080	125,185	127,319	146,986	215,593
65 - 69	19	- -	- -	- -	1	3	5	1	5	4
	126,128	- -	- -	- -	122,693	118,298	126,948	116,166	126,553	133,795
70 & over	3	- -	- -	- -	1	- -	1	- -	- -	1
	122,693	- -	- -	- -	122,693	- -	122,693	- -	- -	122,693
Total	13,327	2,225	2,142	2,340	2,059	2,173	1,754	519	106	9
	$110,718	$77,937	$103,230	$110,507	$117,840	$122,945	$128,635	$135,458	$144,169	$157,844

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2017
By Age and Years of Service
i. Tier 1

		Years of Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
35 - 39	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
40 - 44	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
45 - 49	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
50 - 54	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
55 - 59	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
60 - 64	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2017

By Age and Years of Service

ii. Tier 2

	Years of Service									
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
35 - 39	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
40 - 44	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
45 - 49	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
50 - 54	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
55 - 59	5	- -	- -	- -	- -	- -	- -	- -	4	1
	$148,916	- -	- -	- -	- -	- -	- -	- -	$157,159	$115,943
60 - 64	2	- -	- -	- -	- -	- -	- -	- -	2	- -
	168,343	- -	- -	- -	- -	- -	- -	- -	168,343	- -
65 - 69	2	- -	- -	- -	- -	- -	- -	- -	1	1
	124,498	- -	- -	- -	- -	- -	- -	- -	112,800	136,196
70 & over	1	- -	- -	- -	- -	- -	- -	- -	- -	1
	122,693	- -	- -	- -	- -	- -	- -	- -	- -	122,693
Total	10	- -	- -	- -	- -	- -	- -	- -	7	3
	$145,296	- -	- -	- -	- -	- -	- -	- -	$154,018	$124,944

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2017

By Age and Years of Service

iii. 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	101	- -	- -	- -	27	74	- -	- -	- -	- -
	$117,613	- -	- -	- -	$116,159	$118,144	- -	- -	- -	- -
45 - 49	289	- -	- -	- -	42	220	27	- -	- -	- -
	118,509	- -	- -	- -	113,282	119,290	$120,279	- -	- -	- -
50 - 54	249	- -	- -	2	16	108	115	8	- -	- -
	119,273	- -	- -	$97,651	113,523	118,825	120,735	$121,203	- -	- -
55 - 59	83	- -	- -	- -	7	30	41	5	- -	- -
	119,401	- -	- -	- -	117,614	118,332	119,354	128,698	- -	- -
60 - 64	32	- -	- -	- -	4	18	10	- -	- -	- -
	114,117	- -	- -	- -	115,601	111,192	118,788	- -	- -	- -
65 - 69	4	- -	- -	- -	- -	3	1	- -	- -	- -
	120,240	- -	- -	- -	- -	118,298	126,067	- -	- -	- -
70 & over	1	- -	- -	- -	1	- -	- -	- -	- -	- -
	122,693	- -	- -	- -	122,693	- -	- -	- -	- -	- -
Total	759	- -	- -	2	97	453	194	13	- -	- -
	$118,567	- -	- -	$97,651	$114,628	$118,600	$120,307	$124,085	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2017
By Age and Years of Service
iv. 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	33	--	--	1	32	--	--	--	--	--
	$114,567	--	--	$107,170	$114,798	--	--	--	--	--
40 - 44	100	--	--	3	92	5	--	--	--	--
	115,038	--	--	117,710	114,609	$121,334	--	--	--	--
45 - 49	51	--	--	1	30	7	13	--	--	--
	117,796	--	--	106,755	109,743	125,210	$133,236	--	--	--
50 - 54	85	--	--	1	11	--	58	15	--	--
	129,674	--	--	120,296	115,182	--	129,046	$143,355	--	--
55 - 59	15	--	--	--	4	--	1	8	2	--
	125,536	--	--	--	117,053	--	115,874	134,709	$110,644	--
60 - 64	1	--	--	--	--	--	--	1	--	--
	130,878	--	--	--	--	--	--	130,878	--	--
65 - 69	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
70 & over	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
Total	285	--	--	6	169	12	72	24	2	--
	$120,450	--	--	$114,558	$113,876	$123,595	$129,620	$139,953	$110,644	--

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2017
By Age and Years of Service
v. 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	80	- -	80	- -	- -	- -	- -	- -	- -	- -
	$101,360	- -	$101,360	- -	- -	- -	- -	- -	- -	- -
30 - 34	1,259	1	957	301	- -	- -	- -	- -	- -	- -
	104,787	$101,122	103,126	$110,081	- -	- -	- -	- -	- -	- -
35 - 39	1,707	1	556	1,004	146	- -	- -	- -	- -	- -
	109,749	99,985	104,403	111,024	$121,400	- -	- -	- -	- -	- -
40 - 44	1,887	- -	218	628	786	255	- -	- -	- -	- -
	114,712	- -	104,367	109,985	118,528	$123,434	- -	- -	- -	- -
45 - 49	2,030	- -	87	266	610	866	199	2	- -	- -
	120,542	- -	101,884	110,545	117,808	125,235	$129,697	$153,099	- -	- -
50 - 54	1,755	- -	26	71	181	444	843	188	2	- -
	126,733	- -	101,246	107,616	117,280	123,460	130,539	137,184	$131,854	- -
55 - 59	887	1	4	14	49	126	381	243	69	- -
	129,314	83,699	99,001	107,227	116,335	120,426	128,326	135,582	145,041	- -
60 - 64	156	- -	- -	1	8	15	60	47	22	3
	129,307	- -	- -	104,140	118,037	115,347	126,251	127,244	145,044	$215,593
65 - 69	13	- -	- -	- -	1	- -	4	1	4	3
	128,191	- -	- -	- -	122,693	- -	127,168	116,166	129,991	132,995
70 & over	1	- -	- -	- -	- -	- -	1	- -	- -	- -
	122,693	- -	- -	- -	- -	- -	122,693	- -	- -	- -
Total	9,775	3	1,928	2,285	1,781	1,706	1,488	481	97	6
	$117,403	$94,935	$103,471	$110,426	$118,330	$124,062	$129,673	$135,426	$144,150	$174,294

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2017

By Age and Years of Service

vi. Tier 6 (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	460	460	- -	- -	- -	- -	- -	- -	- -	- -
	$67,678	$67,678	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,124	1,072	52	- -	- -	- -	- -	- -	- -	- -
	79,653	78,760	$98,063	- -	- -	- -	- -	- -	- -	- -
30 - 34	553	476	76	1	- -	- -	- -	- -	- -	- -
	85,610	83,528	98,431	$102,231	- -	- -	- -	- -	- -	- -
35 - 39	170	145	25	- -	- -	- -	- -	- -	- -	- -
	83,905	81,326	98,860	- -	- -	- -	- -	- -	- -	- -
40 - 44	46	31	11	4	- -	- -	- -	- -	- -	- -
	91,240	85,232	103,504	104,073	- -	- -	- -	- -	- -	- -
45 - 49	20	14	- -	4	2	- -	- -	- -	- -	- -
	88,456	79,245	- -	101,263	$127,323	- -	- -	- -	- -	- -
50 - 54	5	4	- -	1	- -	- -	- -	- -	- -	- -
	98,752	91,863	- -	126,308	- -	- -	- -	- -	- -	- -
55 - 59	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	96,287	96,287	- -	- -	- -	- -	- -	- -	- -	- -
60 - 64	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	189,696	189,696	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	2,380	2,204	164	10	2	- -	- -	- -	- -	- -
	$79,417	$77,822	$98,720	$104,988	$127,323	- -	- -	- -	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2017

By Age and Years of Service

vii. 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	- -	11	2	- -	- -	- -	- -	- -	- -
	$103,956	- -	$103,729	$105,206	- -	- -	- -	- -	- -	- -
35 - 39	43	- -	24	19	- -	- -	- -	- -	- -	- -
	111,455	- -	106,011	118,331	- -	- -	- -	- -	- -	- -
40 - 44	20	- -	9	11	- -	- -	- -	- -	- -	- -
	110,770	- -	109,260	112,005	- -	- -	- -	- -	- -	- -
45 - 49	9	- -	3	3	3	- -	- -	- -	- -	- -
	120,279	- -	111,352	126,433	$123,053	- -	- -	- -	- -	- -
50 - 54	10	- -	1	2	5	1	- -	1	- -	- -
	141,912	- -	177,993	130,048	127,546	$152,368	- -	$190,935	- -	- -
55 - 59	3	- -	1	- -	1	1	- -	- -	- -	- -
	137,611	- -	150,223	- -	114,095	148,515	- -	- -	- -	- -
60 - 64	1	- -	- -	- -	1	- -	- -	- -	- -	- -
	148,515	- -	- -	- -	148,515	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	99	- -	49	37	10	2	- -	1	- -	- -
	$115,377	- -	$108,794	$117,031	$126,949	$150,441	- -	$190,935	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Payroll as of June 30, 2017
By Age and Years of Service
viii. 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	3	3	- -	- -	- -	- -	- -	- -	- -	- -
	$71,473	$71,473	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	10	10	- -	- -	- -	- -	- -	- -	- -	- -
	72,025	72,025	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	2	2	- -	- -	- -	- -	- -	- -	- -	- -
	75,104	75,104	- -	- -	- -	- -	- -	- -	- -	- -
35 - 39	2	1	1	- -	- -	- -	- -	- -	- -	- -
	82,898	59,651	$106,144	- -	- -	- -	- -	- -	- -	- -
40 - 44	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
45 - 49	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
50 - 54	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
55 - 59	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	258,728	258,728	- -	- -	- -	- -	- -	- -	- -	- -
60 - 64	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	203,200	203,200	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	19	18	1	- -	- -	- -	- -	- -	- -	- -
	$90,137	$89,248	$106,144	- -	- -	- -	- -	- -	- -	- -

EXHIBIT C
Reconciliation of Member Data

	Active Members[1]	Vested Former Members[2]	Disableds	Retired Members	Beneficiaries	Total
Number as of June 30, 2016	13,050	128	1,983	8,414	2,422	25,997
New members	728	N/A	N/A	N/A	168	896
Terminations – with vested rights	(104)	104	0	0	0	0
Refund of member contributions	(69)	(20)	0	0	0	(89)
Retirements	(261)	(11)	N/A	272	N/A	0
New disabilities	(9)	0	9	0	N/A	0
Died with or without beneficiary	(13)	(1)	(51)	(224)	(148)	(437)
Rehired	5	(5)	0	0	N/A	0
Certain period expired	N/A	N/A	0	0	(10)	(10)
Data adjustments	0	179[3]	1	0	0	180
Number as of June 30, 2017	13,327	374	1,942	8,462	2,432	26,537

(1) *Includes DROP members.*

(2) *Includes 77 and 322 terminated members due only a refund of member contributions as of June 30, 2016 and June 30, 2017, 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, 2016 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, 2017		Year Ended June 30, 2016	
Contribution income:				
Employer contributions	$619,479,274		$628,700,812	
Employee contributions	128,900,736		129,733,559	
Contribution income		$748,380,010		$758,434,371
Investment income:				
Interest, dividends and other income	$1,416,457,386		$898,786,837	
Recognition of capital appreciation	187,435,433		563,251,453	
Less investment fees	(86,151,220)		(80,778,689)	
Net investment income		1,517,741,599		1,381,259,601
Total income available for benefits		$2,266,121,609		$2,139,693,972
Less benefit payments		$(1,052,639,705)		$(1,107,041,622)
Less administrative expenses		(22,563,327)		(20,897,310)
Change in reserve for future benefits		$1,190,918,577		$1,011,755,040

EXHIBIT E

Summary Statement of Assets for Retirement and Health Subsidy Benefits

	Year Ended June 30, 2017		Year Ended June 30, 2016	
Cash equivalents		$1,595,842		$2,192,456
Accounts receivable:				
Accrued interest and dividends	$67,873,889		$65,462,527	
Contributions	2,945,722		7,499,627	
Due from brokers	141,051,560		68,578,711	
Total accounts receivable		211,871,171		141,540,865
Investments:				
Equities	$13,145,475,978		$11,405,646,262	
Fixed income investments	6,250,264,420		5,940,532,422	
Real estate	1,533,900,296		1,531,754,098	
Total investments at market value		20,929,640,694		18,877,932,782
Total assets		$21,143,107,707		$19,021,666,103
Less accounts payable:				
Accounts payable and benefits in process	$(23,153,856)		$(45,770,044)	
Due to brokers	(252,664,835)		(253,277,481)	
Mortgage payable	(204,882,420)		(182,938,598)	
Total accounts payable		$(480,701,111)		$(481,986,123)
Net assets at market value		$20,662,406,596		$18,539,679,980
Net assets at actuarial value		$20,317,066,949		$19,126,148,372
Net assets at valuation value (retirement benefits)		$18,679,220,993		$17,645,338,395

EXHIBIT F

Development of the Fund Through June 30, 2017 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
2008	$333,672,743	$98,074,219	$1,414,391,128	-	$827,959,245	$14,920,943,683
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

[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, 2017

1.	Unfunded actuarial accrued liability at beginning of year		$1,153,172,139
2.	Total normal cost at beginning of year[(1)]		407,581,604
3.	Expected contributions at beginning of year[(1)]		(581,444,648)
4.	Interest		73,448,182
5.	Expected unfunded actuarial accrued liability: (1) + (2) + (3) + (4)		$1,052,757,277
6	Actuarial (gain)/loss due to all changes:		
	(a) Loss due to actual contributions less than expected	$4,356,183	
	(b) Investment gain	(76,338,434)	
	(c) COLA increases lower than expected for retirees, beneficiaries and DROP members	(45,342,737)	
	(d) Salary increases higher than expected	21,363,349	
	(e) Other experience loss	9,667,041	
	(f) Assumption changes	765,340,630	
	(g) Total changes		679,046,032
7.	Unfunded actuarial accrued liability at end of year: (5) + (6g)		$1,731,803,309

(1) *Includes $12,699,959 in assumed administrative expenses (0.91% of projected payroll at beginning of the year).*

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	06/30/2017	$163,696,227	20	$163,696,227	20	$14,688,373
Total				**$163,696,227**		**$14,688,373**

(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	$(717,361,625)	20	$(49,254,024)
Experience Loss	06/30/2009	53,442,825	15	39,151,103	7	6,207,506
Experience Loss	06/30/2010	210,742,926	15	166,428,322	8	23,485,158
Assumption Change	06/30/2010	1,450,331	27	1,578,864	20	108,405
Experience Loss	06/30/2011	203,104,597	15	170,386,149	9	21,736,390
Assumption Change	06/30/2011	344,553,091	26	368,391,898	20	25,293,775
Experience Loss	06/30/2012	238,453,071	20	235,601,136	15	19,914,181
Experience Loss	06/30/2013	73,947,281	20	73,635,496	16	5,930,141
Experience Gain	06/30/2014	(212,930,921)	20	(212,879,299)	17	(16,396,784)
Assumption Change	06/30/2014	(65,152,628)	25	(67,345,688)	22	(4,336,805)
Experience Gain	06/30/2015	(288,914,220)	20	(289,705,237)	18	(21,413,584)
Experience Gain	06/30/2016	(82,781,971)	20	(83,006,555)	19	(5,905,419)
Experience Gain	06/30/2017	(51,873,536)	20	(51,873,536)	20	(3,561,635)
Assumption Change	06/30/2017	218,182,660	20	218,182,660	20	14,980,414
Total				**$(148,816,311)[2]**		**$16,787,719[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	$(4,564,103)	2	$(2,322,657)
Plan Amendment	06/30/1990[(3)]	279,608	15	111,690	3	38,563
Assumption Change	06/30/1990[(3)]	(6,281,127)	15	(2,509,024)	3	(866,278)
Assumption Change	06/30/1992[(3)]	2,454,735	17	1,438,720	5	308,582
Assumption Change	06/30/1995[(3)]	(20,329,471)	20	(16,149,616)	8	(2,278,917)
Plan Amendment	06/30/1996[(3)]	2,832,341	21	2,407,991	9	307,191
Asset Method Change	06/30/1996[(3)]	(18,309,076)	21	(15,565,952)	9	(1,985,769)
Plan Amendment	06/30/1998[(3)]	5,510,715	23	5,216,526	11	563,023
Assumption Change	06/30/1998[(3)]	9,268,417	23	8,773,621	11	946,943
Plan Amendment	06/30/2000[(3)]	949,873	25	975,447	13	92,079
Assumption Change	06/30/2001[(3)]	(29,148,684)	26	(30,961,589)	14	(2,758,702)
Experience Loss	06/30/2002[(3)]	110,014,634	12	0	0	0
Experience Loss	06/30/2003[(3)]	151,681,782	13	23,356,930	1	23,356,930
Experience Loss	06/30/2004[(3)]	10,104,562	14	2,886,361	2	1,468,860
Assumption Change	06/30/2004[(3)]	(8,698,728)	29	(10,025,529)	17	(772,205)
Experience Loss	06/30/2005[(3)]	21,605,884	15	8,630,566	3	2,979,831
Assumption Change	06/30/2005[(3)]	27,253,819	30	32,114,314	18	2,373,732
Experience Loss	06/30/2006	16,400,257	15	8,185,667	4	2,156,928
Assumption Change	06/30/2006	29,340,123	30	34,244,675	19	2,436,304
Experience Gain	06/30/2007	(20,934,587)	21	(19,244,964)	11	(2,077,122)
Assumption Change	06/30/2007	(5,027,630)	30	(5,833,545)	20	(400,531)

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	$(14,303,537)	8	$(2,018,411)
Assumption Change	06/30/2008	8,034,472	30	9,245,313	21	614,091
Experience Loss	06/30/2009	10,158,177	15	7,441,671	7	1,179,896
Experience Loss	06/30/2010	2,144,522	15	1,693,576	8	238,985
Assumption Change	06/30/2010	25,997,606	30	29,238,059	23	1,828,990
Plan Amendment[2]	06/30/2011	(18,044)	30	(20,022)	24	(1,219)
Experience Loss	06/30/2011	1,095,451	15	918,982	9	117,236
Assumption Change	06/30/2011	25,593,931	30	28,399,231	24	1,728,819
Experience Loss	06/30/2012	10,983,184	20	10,851,822	15	917,250
Experience Loss	06/30/2013	6,011,719	20	5,986,373	16	482,105
Experience Gain	06/30/2014	(15,610,972)	20	(15,607,188)	17	(1,202,126)
Assumption Change	06/30/2014	(3,528,915)	25	(3,647,700)	22	(234,898)
Experience Gain	06/30/2015	(46,361,062)	20	(46,487,994)	18	(3,436,164)
Experience Gain	06/30/2016	(18,410,183)	20	(18,460,129)	19	(1,313,328)
Experience Loss	06/30/2017	4,575,201	20	4,575,201	20	314,133
Assumption Change	06/30/2017	39,171,149	20	39,171,149	20	2,689,490
Total				**$62,482,997**		**$25,471,634**

(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	$(1,788,867)	2	$(910,349)
Plan Amendment	06/30/1990[3]	109,592	15	43,778	3	15,115
Assumption Change	06/30/1990[3]	(2,461,841)	15	(983,393)	3	(339,531)
Assumption Change	06/30/1992[3]	962,115	17	563,896	5	120,946
Assumption Change	06/30/1995[3]	(7,967,987)	20	(6,329,722)	8	(893,205)
Plan Amendment	06/30/1996[3]	1,110,115	21	943,796	9	120,401
Asset Method Change	06/30/1996[3]	(7,176,108)	21	(6,100,963)	9	(778,308)
Plan Amendment	06/30/1998[3]	2,159,884	23	2,044,580	11	220,673
Assumption Change	06/30/1998[3]	3,632,689	23	3,438,760	11	371,148
Plan Amendment	06/30/2000[3]	370,129	25	380,094	13	35,879
Assumption Change	06/30/2001[3]	(4,878,745)	26	(5,182,179)	14	(461,736)
Experience Loss	06/30/2002[3]	18,536,288	12	0	0	0
Experience Loss	06/30/2003[3]	59,690,449	13	9,191,516	1	9,191,516
Experience Loss	06/30/2004[3]	10,147,466	14	2,898,617	2	1,475,097
Assumption Change	06/30/2004[3]	(5,220,974)	29	(6,017,322)	17	(463,477)
Experience Loss	06/30/2005[3]	13,244,413	15	5,290,540	3	1,826,638
Assumption Change	06/30/2005[3]	14,033,320	30	16,536,047	18	1,222,263
Experience Loss	06/30/2006	6,063,600	15	3,026,454	4	797,472
Assumption Change	06/30/2006	14,561,746	30	16,995,915	19	1,209,158
Experience Gain	06/30/2007	(8,926,309)	21	(8,205,871)	11	(885,665)
Assumption Change	06/30/2007	(3,015,790)	30	(3,499,212)	20	(240,256)

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	$(3,463,595)	8	$(488,757)
Assumption Change	06/30/2008	10,599,393	30	12,196,781	21	810,133
Experience Loss	06/30/2009	11,924,683	15	8,735,776	7	1,385,079
Experience Loss	06/30/2010	4,794,050	15	3,785,968	8	534,248
Assumption Change	06/30/2010	12,948,180	30	14,562,095	23	910,934
Plan Amendment[2]	06/30/2011	1,483,135	30	1,645,699	24	100,183
Experience Loss	06/30/2011	5,867,945	15	4,922,669	9	627,991
Assumption Change	06/30/2011	12,753,767	30	14,151,683	24	861,492
Experience Loss	06/30/2012	9,377,426	20	9,265,270	15	783,147
Experience Loss	06/30/2013	6,625,380	20	6,597,444	16	531,317
Experience Gain	06/30/2014	(11,060,872)	20	(11,058,189)	17	(851,744)
Assumption Change	06/30/2014	9,988,189	25	10,324,395	22	664,852
Experience Gain	06/30/2015	(16,640,244)	20	(16,685,803)	18	(1,233,332)
Experience Gain	06/30/2016	(3,718,134)	20	(3,728,221)	19	(265,241)
Experience Gain	06/30/2017	(2,332,922)	20	(2,332,922)	20	(160,178)
Assumption Change	06/30/2017	20,682,003	20	20,682,003	20	1,420,026
Total				**$92,847,517**		**$17,263,929**

(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)

Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Original Base	06/30/2002[3]	$(157,564,364)	27	$(172,484,828)	15	$(14,579,276)
Experience Gain	06/30/2003[3]	(314,459,851)	13	(48,422,536)	1	(48,422,536)
Experience Loss	06/30/2004[3]	106,500,938	14	30,421,919	2	15,481,617
Assumption Change	06/30/2004[3]	(242,147,820)	29	(279,082,160)	17	(21,495,984)
Experience Loss	06/30/2005[3]	241,854,245	15	96,609,740	3	33,355,945
Assumption Change	06/30/2005[3]	421,011,169	30	496,095,061	18	36,668,903
Experience Loss	06/30/2006	64,026,458	15	31,956,776	4	8,420,631
Assumption Change	06/30/2006	291,388,037	30	340,097,014	19	24,195,866
Experience Gain	06/30/2007	(200,979,530)	21	(184,758,550)	11	(19,941,118)
Assumption Change	06/30/2007	(71,262,522)	30	(82,685,703)	20	(5,677,197)
Experience Gain	06/30/2008	(79,435,149)	17	(62,114,134)	8	(8,765,096)
Assumption Change	06/30/2008	312,669,142	30	359,790,086	21	23,897,935
Experience Loss	06/30/2009	357,256,711	15	261,718,849	7	41,496,182
Experience Loss	06/30/2010	207,594,800	15	163,942,178	8	23,134,331
Assumption Change	06/30/2010	277,673,454	30	312,283,852	23	19,534,952
Plan Amendment[2]	06/30/2011	5,693,576	30	6,317,639	24	384,590
Experience Loss	06/30/2011	125,215,079	15	105,043,979	9	13,400,601
Assumption Change	06/30/2011	244,615,700	30	271,427,558	24	16,523,303
Experience Loss	06/30/2012	248,617,082	20	245,643,585	15	20,763,019
Experience Loss	06/30/2013	115,390,840	20	114,904,318	16	9,253,673
Experience Gain	06/30/2014	(246,417,577)	20	(246,357,838)	17	(18,975,430)
Assumption Change	06/30/2014	35,896,722	25	37,105,018	22	2,389,422

EXHIBIT H

Table of Amortization Bases (Continued)

Tiers 5 and 6 (without Harbor Port 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	$(459,837,732)	18	$(33,988,940)
Experience Gain	06/30/2016	(228,076,007)	20	(228,694,767)	19	(16,270,263)
Experience Gain	06/30/2017	(34,033,779)	20	(34,033,779)	20	(2,336,758)
Assumption Change	06/30/2017	481,534,488	20	481,534,488	20	33,062,141
Total				**$1,556,420,035**		**$131,510,513**

(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)

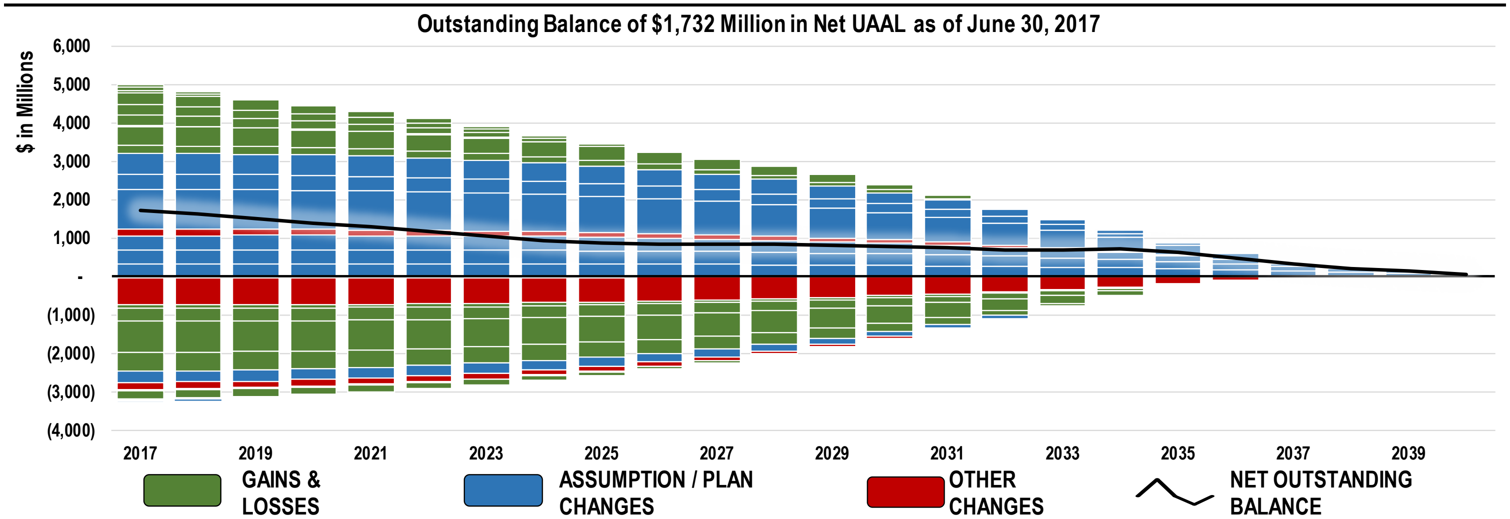
Type	Date Established	Initial Amount	Initial Period	Outstanding Balance	Years Remaining	Annual Payment[1]
Experience Gain	06/30/2008	$(169,104)	17	$(132,230)	8	$(18,659)
Assumption Change	06/30/2008	126,433	30	145,486	21	9,663
Experience Loss	06/30/2009	6,588,231	15	4,826,402	7	765,238
Experience Loss	06/30/2010	1,742,728	15	1,376,270	8	194,209
Assumption Change	06/30/2010	1,043,633	30	1,173,717	23	73,422
Plan Amendment[2]	06/30/2011	41,208	30	45,726	24	2,784
Experience Gain	06/30/2011	(447,574)	15	(375,473)	9	(47,900)
Assumption Change	06/30/2011	734,993	30	815,555	24	49,647
Experience Loss	06/30/2012	1,311,840	20	1,296,149	15	109,557
Experience Loss	06/30/2013	1,253,385	20	1,248,101	16	100,514
Experience Gain	06/30/2014	(2,336,763)	20	(2,336,196)	17	(179,943)
Assumption Change	06/30/2014	(476,026)	25	(492,050)	22	(31,686)
Experience Gain	06/30/2015	(2,306,059)	20	(2,312,373)	18	(170,919)
Experience Gain	06/30/2016	(1,753,214)	20	(1,757,970)	19	(125,069)
Experience Loss	06/30/2017	104,388	20	104,388	20	7,167
Assumption Change	06/30/2017	1,547,341	20	1,547,341	20	106,240
Total				**$5,172,844**		**$844,265**

(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)



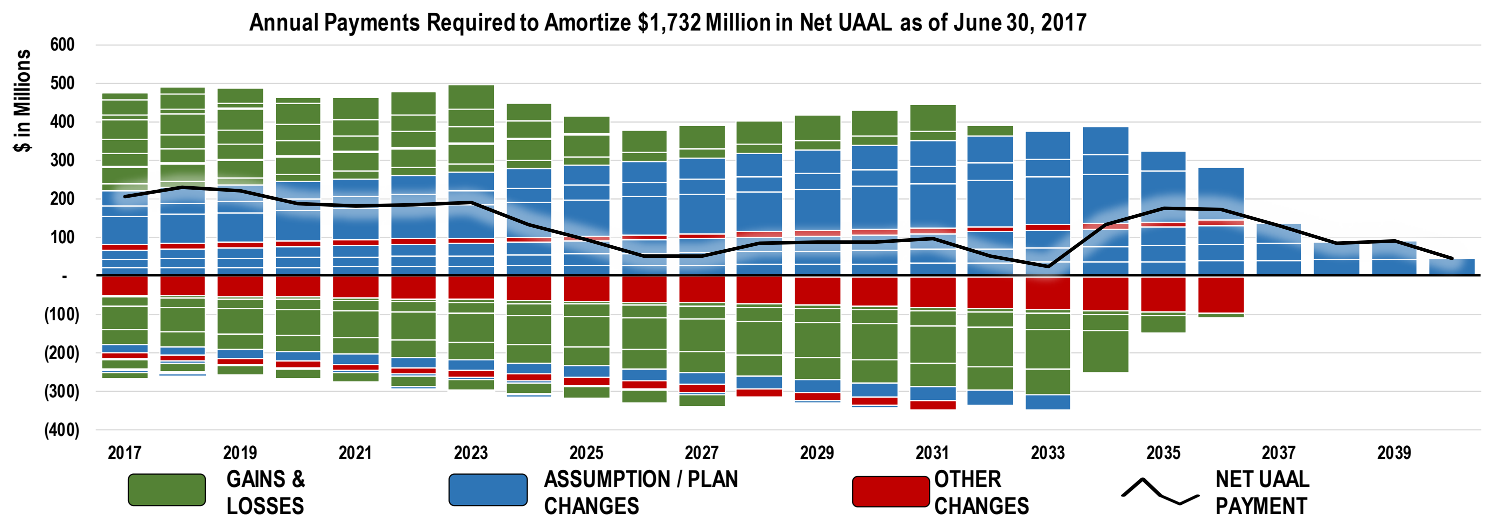


EXHIBIT I

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 $215,000 for 2017 and $220,000 for 2018. Normal Retirement Age for these purposes is age 62. These are the limits in simplified terms. They must be adjusted based on each participant's circumstances, for such things as age at retirement, form of benefits chosen and after tax contributions.

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

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

EXHIBIT J
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 2,432 beneficiaries in pay status)		12,836
2.	Members inactive during year ended June 30, 2017 with vested rights[1]		374
3.	Members active during the year ended June 30, 2017		13,327
	Fully vested	4,660	
	Not vested	8,667	

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

	Assets		
1.	Valuation value of retirement assets ($20,662,406,596 at market value[2] as reported by LAFPP and $20,317,066,949 at actuarial value[2])		$18,679,220,993
2.	Present value of future normal costs		
	Employee	$1,455,119,289	
	Employer	2,899,744,196	
	Total		4,354,863,485
3.	Unfunded actuarial accrued liability		1,731,803,309
4.	Present value of current and future assets		$24,765,887,787
	Liabilities		
5.	Present value of future benefits		
	Retired members and beneficiaries	$11,437,424,193	
	Inactive members with vested rights	35,400,518	
	Active members not currently in DROP	11,034,688,171	
	Active members currently in DROP[3]	2,258,374,905	
	Total		$24,765,887,787

(1) *Includes 322 terminated members due only a refund of member contributions.*

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

(3) *Includes $266,052,954 attributable to the value of the DROP account balances as of June 30, 2017.*

EXHIBIT I (continued)
Summary of Actuarial Valuation Results

The determination of the recommended contribution is as follows:

1.	Total normal cost	$422,315,504
2.	Expected employee contributions	-144,119,270
3.	Employer normal cost: (1) + (2)	$278,196,234
4.	Payment on unfunded actuarial accrued liability	206,566,433
5.	Payment for administrative expenses	16,527,613
6.	Total recommended contribution: (3) + (4) + (5), payable beginning of year	$501,290,280
7.	Total recommended contribution: adjusted for July 15 payment	$502,754,351
8.	Total recommended contribution: adjusted for biweekly payment	$519,144,115
9.	Projected payroll	$1,475,539,138
10.	Item 6 as a percentage of projected payroll: (6) ÷ (9)	33.97%
11.	Item 7 as a percentage of projected payroll: (7) ÷ (9)	34.07%
12.	Item 8 as a percentage of projected payroll: (8) ÷ (9)	35.18%

EXHIBIT II

Schedule of Employer Contributions

Retirement Benefits

Plan Year Ended June 30	Actuarially Determined Contributions[1]	Actual Contributions	Percentage Contributed
2008[2]	$261,635,491	$261,635,491	100.00%
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%

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

(2) *Figures include amounts transferred and contributed during the fiscal year that were related to the transfer of certain Harbor Port Police members from the Los Angeles City Employees' Retirement System 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.
Economic Assumptions:	
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 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.

<u>Actuarial Methods</u>:

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 or Harbor Port Police).

Change in Actuarial Assumptions: Based on the June 30, 2016 Actuarial Experience Study, the following assumptions have been changed. Previously, these assumptions were as follows:

Net Investment Return: 7.50%, net of investment expenses

Consumer Price Index: Increase of 3.25% 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: 5.00%

Administrative Expenses: Out of the total 1.00% of payroll 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.

Payroll Growth: Inflation of 3.25% per year plus "across-the-board" real salary increases of 0.75% per year.

Salary Increases:

Annual Rate of Compensation Increase

Inflation: 3.25% per year; plus 0.75% "across the board" salary increases; plus the following Merit and Longevity increases based on years of service.

Years of Service	Additional Salary Increase
0	7.50%
1	6.50
2	5.00
3	4.75
4	3.75
5	3.00
6	2.25
7	2.00
8	1.75
9	1.75
10	1.25
11 or more	0.75

Change in Actuarial Assumptions (continued):

Mortality Rates:

Healthy: RP-2000 Combined Healthy Mortality Table (separate for males and females), projected to 2022 with scale BB set back one year for members.

RP-2000 Combined Healthy Mortality Table (separate for males and females), projected to 2022 with scale BB set forward one year for beneficiaries.

Disabled: RP-2000 Combined Healthy Mortality Table (separate for males and females), projected to 2022 with scale BB set forward one year.

Termination Rates Before Retirement:

*Pre-Retirement Mortality***:**

	Rate (%)	
	Mortality	
Age	Male	Female
20	0.03	0.02
25	0.04	0.02
30	0.04	0.02
35	0.07	0.04
40	0.10	0.06
45	0.13	0.10
50	0.19	0.15
55	0.30	0.22
60	0.52	0.36

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

Change in Actuarial Assumptions (continued):

Termination Rates Before Retirement (continued):

	Rate (%)	
	Disability[1]	
Age	Fire	Police
20	0.02	0.02
25	0.02	0.03
30	0.03	0.05
35	0.06	0.08
40	0.15	0.22
45	0.23	0.36
50	0.28	0.46
55	1.02	0.80
60	3.00	1.18

(1) *90% of disabilities are assumed to be service connected. Disability rates are not applied to members eligible to enter the DROP.*

Change in Actuarial Assumptions (continued):

Termination Rates Before Retirement (continued):

Rate (%)		
Termination (< 5 Years of Service)		
Years of Service	Fire	Police
0 – 1	8.00	8.00
1 – 2	2.50	3.00
2 – 3	1.50	2.50
3 – 4	0.75	2.50
4 – 5	0.50	1.75

Rate (%)		
Termination (5+ Years of Service)[(1)]		
Age	Fire	Police
20	1.00	2.00
25	1.00	2.00
30	0.85	1.70
35	0.54	1.20
40	0.37	0.85
45	0.17	0.66
50	0.02	0.24
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.*

Change in Actuarial Assumptions (continued):

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	3.00	3.00	12.00	7.00	8.00
51	4.00	3.00	3.00	12.00	6.00	10.00
52	5.00	3.00	4.00	12.00	6.00	10.00
53	10.00	3.00	5.00	15.00	6.00	15.00
54	15.00	7.00	5.00	20.00	10.00	15.00
55	20.00	12.00	10.00	20.00	18.00	18.00
56	20.00	14.00	12.00	25.00	18.00	18.00
57	20.00	16.00	15.00	25.00	20.00	20.00
58	20.00	20.00	18.00	25.00	22.00	22.00
59	20.00	25.00	20.00	25.00	25.00	25.00
60	20.00	25.00	25.00	25.00	25.00	25.00
61	20.00	30.00	30.00	25.00	25.00	25.00
62	25.00	35.00	30.00	25.00	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	100.00	100.00	100.00	100.00	100.00	100.00

Percent Married/Domestic Partner: 80% of male members, 60% of female members

Age of Spouse: Wives are 3 years younger than their husbands.

Funding Policy: Any changes in Unfunded Actuarial Accrued Liability from plan assumption changes are amortized over separate twenty-five year periods as a level percentage of payroll.

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	Years of Service	Benefit
	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	Years of Service	Benefit
	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	Years of Service	Benefit
	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	Years of Service	Benefit
	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	<u>Years of Service</u>	<u>Benefit</u>
	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 $270,000 for Plan year beginning July 1, 2017. 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)	
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.
Changes in Plan Provisions:	There have been no changes in plan provisions since the last valuation

5512133v4/07916.002

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VIA E-MAIL and USPS

July 7, 2016

Mr. Ray Ciranna
General Manager
Los Angeles Fire and Police Pensions
701 E. 3rd Street, Suite 200
Los Angeles, CA 90013

Re: LAFPP – Increases in Normal Cost Rates for Airport Police to Enter Tier 6 Supplement to Letter Dated June 16, 2016, which had Results Prepared under Simplified Method

Dear Ray:

As requested by LAFPP, we have calculated the increases in the normal cost rates for the City if existing and new Airport Police who are currently (or would otherwise be) enrolled in the LACERS' plans are permitted to enter LAFPP Tier 6.

As discussed in the attached methodologies letter dated June 13, 2016, this analysis has been prepared using the actual data-driven Detailed Method outlined in that letter. As the results prepared using the Detailed Method are comparable to the estimates prepared using the Simplified Method, this letter may be viewed as a supplement to our letter dated June 16, 2016 which provided the results under the Simplified Method (note that the Simplified Method was also outlined in our June 13 methodologies letter). The results provided herein reflect a June 30, 2015 valuation date.

SUMMARY OF RESULTS

The increases in the normal cost rates for the City, expressed as a percent of payroll, to allow existing and new Airport Police to enter LAFPP Tier 6 are shown on the following page.

APPENDIX A

Increases in the City's Normal Cost Rates[1]			
	Retirement Plan	**Health Plan**	**Both Plans Combined**
If all Airport Police elect Tier 6[2]	10.21%	3.37%	13.58%
If only Airport Police with 5 or less years of service elect Tier 6[3]	9.44%	3.90%	13.34%
New Airport Police mandated to join Tier 6 (if hired on or after January 7, 2018)	13.73%	4.78%	18.51%

(1) All City contribution rates provided in this letter are assumed to be payable at the beginning of the year.

(2) The projected annual payroll for the 519 existing Airport Police Officers and Airport Police Chiefs ("Airport Police") included in this study is $49.5 million as of June 30, 2015.

(3) The projected annual payroll for the 60 existing Airport Police with five (5) or less years of service included in this study is $3.8 million as of June 30, 2015.

Although the City's normal cost rates would increase due to the inclusion of Airport Police in LAFPP Tier 6[1], there would be no adverse impact on the LAFPP plan funded ratios. The reason for this is that the City would be obligated to make these normal cost contributions, and members would be responsible for paying the entire cost of converting any of their past LACERS service to LAFPP Tier 6 service (in addition to their obligation to pay the ongoing employee normal cost rate), as discussed below.

It should be noted that the normal cost increases provided in the table above are with respect to the funding required by the City. We have assumed that the Airport Police would continue to pay an employee normal cost rate of 11% of pay per pay period (which is unchanged from the rate they are currently paying into LACERS).[2]

The assumed 11% employee normal cost rate is before the cost for the employees to purchase any prior LACERS service as LAFPP Tier 6 service. We have not included the amount required to purchase prior service, as the purchase cost is dependent on the specific procedures

1 These increases represent the changes in the City's normal cost rates payable during fiscal year 2016/2017 for the Airport Police as members in LACERS.

2 Under the LAFPP Tier 6 plan, the member normal contribution rate for current members is 9%, plus 2% additional contributions to support funding of retiree health benefits. The additional 2% contributions are not required for members with more than 25 years of service, and the 9% contributions are not required for members with more than 33 years of service. Based on our review of the documents related to the transfer, we understand that for tax qualification purposes all members who transfer from LACERS to LAFPP Tier 6 would have to pay a level contribution throughout their entire membership at LAFPP, similar to what they would be required to pay had they not transferred their membership from LACERS. As details are still being developed on what would comply with the relevant tax laws, we assume that the full 11% of employee contributions would continue to be paid even after members attain 25 or 33 years of service.

that would be used to determine the purchase. Those procedures would not be developed until after the ballot measure to approve Tier 6 membership is approved by the voters. The absence of such purchase cost should not affect the results provided herein for the City because it is anticipated that any such cost to purchase prior service would be borne entirely by the individual Airport Police and not by the City.

BACKGROUND

The City is preparing a ballot measure that would allow existing Airport Police appointed to the Airport prior to January 7, 2018 to elect a change in their membership from LACERS to LAFPP. This ballot measure would also mandate LAFPP membership for all new Airport Police appointed on or after January 7, 2018 (with some exceptions as outlined in the measure). All of the existing Airport Police who elect to join LAFPP and the new Airport Police who are mandated to join LAFPP would join the Tier 6 plan. Airport Police who have accrued service at LACERS prior to January 7, 2018, and who elect LAFPP membership, would be required to convert all of their prior LACERS service to LAFPP service.

There would be increases in the City's ongoing normal cost rates associated with enrolling existing and new Airport Police in LAFPP instead of LACERS, and those increases in normal cost rates are provided in this letter. However, we reiterate that it is beyond the scope of this study to determine the cost for the individual members to purchase their prior LACERS service as LAFPP service.

METHODOLOGY

The increases in the City's normal cost rates have been calculated in the following steps:

Step One: Normal Cost Rates under LACERS

Previously, as part of completing the LACERS public safety tier feasibility study for the Airport Police Officers, we calculated the normal costs associated with (a) providing the 516 existing Airport Police Officers reported as of June 30, 2015 (who were represented by Bargaining Units 30, 39 and 40) a benefit under the LACERS Tier 1 plan, and (b) providing any new Airport Police Officers who would join in the future a benefit under the LACERS Tier 3 plan. Since no Airport Police Officers had yet entered Tier 3 as of June 30, 2015[3], the demographic profile of new Airport Police Officers was estimated by using the demographics of the 41[4] then active LACERS Tier 2 Airport Police Officers who were hired during the two-year period July 1, 2013 through June 30, 2015.

[3] Tier 3 became effective on February 21, 2016.

[4] One (1) of the 42 LACERS Tier 2 Airport Police Officers included in the feasibility study was hired before July 1, 2013.

Under the ballot measure, certain existing non-represented Airport Police Chiefs will also be allowed to elect LAFPP membership. Note that when we previously calculated the normal cost rates in our aforementioned public safety tier study, we were not requested by the City to include three (3) non-represented Airport Police Chiefs in our calculations. Our calculations were based only on the 516 Airport Police Officers, rather than all 519 existing Officers and Chiefs. In this study, we have refined the normal costs described in item (a) above to include the 3 non-represented Airport Police Chiefs.

All Existing Airport Police

The normal cost rates for the City, expressed as a percent of payroll, for the 519 existing Officers and Chiefs assuming all of them are enrolled in the LACERS Tier 1 retirement and health plans, determined using their demographics and the actuarial assumptions used in the June 30, 2015 valuations, are as follows:

The City's Normal Cost Rates as if All 519 Existing Airport Police are Enrolled in LACERS Tier 1			
	Retirement Plan	**Health Plan**	**Both Plans Combined**
All 519 Existing Airport Police	5.47%	2.86%	8.33%

In determining the normal cost rates above, we took the 42 members reported by LACERS as Tier 2 members in the 2015 valuations and treated them as Tier 1 members to reflect the rescinding of the Tier 2 plan after the 2015 valuations. We combined those 42 members with the 477 members reported by LACERS as Tier 1 members in the 2015 valuations and we re-calculated the City's normal cost rates for all 519 existing Officers and Chiefs under LACERS Tier 1 plan provisions and using Tier 1 actuarial assumptions.

Even though 10.06% is the City's combined (i.e., Retirement and Health Plans) normal cost rate calculated for all Tier 1 members (including most of the 519 Airport Police who were reported as Tier 1 members in the 2015 valuations), we believe it would be more appropriate when determining the increase in the cost to provide benefits under LAFPP to start with the 8.33% normal cost rate shown in the table above, which was calculated using only the 519 Airport Police included in study.

Existing Airport Police with 5 or Less Years of Service

We agree with the City's expectation that not all of the 519 existing Airport Police would join LAFPP Tier 6 because of the cost to upgrade their past service, and that the shorter service employees (such as those with 5 or less years of service) might be most likely to join LAFPP. Accordingly, we have also calculated the normal cost rates for the City, expressed as a percent of payroll, for only the 60 (out of the 519) existing Airport Police with five (5) or less years of service to be as follows:

The City's Normal Cost Rates for Only Existing Airport Police with 5 or Less Years of Service			
	Retirement Plan	**Health Plan**	**Both Plans Combined**
Airport Police with 5 or less years of service	6.02%	4.02%	10.04%

New Airport Police

In the absence of the ballot measure, any new Airport Police who join on or after January 7, 2018 would enter the new LACERS Tier 3. The Tier 3 normal cost rates for the City, expressed as a percent of payroll, for the new Airport Police (again, estimated by using the demographics of the 41 then active LACERS Tier 2 Airport Police Officers who were hired during the two-year period July 1, 2013 through June 30, 2015) are as follows:

The City's Normal Cost Rates if New Airport Police are Enrolled in LACERS Tier 3			
	Retirement Plan	**Health Plan**	**Both Plans Combined**
New Airport Police mandated to join Tier 6 (if hired on or after January 7, 2018)	1.92%	4.00%[1]	5.92%

[1] We have refined the cost associated with providing Tier 3 health benefits for new Airport Police. Previously that cost was estimated at 2.60% determined using the Tier 2 health benefit provisions. Our Detailed Method has updated the calculation to apply Tier 3 health provisions.

Step Two: Normal Cost Rates under LAFPP

In this step, we calculate the normal cost rates associated with enrolling the 519 existing and the new Airport Police as described in Step One in LAFPP Tier 6. We have updated the normal costs estimated in our June 16 letter by calculating the normal costs using the demographic profile associated with the existing and the new Airport Police. We have also calculated the normal cost rates for only the existing Airport Police who are most likely to actually elect Tier 6 membership (i.e., those with 5 or less years of service, for purposes of this study).

APPENDIX A

Based on all of the information presented above, the normal cost rates under LAFPP Tier 6 for the 519 existing Airport Police, for the 60 existing Airport Police with 5 or less years of service, and for the 41 members included as new Airport Police, are as follows:

The City's Normal Cost Rates for Existing and New LACERS Airport Police to Join LAFPP Tier 6			
	Retirement Plan	**Health Plan**	**Both Plans Combined**
If all Airport Police elect Tier 6	15.68%	6.23%	21.91%
If only Airport Police with 5 or less years of service elect Tier 6	15.46%	7.92%(1)	23.38%
New Airport Police mandated to join Tier 6 (if hired on or after January 7, 2018)	15.65%	8.78%(1)	24.43%

(1) The normal cost rates for these Airport Police are higher than the Tier 6 retiree health rate of 6.67%. The difference is because, while on a dollar basis the retiree health normal costs are similar, the lower compensation for Airport Police (for example, $72,000 annual average for Tier 6 LAFPP members vs. $64,000 for Airport Police with 5 or less years of service) *increases* the cost as a percentage of pay.

Step Three: Increase in Normal Cost Rates

The increases in the normal cost rates for the City for the existing and the new Airport Police to join LAFPP can be calculated by taking the difference between the normal cost rates for LAFPP calculated in Step Two and the normal cost rates for LACERS calculated in Step One. These increases, expressed as a percent of payroll, are as follows:

Increases in the City's Normal Cost Rates			
	Retirement Plan	**Health Plan**	**Both Plans Combined**
If all Airport Police elect Tier 6	10.21%	3.37%	13.58%
If only Airport Police with 5 or less years of service elect Tier 6	9.44%	3.90%	13.34%
New Airport Police mandated to join Tier 6 (if hired on or after January 7, 2018)	13.73%	4.78%	18.51%

NOTE ON EFFECT ON FUNDED RATIOS

Although the City's normal cost rates would increase due to the inclusion of Airport Police in LAFPP Tier 6[5], there would be no adverse impact on the LAFPP plans' funded ratios. The reason for this is that the City would be obligated to make these normal cost contributions, and members would be responsible for paying the entire cost of converting any of their past LACERS service to LAFPP Tier 6 service (in addition to their obligation to pay the ongoing employee normal cost rate), as discussed below.

It should be noted that the normal cost increases provided in the table above are with respect to the funding required by the City. We have assumed that the Airport Police would continue to pay an employee normal cost rate of 11% of pay per pay period (which is unchanged from the rate they are currently paying into LACERS).[6]

The assumed 11% employee normal cost rate is before the cost for the employees to purchase any prior LACERS service at LAFPP Tier 6 service. We have not included the amount required to purchase prior service, as the purchase cost is dependent on the specific procedures that would be used to determine the purchase. Those procedures would not be developed until after the ballot measure to approve Tier 6 membership is approved by the voters. The absence of such purchase cost should not affect the results provided herein for the City because it is anticipated that any such cost to purchase prior service would be borne entirely by the individual Airport Police and not by the City.

NOTE ON ASSUMED MEDICAL PLAN SELECTION

We understand that Airport Police who elect to join LAFPP Tier 6 will, upon reaching eligibility to retire, have a choice of LACERS retiree medical plans, but will be subject to the LAFPP maximum medical subsidy limit. Due to limited, readily available data on Airport Police enrollment in LACERS medical plans[7], we will need to make new assumptions (potentially different from those in the LACERS or LAFPP valuations) for medical plan

[5] These increases represent the changes in the City's normal cost rates payable during fiscal year 2016/2017 for the Airport Police as members in LACERS.

[6] As noted earlier, under the LAFPP Tier 6 plan, the member normal contribution rate for current members is 9%, plus 2% additional contributions to support funding of retiree health benefits. The additional 2% contributions are not required for members with more than 25 years of service, and the 9% contributions are not required for members with more than 33 years of service. Based on our review of the documents related to the transfer, we understand that for tax qualification purposes all members who transfer from LACERS to LAFPP Tier 6 would have to pay a level contribution throughout their entire membership at LAFPP, similar to what they would be required to pay had they not transferred their membership from LACERS. As details are still being developed on what would comply with the relevant tax laws, we assume that the full 11% of employee contributions would continue to be paid even after members attain 25 or 33 years of service.

[7] As part of the LACERS valuation, we do not analyze retiree health elections by department (e.g. Airport Police) as the Bargaining Unit information is not provided for current retirees.

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election among Airport Police at retirement. As experience emerges over time, we can refine our medical plan election assumptions for this group.

For this study, we have assumed that Airport Police will select similar plans roughly in proportion as assumed for future LAFPP Police retirees, shown on pages 43 and 44 in our June 30, 2015 OPEB valuation report. For pre-65 retirees, we have assumed that 65% will enroll in the Anthem Blue Cross PPO and 35% will enroll in the Kaiser Permanente HMO. For retirees over age 65, we have assumed that 85% will enroll in the Anthem Blue Cross PPO and 15% will enroll in the Kaiser Permanente Senior Advantage HMO.

The following are members of the American Academy of Actuaries. We are qualified to render the actuarial opinion contained herein.

Please let us know if you have any questions.

Sincerely,

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

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

Thomas Bergman, ASA, EA, MAAA
Associate Actuary

/bqb
Enclosure (5437036)

cc: Maritta Aspen
Anya Freedman
Li Hsi
Lita Payne
Joe Salazar

APPENDIX A

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Andy Yeung, ASA, MAAA, FCA, EA
Vice President & Actuary
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VIA EMAIL AND USPS

June 13, 2016

Mr. Ray Ciranna
General Manager
Los Angeles Fire and Police Pensions
701 E. 3rd Street, Suite 200
Los Angeles, CA 90013

Re: LAFPP – Methodologies to Calculate Increase in Normal Costs for Airport Police Officers to Enter Tier 6

Dear Ray,

When we proposed to provide the results of our cost analysis for Airport police officers to enter Tier 6 before the end of June 2016, we were planning on performing our study using the same detailed method we would usually use for such a study, as outlined in Section A below.

Since the City is in need of the results on or before June 17, we would suggest the completion of our study using a Simplified Method as outlined in Section B below. While the use of the Simplified Method would allow us to meet the City's deadline, we would need to include some disclaimers in our written report to disclose the assumptions associated with using that Simplified Method. However, we would also state that we believe the assumptions used are reasonable for the purposes of this study. The major assumptions that we would disclose are described in Section B so that the City is aware of those limitations as we complete our analysis using that method.

As we further discussed, even though we would use the Simplified Method when we deliver our initial report, we would follow up with a final report before the end of June 2016 prepared using the Detailed Method.

APPENDIX A

Section A – Detailed Method

Under this Method, our analysis would be prepared in the following steps:

1) Previously, as part of completing the LACERS public safety tier study, we calculated the normal costs associated with (a) providing the 516 existing Airport police officers (reported as of June 30, 2015) a benefit under the LACERS Tier 1 plan and (b) providing any new Airport police officers who would join in the future a benefit under the LACERS Tier 3 plan. Since no Airport police officers have entered Tier 3 as of June 30, 2015, the demographic profile of the new Airport police officers was estimated by looking at those Airport police officers who joined the LACERS Tier 2 plan during the period July 1, 2013 through June 30, 2015.

   Since we were not requested by the City to include the 3 non-represented assistant Airport police chiefs in our earlier study, under the Detailed Method we would refine those normal costs calculation to include those 3 members, which would bring the number of Airport police officers to 519 as of June 30, 2015.

2) We would then calculate for the first time the normal costs associated with enrolling the Airport police officers in the LAFPP Tier 6 plan.

   We agree with the City's expectation that not all of the 519 existing Airport police officers would join LAFPP Tier 6 (because of the cost to upgrade their past service) and that the shorter service employees (such as those with less than 5 years of service) might be most likely to join LAFPP. For that reason, we would value the changes in the normal cost associated with enrolling only those with less than 5 years of past LACERS service as well as the normal cost associated with enrolling the full 519 members in the LAFPP Tier 6 plan.

3) We would calculate for each of the retirement and the retiree health plans the changes in the normal cost rate for the existing Airport police officers as described in 2) as well as for any new Airport police officers who would join LAFPP Tier 6 instead of LACERS Tier 3. Again, the demographic profile of the new Airport police officers would be estimated by looking at those Airport police officers who joined the LACERS Tier 2 plan during the period July 1, 2013 through June 30, 2015.

Section B – Simplified Method

We would not be able to complete the actual census data based calculation under the Detailed Method in time for the City's June 17 deadline. Under the Simplified Method, in order to meet the City's deadline, we would estimate the changes in the normal cost rate in the following steps:

1) We would not refine the normal costs described in A(1) to include the 3 non-represented assistant Airport police chiefs. Even though the 3 assistant police chiefs have a higher age at entry into LACERS which would normally lead to a higher normal cost rate under the funding method used by LACERS and LAFPP, that difference should not be material as they

APPENDIX A

are a relatively small group compared to the other 516 officers we have included in our earlier study.

2) We would not calculate the normal costs associated with enrolling the Airport police officers in the LAFPP Tier 6 plan. Instead, we would estimate the normal costs for the 516 existing officers based on the following observations.

   When we compare the demographic profile of the existing Airport police officers against the demographic profile of the other Tier 6 members included in our June 30, 2015 valuation for LAFPP (again, the age at entry into City service is one of the important factors), the major difference we observe is that the average salary of the existing Airport police officers (of about $95,000) is much higher than the average salary of the other Tier 6 members in LAFPP (of about $72,000). For a pay related retirement benefit, the normal cost rate for the retirement plan is somewhat self-adjusting so in spite of the difference in the current level of salary we believe it is still reasonable to approximate the normal cost rate for enrolling the existing Airport police officers in LAFPP Tier 6 by using the normal cost rate for the other Tier 6 members in LAFPP. However, for a retiree health benefit that is not pay related, the above relationship for the normal cost for the retiree health plan would not hold true so we would need to make a relatively straightforward adjustment to account for that difference in pay.

   Once the normal cost rates to enroll the existing 516 members in LAFPP Tier 6 have been estimated, we would make another simplifying assumption that there would not be a material difference between the normal cost rates of the 516 members and the normal cost rates for members with less than 5 years of past service (who might most likely join LAFPP).

3) We would calculate for each of the retirement and the retiree health plan plans the changes in the normal cost rate for the existing officers as described in 2). However, for the new Airport police officers we would have to further assume that their normal cost rates in LAFPP Tier 6 would be the same as those 516 members calculated in 2).

As noted above, we believe these are reasonable assumptions for this type of study and would state that in our report. We would also note that for the study under either the Simplified Method (to be used in our initial report) or the Detailed Method (to be used in our final report), we would not be including the cost to purchase prior LACERS service for the individual members. This is because the analysis to determine such purchase cost is dependent on the specific procedures used to determine the purchase cost which would not be drawn up until after the ballot measure to approve Tier 6 membership is approved by the voters. This would not affect the results in our reports because it is anticipated that any such cost to purchase prior service would be borne entirely by the individual Airport police officers.

APPENDIX A

Please let us know if you have any questions.

Sincerely,

Andy Yeung

AYY/jl

cc: Joe Salazar
Li Hsi
Lita Payne
Maritta Aspen
Anya Freedman

5437036V1/07916.001

City of Los Angeles Fire and Police Pension Plan

Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2017 in accordance with GASB Statement No. 45

Segal Consulting

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November 9, 2017

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, 2017 under Governmental Accounting Standards Board Statement No. 45. The report summarizes the actuarial data used in the valuation, discloses the Net OPEB obligation (NOO) as of June 30, 2017, establishes the Annual Required Contribution (ARC) 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.

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, 2017. The results are in accordance 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 results of the valuation reflect changes in the economic and non-economic actuarial assumptions as recommended by Segal and adopted by the Board for the June 30, 2017 valuation. These changes were documented in our Actuarial Experience Study for both economic and non-economic assumptions (except for the mortality assumption where the Board adopted the base mortality table recommended but with a static projection with increased margin) and are also outlined in Section 4, Exhibit II of this report. In addition to these assumption changes, the Board also adopted a reduction in the amortization period for assumption changes from twenty-five years to twenty years, as outlined in Section 4, Exhibit I of this report. These changes resulted in an increase in the employer contribution rate of 1.38% of payroll (payable at the beginning of the year).
- The recommended contribution rate has increased from 12.31% of payroll ($172.5 million) to 12.66% of payroll ($186.9 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 48.1% to 49.3% in this valuation. On a market value of asset basis, the funded ratio has increased from 46.6% to 50.1%. The unfunded actuarial accrued liability (UAAL) has increased from $1.599 billion to $1.685 billion. A reconciliation of the change in the UAAL is provided in Section 2, Chart 2.
- The discount rate for this valuation is 7.25%, and is based on the assumption that in the long term, the City is paying a contribution that equals the Annual Required Contribution (ARC) and 100% of benefits will be paid from the trust.
- The funding method used to develop the ARC is the Entry Age method, with the Normal Cost developed as a level percent of payroll. The contribution to amortize the UAAL is developed as a level percent of payroll.
- The impact of updated 2017/2018 premiums and subsidy levels on the UAAL and ARC is shown in Section 2, Chart 2 and Section 3, Exhibit I respectively. On average, the subsidy levels for Medicare retirees, whose payments account for most of the liability, increased somewhat more than expected.

- The impact of adopted future trend rates after 2017/2018 on the UAAL and ARC is shown in Section 2, Chart 2 and Section 3, Exhibit I respectively. The reduction in both the UAAL and the ARC are caused by a reduction in the ultimate trend from 5.00% to 4.50%.
- Contributions will generally increase with payroll growth. Other factors such as gains or losses, or changes in trend assumptions will also change the ARC for future years.
- As indicated in Section 3, Exhibit H of this report, the total unrecognized investment gain as of June 30, 2017 is $345.3 million for the assets for Retirement and Health Subsidy Benefits. For comparison purposes, the total unrecognized investment loss as of June 30, 2016 was $586.5 million.
- The unrecognized gains of $345.3 million represent 1.7% of the market value of assets as of June 30, 2017. Unless offset by future investment losses, or other unfavorable experience, the recognition of the $345.3 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 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 13.08% to 12.95% of payroll.
- 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.

  As noted in our July 7, 2016 and June 13, 2016 letters (which can be found in Appendix A of the Retirement report) Segal previously estimated the Normal Cost rates required to enroll the APO members in a stand-alone Tier 6 Plan by using the demographics and assumptions in effect for the June 30, 2015 LACERS and LAFPP valuations. Since the transfer date is January 2018, we do not yet have data on the actual members who would elect to transfer. Therefore, we have not recalculated the stand-alone normal cost rates at this time. Once actual data is available, we will coordinate with LAFPP in updating our prior study to reflect the actual demographic data as well as the new assumptions that were adopted for the June 30, 2017 valuation.
- The actuarial valuation report as of June 30, 2017 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 key valuation results for the current and prior years are shown.

SUMMARY OF VALUATION RESULTS

	June 30, 2017	June 30, 2016
Actuarial Accrued Liability (AAL)	$3,322,745,937	$3,079,669,517
Actuarial Value of Assets	1,637,845,956	1,480,809,977
Unfunded Actuarial Accrued Liability	1,684,899,981	1,598,859,540
Funded Ratio on Actuarial Value of Assets(2)	49.29%	48.08%
Market Value of Assets	$1,665,685,267	$1,435,403,645
Funded Ratio on Market Value of Assets	50.13%	46.61%
Annual Required Contribution (ARC) for coming year(3)		
Normal cost (beginning of year)	$67,474,870	$65,407,443(1)
Amortization of the unfunded actuarial accrued liability	117,564,478	105,723,438(1)
Allocated amount for administrative expenses	1,282,315	810,636(1)
Total Annual Required Contribution at beginning of year	$186,321,663	$171,941,517(1)
ARC as a percentage of pay at beginning of year	12.63%	12.27%(1)
Total Annual Required Contribution (payable throughout the year)	$192,957,650	$178,272,759(1)
ARC as a percentage of pay (payable throughout the year)	13.08%	12.73%(1)
Total Annual Required Contribution (payable July 15)	$186,865,835	$172,460,420(1)
ARC as a percentage of pay (payable July 15)	12.66%	12.31%(1)
Projected total payroll	$1,475,539,138	$1,400,808,351
Total Participants (including retirees/beneficiaries not receiving subsidy)	26,236	25,938
Total Participants (excluding retirees/beneficiaries not receiving subsidy)	25,041	24,708
Annual OPEB Cost (AOC) for Coming Year		
Annual Required Contributions (payable end of fiscal year)	N/A(4)	$184,837,131(1)
Interest on Net OPEB Obligations	N/A(4)	9,937,977(1)
ARC Adjustments	N/A(4)	-9,419,029(1)
Total Annual OPEB Cost	N/A(4)	$185,356,079(1)
AOC as percentage of pay	N/A(4)	13.23%

(1) *Before reflecting payroll for the June 30, 2017 valuation.*

(2) *The funded ratios on AVA basis excluding Harbor Port Police are 49.19% and 47.99% for 2017 and 2016 respectively.*

(3) *In future valuations, the ARC will be referred to as the Actuarially Determined Contribution (ADC).*

(4) *The AOC and NOO are not applicable to GASB 75, which replaces GASB 45 for fiscal years ended after June 30, 2017.*

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, 2017

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, 2017, in accordance with generally accepted actuarial principles and practices. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of GASB Statement No. 45 for the determination of the liability for postemployment benefits other than pensions.

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 comply with GASB Statement No. 45 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, ASA, MAAA, EA
Associate Actuary

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, 2017	**June 30, 2016**
Participant Category		
Current retirees, beneficiaries, and dependents	$1,827,498,663	$1,689,309,297
Current active members	2,103,008,838	1,974,850,699
Terminated members entitled but not yet eligible and retirees and beneficiaries with deferred health benefits	120,601,907	116,395,136
Total	$4,051,109,408	$3,780,555,132

		June 30, 2017	June 30, 2016
Actuarial Balance Sheet			
The actuarial balance sheet as of the valuation date is as follows:			
	Assets		
1.	Actuarial value of assets	$1,637,845,956	$1,480,809,977
2.	Present value of future normal costs	728,363,471	700,885,615
3.	Unfunded actuarial accrued liability	1,684,899,981	1,598,859,540
4.	Present value of current and future assets	$4,051,109,408	$3,780,555,132
	Liabilities		
5.	Actuarial Present Value of total Projected Benefits	$4,051,109,408	$3,780,555,132

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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, 2017	June 30, 2016
Participant Category		
Current retirees, beneficiaries, and dependents	$1,827,498,663	$1,689,309,297
Current active members	1,374,645,367	1,273,965,084
Terminated members entitled but not yet eligible and retirees and beneficiaries with deferred health benefits	120,601,907	116,395,136
Total actuarial accrued liability	$3,322,745,937	$3,079,669,517
Actuarial value of assets	1,637,845,956	1,480,809,977
Unfunded actuarial accrued liability	$1,684,899,981	$1,598,859,540

Development of Unfunded Actuarial Accrued Liability for the Year Ended June 30, 2017	
1. Unfunded actuarial accrued liability at beginning of year	$1,598,859,540
2. Normal cost and allocated administrative expenses from prior valuation	66,218,079
3. Expected employer contributions during 2016/2017 fiscal year	171,941,517
4. Interest on prior year UAAL, normal cost and contributions	111,985,208
5. Expected unfunded actuarial accrued liability (1 + 2 – 3 + 4)	$1,605,121,310
6. Change due to investment experience, caused primarily by allocation of more income to Retirement	2,096,700
7. Change due to actual contributions less than expected	7,813,169
8. Change due to updated 2017/2018 premiums, subsidy levels and dental election assumption	2,233,661
9. Change due to adopted future medical trend rates after 2017/2018	-147,180,614
10. Change due to new economic and non-economic assumptions	212,967,434
11. Change due to miscellaneous demographic gains and losses	1,848,321
12. Unfunded actuarial accrued liability at end of year	$1,684,899,981

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	$23,532,523	19	$2,162,896
Experience Gain	06/30/2012	-3,862,723	20	-3,348,999	15	-348,279
Experience Loss	06/30/2013	568,696	20	510,283	16	51,203
Experience Gain	06/30/2014	-116,336	20	-107,657	17	-10,460
Assumption change	06/30/2014	-170,349	25	-162,253	22	-13,962
Experience Gain	06/30/2015	-350,770	20	-333,963	18	-31,517
Experience Gain	06/30/2016	-1,578,952	20	-1,542,491	19	-141,772
Assumption change	06/30/2017	967,229	20	967,229	20	86,789
Experience Gain	06/30/2017	-1,175,982	20	-1,175,982	20	-105,520
Total				$18,338,690		$1,649,378

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	$943,484,211	19	$67,123,252
Experience Gain	06/30/2012	-78,975,844	20	-78,031,282	15	-6,595,592
Experience Loss	06/30/2013	11,740,672	20	11,691,169	16	941,533
Experience Gain	06/30/2014	-19,495,604	20	-19,490,877	17	-1,501,262
Assumption change	06/30/2014	9,333,499	25	9,647,668	22	621,273
Experience Loss	06/30/2015	34,495,425	20	34,589,871	18	2,556,713
Experience Gain	06/30/2016	-26,904,116	20	-26,977,106	19	-1,919,260
Assumption change	06/30/2017	65,323,379	20	65,323,379	20	4,485,101
Experience Gain	06/30/2017	-42,827,148	20	-42,827,148	20	-2,940,510
Total				$897,409,885		$62,771,248

(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	$72,032,569	19	$5,124,686
Experience Loss	06/30/2012	-4,428,062	20	-4,375,102	15	-369,805
Experience Gain	06/30/2013	13,070,888	20	13,015,776	16	1,048,209
Assumption Change	06/30/2014	-7,497,023	25	-7,495,205	17	-577,310
Experience Gain	06/30/2014	2,693,968	20	2,784,647	22	179,321
Experience Loss	06/30/2015	-1,747,416	20	-1,752,199	18	-129,514
Experience Gain	06/30/2016	2,480,551	20	2,487,280	19	176,955
Assumption change	06/30/2017	11,598,633	20	11,598,633	20	796,362
Experience Gain	06/30/2017	-10,568,753	20	-10,568,753	20	-725,650
Total				$77,727,646		$5,523,254

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	$52,191,419	19	$3,713,107
Experience Gain	06/30/2012	-3,240,833	20	-3,202,072	15	-270,655
Experience Loss	06/30/2013	1,622,876	20	1,616,032	16	130,145
Experience Gain	06/30/2014	-6,372,636	20	-6,371,092	17	-490,726
Assumption Change	06/30/2014	4,070,034	25	4,207,033	22	270,917
Experience Gain	06/30/2015	-3,458,772	20	-3,468,241	18	-256,355
Experience Loss	06/30/2016	2,516,035	20	2,522,861	19	179,486
Assumption change	06/30/2017	6,027,503	20	6,027,503	20	413,848
Experience Gain	06/30/2017	-4,896,151	20	-4,896,151	20	-336,170
Total				$48,627,292		$3,353,597

(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	$671,838,608	19	$47,797,294
Experience Gain	06/30/2012	-36,520,953	20	-36,084,157	15	-3,050,013
Experience Gain	06/30/2013	-195,938	20	-195,111	16	-15,713
Experience Gain	06/30/2014	-85,025,359	20	-85,004,747	17	-6,547,393
Assumption change	06/30/2014	45,164,286	25	46,684,531	22	3,006,306
Experience Gain	06/30/2015	-5,944,485	20	-5,960,760	18	-440,590
Experience Gain	06/30/2016	-6,139,038	20	-6,155,693	19	-437,941
Assumption change	06/30/2017	128,177,438	20	128,177,438	20	8,800,658
Experience Gain	06/30/2017	-72,934,341	20	-72,934,341	20	-5,007,669
Total				$640,365,768		$44,104,939

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	$2,700,491	19	$192,124
Experience Gain	06/30/2012	-481,777	20	-476,015	15	-40,235
Experience Gain	06/30/2013	-71,817	20	-71,514	16	-5,759
Experience Gain	06/30/2014	-232,604	20	-232,548	17	-17,912
Assumption change	06/30/2014	296,216	25	306,186	22	19,717
Experience Gain	06/30/2015	-64,131	20	-64,307	18	-4,753
Experience Loss	06/30/2016	181,052	20	181,543	19	12,916
Assumption change	06/30/2017	873,251	20	873,251	20	59,957
Experience Gain	06/30/2017	-786,387	20	-786,387	20	-53,993
Total				$2,430,700		$162,062

(1) *Level percentage of payroll amortization.*

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

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

The amortization payments are based on amortization of the Unfunded Actuarial Accrued Liability on a level percent of pay basis, except that Tier 1 is based on a level dollar basis.

CHART 4

Determination of Annual Required Contribution (ARC)[1]

Cost Element	2017 Amount	2017 Percentage of Compensation	2016 Amount	2016 Percentage of Compensation
1. Normal cost	$67,474,870	4.57%	$65,407,443	4.67%
2. Amortization of the unfunded actuarial accrued liability	117,564,478	7.97%	105,723,438	7.54%
3. Allocated amount for administrative expenses	1,282,315	0.09%	810,636	0.06%
4. Total Annual Required Contribution at beginning of year	$186,321,663	12.63%	$171,941,517	12.27%
5. Adjustment for timing (payable throughout the year)	6,635,987	0.45%	6,331,242	0.46%
6. Total Annual Required Contribution (payable throughout the year)	$192,957,650	13.08%	$178,272,759	12.73%
7. Adjustment for timing (payable July 15)	544,172	0.03%	518,903	0.04%
8. Total Annual Required Contribution (payable July 15)	$186,865,835	12.66%	$172,460,420	12.31%
9. Projected Total Payroll	$1,475,539,138		$1,400,808,351	

[1] *In the future, the ARC will be referred to as the Actuarially Determined Contribution (ADC).*

The Annual OPEB Cost (AOC) adjusts the ARC for timing differences between the ARC and contributions in relation to the ARC. The AOC is the cost of OPEB actually booked as an expense for the Fiscal Year under GASB 45.

CHART 4 (continued)

Determination of Annual OPEB Cost (AOC)

	Determined as of June 30	
	2017[1]	**2016[1]**
Cost Element	**(For 2018/2019 Fiscal Year)**	**(For 2017/2018 Fiscal Year)**
	Amount	**Amount**
1. Annual Required Contribution (adjusted with interest to end of fiscal year)	N/A	N/A
2. Interest on Beginning of Year Net OPEB Obligation (NOO)	N/A	N/A
3. ARC adjustment	N/A	N/A
4. Annual OPEB Cost	N/A	N/A
5. AOC as percentage of pay	N/A	N/A
6. Projected Total Payroll	N/A	N/A

[1] *The AOC and NOO are not applicable to GASB 75, which replaces GASB 45 for fiscal years ended after june 30, 2017. The AOC for fiscal year ended June 30, 2017 was determined as of June 30, 2015.*

For GASB 43 (plan reporting) purposes, the schedule of employer contributions compares actual contributions to the ARC. For GASB 45 (employer reporting) purposes, the schedule of employer contributions compares actual contributions to the AOC.

CHART 5

Required Supplementary Information – Schedule of Employer Contributions

Fiscal Year Ended June 30	Annual Required Contributions[1]	Actual Contributions[1]	Percentage Contributed
2012	$122,971,851	$122,971,851	100.00%
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

Required Supplementary Information – Schedule of Employer Contributions

GASB 45

Fiscal Year Ended June 30	Annual OPEB Cost	Actual Contributions[2]	Percentage Contributed
2012	$159,777,456	$132,105,073	82.68%
2013	144,568,706[3]	142,812,695	98.79
2014	149,887,239[3]	148,348,025	98.97
2015	160,865,397[3]	159,486,643	99.14
2016	161,911,267[3]	161,102,834	99.50
2017	177,542,910[3]	177,023,962	99.71

(1) *Payable as of July 15. In the future, the Annual Required Contribution (ARC) will be referred to as the Actuarially Determined Contribution (ADC).*
(2) *Shown with interest to end of year.*
(3) *Based on calculated expense as percent of pay and actual payroll.*

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

Required Supplementary Information – 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)]
06/30/2012	$927,362	$2,499,289	$1,571,927	37.11%	$1,341,914	117.14%
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%

The Net OPEB obligation measures the accumulated differences between the annual OPEB cost and the actual contributions in relation to the ARC.

CHART 7

Required Supplementary Information – Net OPEB Obligation (NOO)

Fiscal Year Beginning	Annual Required Contribution (a)	Interest on Existing NOO (b)	ARC Adjustment (c)	Annual OPEB Cost (a) + (b) + (c) (d)	Actual Contribution Amount[1] (e)	Net Increase in NOO (d) - (e) (f)	NOO as of End of Fiscal Year (g)
07/01/2011	$158,264,914[1]	$7,700,361	-$6,187,819	$159,777,456	$132,105,073	$27,672,383	$127,023,943
07/01/2012	142,812,695[1][2]	9,844,356	-8,088,345	144,568,706	142,812,695	1,756,011	128,779,954
07/01/2013	148,348,025[1][2]	9,980,446	-8,441,233	149,887,239	148,348,025	1,539,214	130,319,167
07/01/2014	159,486,643[1][2]	10,099,735	-8,720,981	160,865,397	159,486,643	1,378,754	131,697,921
07/01/2015	161,102,834[1][2]	9,877,344	-9,068,911	161,911,267	161,102,834	808,433	132,506,354
07/01/2016	177,023,962[1][2]	9,937,977	-9,419,029	177,542,910	177,023,962	518,948	133,025,302

(1) *With interest to end of year.*

(2) *Based on calculated expense as percent of pay and actual payroll.*

EXHIBIT A

Summary of Participant Data – Retiree Health Actuarial Valuation

	June 30, 2017	June 30, 2016
Retired members:		
Number of non-disabled retirees	7,818	7,623
Number of disabled retirees	1,327	1,347
Total Number of retirees	9,145	8,970
Average age of retirees	71.0	70.9
Number of spouses/domestic partners of retirees receiving subsidy	6,202	6,125
Average age of spouses/domestic partners of retirees receiving subsidy	67.0	66.8
Beneficiaries:		
Number	1,687	1,678
Average age	79.8	79.7
Active members in valuation:		
Number	13,327	13,050
Average age	42.3	42.3
Average years of service	15.7	15.3
Vested terminated members:		
Number		
Eligible for deferred pension and health benefits	73	69
Retirees and beneficiaries not in pay status but eligible for deferred health benefits	809	941
Total	882	1,010
Average age	52.1	53.1

EXHIBIT A (Continued)

Summary of Participant Data – Pension Actuarial Valuation

	June 30, 2017	June 30, 2016
Retired members:		
Number of non-disabled retirees	8,462	8,414
Number of disabled retirees	1,942	1,983
Total Number of retirees	10,404	10,397
Average age of retirees	65.0	69.6
Number of spouses/domestic partners of retirees receiving health subsidy	6,202	6,125
Average age of spouses/domestic partners of retirees receiving health subsidy	67.0	66.8
Beneficiaries:		
Number	2,432	2,422
Average age	76.4	76.6
Active members in valuation:		
Number	13,327	13,050
Average age	42.3	42.3
Average years of service	15.3	15.3
Vested terminated members[(1)]:		
Number	73	69
Average age	46.8	46.5

(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, 2017	June 30, 2016
Retired members:		
Pension valuation	8,462	8,414
Retirees with no subsidy due to service or decision not to enroll	-194	-205
Deferred retirees eligible for future health benefits	-450	-586
Health valuation	7,818	7,623
Disabled members:		
Pension valuation	1,942	1,983
Disableds with no subsidy due to service or decision not to enroll	-443	-449
Deferred disableds eligible for future health benefits	-172	-187
Health valuation	1,327	1,347
Beneficiaries:		
Pension valuation	2,432	2,422
Surviving spouses with no subsidy due to service or decision not to enroll	-558	-576
Deferred surviving spouses eligible for future health benefits	-187	-168
Health valuation	1,687	1,678
Active members:		
Pension valuation	13,327	13,050
Health valuation	13,327	13,050
Vested terminated members:		
Pension valuation*	73	69
Retirees eligible for deferred health benefits	+450	+586
Disableds eligible for deferred health benefits	+172	+187
Beneficiaries eligible for deferred health benefits	+187	+168
Health valuation	882	1,010

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

EXHIBIT C

Allocation of ARC by Tier

Tier 1 Members		June 30, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount	June 30, 2016 % of Payroll
1	Employer normal cost	$0	N/A	$0	N/A
2	Actuarial accrued liability	13,299,460		13,770,981	
3	Valuation value of assets	-5,039,230		-5,178,603	
4	Unfunded actuarial accrued liability	18,338,690		18,949,584	
5	Amortization of unfunded accrued liability	1,649,378	N/A	1,696,148	N/A
6	Allocated amount for admin expenses, calculated with payroll in 10	0		0	
7	Total recommended contribution, July 1	$1,649,378	N/A	$1,696,148	N/A
8	Total recommended contribution, July 15	1,654,195	N/A	1,701,267	N/A
9	Total recommended contribution, biweekly	1,708,122	N/A	1,758,604	N/A
10	Projected payroll used for developing normal cost rate	0		N/A	

Tier 2 Members		June 30, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount[2]	June 30, 2016 % of Payroll
1	Employer normal cost	$47,406	3.26%	$50,418	3.47%
2	Actuarial accrued liability	918,182,159		898,727,146	
3	Valuation value of assets	20,772,274		27,164,973	
4	Unfunded actuarial accrued liability	897,409,885		871,562,173	
5	Amortization of unfunded accrued liability[1]	62,771,248	4.29%	60,689,773	4.15%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,263	0.09%	841	0.06%
7	Total recommended contribution, July 1	62,819,917	N/A	60,741,032	N/A
8	Total recommended contribution, July 15	63,003,389	N/A	60,924,343	N/A
9	Total recommended contribution, biweekly	65,057,296	N/A	62,977,642	N/A
10	Projected payroll used for developing normal cost rate	1,452,955		N/A	

(1) UAAL rate is calculated using the City's total payroll of $1,462,404,169.

(2) Amounts are revised to reflect payroll as of June 30, 2017.

Tier 3 Members		June 30, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount[2]	June 30, 2016 % of Payroll
1	Employer normal cost	$4,052,233	4.50%	$4,175,659	4.64%
2	Actuarial accrued liability	204,831,238		188,172,851	
3	Valuation value of assets	127,103,592		111,686,539	
4	Unfunded actuarial accrued liability	77,727,646		76,486,312	
5	Amortization of unfunded accrued liability [1]	5,523,254	0.38%	5,410,895	0.37%
6	Allocated amount for admin expenses, calculated with payroll in 10	78,208	0.09%	52,078	0.06%
7	Total recommended contribution, payable July 1	9,653,695	N/A	9,638,632	N/A
8	Total recommended contribution, payable July 15	9,681,890	N/A	9,667,720	N/A
9	Total recommended contribution, payable biweekly	9,997,519	N/A	9,993,546	N/A
10	Projected payroll used for developing normal cost rate	89,992,649		N/A	

Tier 4 Members		June 30, 2017 Amount	June 30, 2017 % of Payroll	June 30, 2016 Amount[2]	June 30, 2016 % of Payroll
1	Employer normal cost	$1,494,492	4.35%	$1,517,311	4.42%
2	Actuarial accrued liability	105,780,068		98,082,027	
3	Valuation value of assets	57,152,776		50,814,358	
4	Unfunded actuarial accrued liability	48,627,292		47,267,669	
5	Amortization of unfunded accrued liability [1]	3,353,597	0.23%	3,217,289	0.22%
6	Allocated amount for admin expenses, calculated with payroll in 10	29,833	0.09%	19,865	0.06%
7	Total recommended contribution, payable July 1	4,877,922	N/A	4,754,465	N/A
7	Total recommended contribution, payable July 15	4,892,168	N/A	4,768,814	N/A
9	Total recommended contribution, payable biweekly	5,051,653	N/A	4,929,534	N/A
10	Projected payroll used for developing normal cost rate	34,328,299		N/A	

[1] *UAAL rate is calculated using the City's total payroll of $1,462,404,169.*
[2] *Amounts are revised to reflect payroll as of June 30, 2017.*

Tier 5 Members (without Harbor Port Police)

		June 30, 2017		June 30, 2016	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$48,601,599	4.23%	$50,495,142	4.40%
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	37,867,497	3.30%	34,543,267	3.01%
6	Allocated amount for admin expenses, calculated with payroll in 10	997,334	0.09%	664,116	0.06%
7	Total recommended contribution, payable July 1	87,466,430	7.62%	85,702,525	7.46%
8	Total recommended contribution, payable July 15	87,721,885	7.64%	85,961,167	7.49%
9	Total recommended contribution, payable biweekly	90,581,613	7.89%	88,858,269	7.74%
10	Projected payroll used for developing normal cost rate	1,147,616,857		N/A	

Tier 6 Members (without Harbor Port Police)

		June 30, 2017		June 30, 2016	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$12,523,861	6.62%	$13,230,939	7.00%
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	6,237,442	3.30%	5,689,304	3.01%
6	Allocated amount for admin expenses, calculated with payroll in 10	164,262	0.09%	109,380	0.06%
7	Total recommended contribution, payable July 1	18,925,565	10.01%	19,029,623	10.07%
8	Total recommended contribution, payable July 15	18,980,839	10.04%	19,087,052	10.10%
9	Total recommended contribution, payable biweekly	19,599,613	10.37%	19,730,333	10.44%
10	Projected payroll used for developing normal cost rate	189,013,409		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2017.*

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

		June 30, 2017				June 30, 2016	
		Tier 5	Tier 6	Combined Tiers 5 and 6		Combined Tiers 5 and 6	
				Amount	% of Payroll	Amount	% of Payroll
2	Actuarial accrued liability	$2,048,786,163	$20,360,288	$2,069,146,451		$1,870,884,486	
3	Valuation value of assets			1,428,780,683		1,288,617,877	
4	Unfunded actuarial accrued liability			640,365,768		582,266,609	
5	Amortization of unfunded accrued liability			44,104,939	3.30%	40,232,571	3.01%
	Projected payroll used for developing combined UAAL rate	1,147,616,857	189,013,409	1,336,630,266		N/A	

All Tiers Combined (without Harbor Port Police)

		June 30, 2017		June 30, 2016	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$66,719,591	4.56%	$69,469,469	4.75%
2	Actuarial accrued liability	3,311,239,376		3,069,637,490	
3	Valuation value of assets	1,628,770,095		1,473,105,144	
4	Unfunded actuarial accrued liability	1,682,469,281		1,596,532,346	
5	Amortization of unfunded accrued liability	117,402,416	8.03%	111,246,676	7.61%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,270,900	0.09%	846,281	0.06%
7	Total recommended contribution, payable July 1	185,392,907	12.68%	181,562,426	12.42%
8	Total recommended contribution, payable July 15	185,934,367	12.71%	182,110,364	12.45%
9	Total recommended contribution, payable biweekly	191,995,816	13.13%	188,247,930	12.87%
10	Projected payroll used for developing normal cost rate	1,462,404,169		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2017.*

Harbor Port Police Tier 5

		June 30, 2017		June 30, 2016	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$654,193	5.73%	$676,204	5.92%
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	140,997	1.23%	138,211	1.21%
6	Allocated amount for admin expenses, calculated with payroll in 10	9,927	0.09%	6,610	0.06%
7	Total recommended contribution, payable July 1	805,117	7.05%	821,025	7.18%
8	Total recommended contribution, payable July 15	807,468	7.07%	823,503	7.21%
9	Total recommended contribution, payable biweekly	833,792	7.30%	851,257	7.45%
10	Projected payroll used for developing normal cost rate	11,422,366		N/A	

Harbor Port Police Tier 6

		June 30, 2017		June 30, 2016	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$101,086	5.90%	$97,618	5.70%
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	21,065	1.23%	20,722	1.21%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,488	0.09%	991	0.06%
7	Total recommended contribution, payable July 1	123,639	7.22%	119,331	6.97%
8	Total recommended contribution, payable July 15	124,000	7.24%	119,691	6.99%
9	Total recommended contribution, payable biweekly	128,042	7.48%	123,725	7.22%
10	Projected payroll used for developing normal cost rate	1,712,603		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2017.*

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

		June 30, 2017				June 30, 2016	
		Tier 5	*Tier 6*	*Combined Tiers 5 and 6*		*Combined Tiers 5 and 6*	
				Amount	% of Payroll	Amount	% of Payroll
2	Actuarial accrued liability	$11,373,395	$133,166	$11,506,561		$10,032,027	
3	Valuation value of assets			9,075,861		7,704,833	
4	Unfunded actuarial accrued liability			2,430,700		2,327,194	
5	Amortization of unfunded accrued liability			162,062	1.23%	158,933	1.21%
	Projected payroll used for developing combined UAAL rate	11,422,366	1,712,603	13,134,969		N/A	

Harbor Port Police Combined (Tiers 5 and 6)

		June 30, 2017		June 30, 2016	
		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$755,279	5.75%	$773,822	5.89%
2	Actuarial accrued liability	11,506,561		10,032,027	
3	Valuation value of assets	9,075,861		7,704,833	
4	Unfunded actuarial accrued liability	2,430,700		2,327,194	
5	Amortization of unfunded accrued liability	162,062	1.23%	158,933	1.21%
6	Allocated amount for admin expenses, calculated with payroll in 10	11,415	0.09%	7,601	0.06%
7	Total recommended contribution, payable July 1	928,756	7.07%	940,356	7.16%
8	Total recommended contribution, payable July 15	931,468	7.09%	943,194	7.18%
9	Total recommended contribution, payable biweekly	961,834	7.32%	974,982	7.42%
10	Projected payroll used for developing normal cost rate	13,134,969		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2017.*

		June 30, 2017		June 30, 2016	
All Tiers Combined		Amount	% of Payroll	Amount[1]	% of Payroll
1	Employer normal cost	$67,474,870	4.57%	$70,243,291	4.76%
2	Actuarial accrued liability	3,322,745,937		3,079,669,517	
3	Valuation value of assets	1,637,845,956		1,480,809,977	
4	Unfunded actuarial accrued liability	1,684,899,981		1,598,859,540	
5	Amortization of unfunded accrued liability	117,564,478	7.97%	111,405,609	7.55%
6	Allocated amount for admin expenses, calculated with payroll in 10	1,282,315	0.09%	853,882	0.06%
7	Total recommended contribution, payable July 1	186,321,663	12.63%	182,502,782	12.37%
8	Total recommended contribution, payable July 15	186,865,835	12.66%	183,053,558	12.41%
9	Total recommended contribution, payable biweekly	192,957,650	13.08%	189,222,911	12.82%
10	Projected payroll used for developing normal cost rate	1,475,539,138		N/A	

[1] *Amounts are revised to reflect payroll as of June 30, 2017.*

EXHIBIT D

Cash Flow Projections

The ARC 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 ARC in a well-funded plan. The following table projects the paygo cost as the projected net fund payment over the next ten years.

Year Ending June 30	Projected Number of Retirees*			Projected Benefit Payments		
	Current	Future	Total	Current	Future	Total
2018	17,425	244	17,669	$128,321,597	$2,123,577	$130,445,174
2019	17,006	888	17,894	132,702,583	8,483,984	141,186,567
2020	16,576	1,786	18,362	136,744,406	18,206,049	154,950,455
2021	16,133	2,797	18,930	140,631,680	30,251,510	170,883,190
2022	15,682	3,766	19,448	143,533,549	43,020,274	186,553,823
2023	15,216	4,651	19,867	145,970,398	55,745,690	201,716,088
2024	14,744	5,223	19,967	147,879,614	65,477,563	213,357,177
2025	14,260	5,839	20,099	149,167,357	76,297,782	225,465,139
2026	13,768	6,491	20,259	150,352,494	87,608,455	237,960,949
2027	13,266	7,149	20,415	151,316,196	99,597,481	250,913,677

* *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, 2017		Year Ended June 30, 2016	
Contribution income:				
Employer contributions	$619,479,274		$628,700,812	
Employee contributions	128,900,736		129,733,559	
Net contribution income		$748,380,010		$758,434,371
Investment income:				
Interest, dividends and other income	$1,416,457,386		$898,786,837	
Recognition of capital appreciation	187,435,433		563,251,453	
Less investment and administrative fees	(86,151,220)		(80,778,689)	
Net investment fees*		1,517,741,599		1,381,259,601
Total income available for benefits		$2,266,121,609		$2,139,693,972
Less benefit payments		$(1,052,639,705)		$(1,107,041,622)
Less administrative expenses		(22,563,327)		(20,897,310)
Change in reserve for future benefits		$1,190,918,577		$1,011,755,040

EXHIBIT F

Summary Statement of Assets for Retirement and Health Subsidy Benefits

	Year Ended June 30, 2017		Year Ended June 30, 2016	
Cash equivalents		$1,595,842		$2,192,456
Accounts receivable:				
Accrued interest and dividends	$67,873,889		$65,462,527	
Contributions	2,945,722		7,499,627	
Due from brokers	141,051,560		68,578,711	
Total accounts receivable		211,871,171		141,540,865
Investments:				
Equities	$13,145,475,978		$11,405,646,262	
Fixed income investments	6,250,264,420		5,940,532,422	
Real estate	1,533,900,296		1,531,754,098	
Total investments at market value		20,929,640,694		18,877,932,782
Total assets		$21,143,107,707		$19,021,666,103
Less accounts payable:				
Accounts payable and benefits in process	$(23,153,856)		$(45,770,044)	
Due to brokers	(252,664,835)		(253,277,481)	
Mortgage payable	(204,882,420)		(182,938,598)	
Total accounts payable		$(480,701,111)		$(481,986,123)
Net assets at market value		$20,662,406,596		$18,539,679,980
Net assets at actuarial value		$20,317,066,949		$19,126,148,372
Net assets at valuation value (health benefits)		$1,637,845,956		$1,480,809,977

EXHIBIT G

Development of the Fund Through June 30, 2016 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
2008	$333,672,743	$98,074,219	$1,414,391,128	-	$827,959,245	$14,920,943,683
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

[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)				$20,662,406,596
2. Calculation of unrecognized return[1]				
(a) Year ended June 30, 2017	$1,050,034,903	6/7	$900,029,917	
(b) Year ended June 30, 2016	(1,240,953,883)	5/7	(886,395,631)	
(c) Year ended June 30, 2015	(643,447,599)	4/7	(367,684,342)	
(d) Year ended June 30, 2014	1,571,818,656	3/7	673,636,567	
(e) Combined Net Deferred Gain as of June 30, 2013[2]	77,259,408	2/6	25,753,136	
(f) Total unrecognized return				345,339,647
3. Preliminary actuarial value: (1) - (2e)				20,317,066,949
4. Adjustment to be within 40% corridor				0
5. Final actuarial value of assets: (3) + (4)				$20,317,066,949
6. Actuarial value as a percentage of market value: (5) ÷ (1)				98.3%
7. Market value of health assets				$1,665,685,267
8. Valuation value of health assets: (5) ÷ (1) x (7)				$1,637,845,956
9. Deferred return recognized in each of the next 6 years (for Retirement and Health Subsidy Benefits):				
(a) Amount recognized on June 30, 2018				$118,226,864
(b) Amount recognized on June 30, 2019				118,226,864
(c) Amount recognized on June 30, 2020				105,350,297
(d) Amount recognized on June 30, 2021				(119,195,224)
(e) Amount recognized on June 30, 2022				(27,274,141)
(f) Amount recognized on June 30, 2023				150,004,987
(g) Subtotal (may not total exactly due to rounding)				$345,339,647

(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 ARC from the prior valuation to the current year's valuation.

EXHIBIT I

Reconciliation of Recommended Contribution from June 30, 2016 to June 30, 2017[1]

Recommended Contribution as of June 30, 2016	12.27%
Effect of amortizing prior year's UAAL over a larger than expected projected total payroll	-0.10%
Effect of actual contributions less than expected	0.04%
Effect of new economic and non-economic assumptions	1.38%
Effect of updated 2017/2018 premiums, subsidy levels and dental election assumption	0.01%
Effect of adopted future medical trend rates after 2017/2018	-1.09%
Effect of miscellaneous factors including demographic experience	0.12%
Recommended Contribution as of June 30, 2017	12.63%

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

EXHIBIT I

Summary of Required Supplementary Information

Valuation date	June 30, 2017
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	7.00% in 2017-2018[2], then decreasing by 0.25% for each year for ten years until it reaches an ultimate rate of 4.50%.
• Medical Medicare	6.50% in 2017-2018, then decreasing by 0.25% for each year for eight years until it reaches an ultimate rate of 4.50%.
• Dental	4.50% for all years
• Medicare Part B Premium	4.50% for all years

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

(2) *For example, the 7.00% assumption, when applied to the 2017/2018 non-Medicare medical premiums, would provide the projected 2018/2019 non-Medicare medical premiums.*

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, 2017 (e.g. Fire Kaiser), increase with medical trend. ▪ For Medicare retirees with 2-party premium greater than the maximum subsidy as of July 1, 2017 (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, 2017	June 30, 2016
Current retirees and beneficiaries	10,832	10,648
Current active participants	13,327	13,050
Terminated participants entitled but not yet enrolled in health benefits		
Eligible for deferred pension and health benefits	73	69
Retirees and beneficiaries not in pay status but eligible for deferred health benefits	809	941
Subtotal	882	1,010
Total	25,041	24,708

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 14, 2017. 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, 2017
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.

2017 – 2018 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	$959.46	$1,627.73	**$959.46**	$1,564.66	$1,627.73	**$1,564.66**	$959.46	$826.43	**$826.43**
Fire Kaiser	10	$658.54	$1,627.73	**$658.54**	$1,307.08	$1,627.73	**$1,307.08**	$658.54	$826.43	**$658.54**
Fire Blue Cross	5	$1,574.52	$1,627.73	**$1,574.52**	$1,950.02	$1,627.73	**$1,627.73**	$1,328.41	$826.43	**$826.43**
Fire California Care	5	$1,495.45	$1,627.73	**$1,495.45**	$1,516.71	$1,627.73	**$1,516.71**	$913.00	$826.43	**$826.43**
Fire Vivity Value	0	$1,535.03	$1,627.73	**$1,535.03**	$1,539.60	$1,627.73	**$1,539.60**	$936.67	$826.43	**$826.43**
Police										
Blue Cross PPO	65	$945.70	$1,627.73	**$945.70**	$2,002.38	$1,627.73	**$1,627.73**	$945.70	$826.43	**$826.43**
Blue Cross HMO	15	$894.03	$1,627.73	**$894.03**	$1,662.23	$1,627.73	**$1,627.73**	$894.03	$826.43	**$826.43**
Police Kaiser	20	$579.90	$1,627.73	**$579.90**	$1,148.66	$1,627.73	**$1,148.66**	$579.90	$826.43	**$579.90**

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

For the valuation of current retirees, subsidies valued are based on actual subsidies 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.

2017 – 2018 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	$666.46	$505.93	**$505.93**	$978.66	$818.13	**$818.13**	$666.46	$505.93	**$505.93**
Fire Kaiser	15	$253.18	$505.93	**$253.18**	$496.36	$496.36	**$496.36**	$253.18	$505.93	**$253.18**
Fire Blue Cross	0	$918.30	$505.93	**$505.93**	$1,898.07	$1,485.70	**$1,485.70**	$918.30	$505.93	**$505.93**
Fire California Care	0	$557.13	$505.93	**$505.93**	$1,526.89	$1,475.69	**$1,475.69**	$557.13	$505.93	**$505.93**
Fire Vivity Value	0	$571.09	$505.93	**$505.93**	$1,567.26	$1,502.10	**$1,502.10**	$571.09	$505.93	**$505.93**
Police										
Blue Cross PPO	75	$576.70	$505.93	**$505.93**	$1,257.89	$1,187.12	**$1,187.12**	$576.70	$505.93	**$505.93**
Blue Cross HMO	10	$665.03	$505.93	**$505.93**	$1,310.74	$1,151.64	**$1,151.64**	$665.03	$505.93	**$505.93**
Police Kaiser	15	$205.26	$505.93	**$205.26**	$405.50	$405.50	**$405.50**	$205.26	$505.93	**$205.26**

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

For the valuation of current retirees, subsidies valued are based on actual subsidies 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	$765.36	$480.41
Fire Kaiser	253.18[1]	496.36	253.18[1]
Fire Blue Cross	480.41	992.78	480.41
Fire California Care	480.41	1020.69	480.41
Fire Vivity Value	480.41	1006.73	480.41
Police Blue Cross PPO	480.41	820.12	480.41
Police Blue Cross HMO	480.41	782.79	480.41
Police Kaiser	205.26[1]	405.50	205.26[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 2017-2018

	Retiree		Spouse	
Age	**Male**	**Female**	**Male**	**Female**
55	0.9273	0.9573	0.7298	0.8266
60	1.1012	1.0319	0.9770	0.9587
64	1.2634	1.0947	1.2333	1.0790

Applied to Per Capita Costs in Table 2(b) for 2017-2018

	Retiree		Spouse	
Age	**Male**	**Female**	**Male**	**Female**
65	0.9108	0.7742	0.9108	0.7742
70	1.0556	0.8343	1.0556	0.8343
75	1.1376	0.8981	1.1376	0.8981
80+	1.2251	0.9682	1.2251	0.9682

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, 2017 through June 30, 2018)

The fiscal year trend rates are the following:

	Trend (applied to calculate following year premium)	
Fiscal Year	**Non-Medicare**	**Medicare**
2017-2018	7.00%[2]	6.50%
2018-2019	6.75%	6.25%
2019-2020	6.50%	6.00%
2020-2021	6.25%	5.75%
2021-2022	6.00%	5.50%
2022-2023	5.75%	5.25%
2023-2024	5.50%	5.00%
2024-2025	5.25%	4.75%
2025-2026	5.00%	4.50%
2026-2027	4.75%	4.50%
2027 and later	4.50%	4.50%

Dental Premium Trend 4.50% for all years

Medicare Part B Premium Trend 4.50% for all years

[1] For example, the 7.00% assumption for fiscal year 2017-2018, when applied to the 2017-2018 non-Medicare medical premiums, would provide the projected 2018-2019 non-Medicare medical premiums.

[2] The maximum non-Medicare health subsidy for 2018-2019 would be calculated by multiplying the maximum non-Medicare health subsidy for 2017-2018 by the 2017-2018 fiscal year trend assumption of 7.00%.

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 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. We understand Statements No. 74 and No. 75 by the Governmental Accounting Standards Board (GASB) for financial reporting purposes require the inclusion of the excise tax in the liability. Statement No. 74 is effective for fiscal years beginning after June 15, 2016 for plan reporting and Statement No. 75 is effective for fiscal years beginning after June 15, 2017 for employer reporting.

For the June 30, 2017 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.

Dental election assumption was updated.

Future trend rate assumptions were updated. Different trends applied for Medicare and non-Medicare retirees and the ultimate trend was lowered to 4.50%.

Based on the June 30, 2016 Actuarial Experience Study, the following assumptions have been changed. Previously, these assumptions were as follows

Change in Actuarial Assumptions (continued):

Net Investment Return:	7.50%, net of investment expenses
Consumer Price Index:	Increase of 3.25% 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:	5.00%
Administrative Expenses:	Out of the total 1.00% of payroll in administrative expense, 0.06% of payroll payable biweekly is allocated to the Retiree Health Plan. This is equal to 0.06% of payroll payable at beginning of the year.
Payroll Growth:	Inflation of 3.25% per year plus "across-the-board" real salary increases of 0.75% per year.
Salary Increases:	

Annual Rate of Compensation Increase	
Inflation: 3.25% per year; plus 0.75% “across the board” salary increases; plus the following Merit and Longevity increases based on years of service.	
Years of Service	**Additional Salary Increase**
0	7.50%
1	6.50
2	5.00
3	4.75
4	3.75
5	3.00
6	2.25
7	2.00
8	1.75
9	1.75
10	1.25
11 or more	0.75

Change in Actuarial Assumptions (continued):

Mortality Rates:

Healthy: RP-2000 Combined Healthy Mortality Table (separate for males and females), projected to 2022 with scale BB set back one year for members.

RP-2000 Combined Healthy Mortality Table (separate for males and females), projected to 2022 with scale BB set forward one year for beneficiaries.

Disabled: RP-2000 Combined Healthy Mortality Table (separate for males and females), projected to 2022 with scale BB set forward one year.

Termination Rates Before Retirement:

Pre-Retirement Mortality:

	Rate (%)	
	Mortality	
Age	Male	Female
20	0.03	0.02
25	0.04	0.02
30	0.04	0.02
35	0.07	0.04
40	0.10	0.06
45	0.13	0.10
50	0.19	0.15
55	0.30	0.22
60	0.52	0.36

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

Change in Actuarial Assumptions (continued):

Termination Rates Before Retirement (continued):

	Rate (%)	
	Disability[1]	
Age	Fire	Police
20	0.02	0.02
25	0.02	0.03
30	0.03	0.05
35	0.06	0.08
40	0.15	0.22
45	0.23	0.36
50	0.28	0.46
55	1.02	0.80
60	3.00	1.18

[1] *90% of disabilities are assumed to be service connected. Disability rates are not applied to members eligible to enter the DROP.*

Change in Actuarial Assumptions (continued):

Termination Rates Before Retirement (continued):

Rate (%)		
Termination (< 5 Years of Service)		
Years of Service	**Fire**	**Police**
0 – 1	8.00	8.00
1 – 2	2.50	3.00
2 – 3	1.50	2.50
3 – 4	0.75	2.50
4 – 5	0.50	1.75

Rate (%)		
Termination (5+ Years of Service)[1]		
Age	**Fire**	**Police**
20	1.00	2.00
25	1.00	2.00
30	0.85	1.70
35	0.54	1.20
40	0.37	0.85
45	0.17	0.66
50	0.02	0.24
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.*

Change in Actuarial Assumptions (continued):

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	3.00	3.00	12.00	7.00	8.00
51	4.00	3.00	3.00	12.00	6.00	10.00
52	5.00	3.00	4.00	12.00	6.00	10.00
53	10.00	3.00	5.00	15.00	6.00	15.00
54	15.00	7.00	5.00	20.00	10.00	15.00
55	20.00	12.00	10.00	20.00	18.00	18.00
56	20.00	14.00	12.00	25.00	18.00	18.00
57	20.00	16.00	15.00	25.00	20.00	20.00
58	20.00	20.00	18.00	25.00	22.00	22.00
59	20.00	25.00	20.00	25.00	25.00	25.00
60	20.00	25.00	25.00	25.00	25.00	25.00
61	20.00	30.00	30.00	25.00	25.00	25.00
62	25.00	35.00	30.00	25.00	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	100.00	100.00	100.00	100.00	100.00	100.00

Funding Policy: Any changes in Unfunded Actuarial Accrued Liability from plan assumption changes are amortized over separate twenty-five year periods as a level percentage of payroll.

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, 2017, maximum is $1,627.73 per month. For surviving spouse or domestic partner, the maximum subsidy is $826.43 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, 2017, the single coverage maximum subsidy for retirees and surviving spouse or domestic partner is $505.93. The multi-person coverage maximum subsidy is $1,502.10 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, 2017 (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, 2017 (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)

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

Medicare Part B Premium Reimbursement	For retired Members enrolled in Medicare A & B who are receiving a subsidy, the Plan provides payment of Part B premiums ($134.00 for calendar year 2017, 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, 2017, 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 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.
ARC as a Percentage of Covered Payroll:	The ratio of the annual required contribution to covered payroll.
Health Care Cost Trend Rates:	The annual rate of increase in net claims costs per individual benefiting from the Plan.
Annual Required Contribution (ARC):	The ARC is equal to the sum of the normal cost and the amortization of the unfunded actuarial accrued liability.

Net OPEB Obligation (NOO):	The NOO is the cumulative difference between the annual OPEB cost and actual contributions made. If the plan is not pre-funded, the actual contribution would be equal to the annual benefit payments less retiree contributions.
Annual OPEB Cost (AOC):	Annual OPEB cost is the measure required by GASB 45 of a sole or agent employer's "cost" of participating in an OPEB plan. When an employer has no net OPEB obligation, annual OPEB cost is equal to the ARC. When a net OPEB obligation has a liability (positive) balance, annual OPEB cost is equal to (a) the ARC, plus (b) one year's interest on the beginning balance of the net OPEB obligation, less (c) an adjustment to the ARC to offset, approximately, the amount included in the ARC for amortization of the past contribution deficiencies. When a net OPEB obligation has an asset (negative) balance, the interest adjustment should be deducted from and the ARC adjustment should be added to the ARC, to determine annual OPEB cost.
ARC Adjustment:	The ARC adjustment is an amortization payment based on the prior year NOO. The purpose of the interest and ARC adjustments is to avoid "double-counting" annual OPEB cost and liabilities. Without the adjustments, annual OPEB cost and the net OPEB obligation (liability) would be overstated by the portion of the amortization amount previously recognized in annual OPEB cost. With the adjustments, annual OPEB cost should be approximately equal to the ARC that would have been charged if all prior ARCs had been paid in full, plus one year's interest on the net OPEB obligation.
Employer Contributions:	For the purposes of GASB 45, 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.

EXHIBIT V

Accounting Requirements

The Governmental Accounting Standards Board (GASB) issued Statement Number 45 – *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions.* Under these statements, all state and local government entities that provide other post employment benefits (OPEB) are required to report the cost of these benefits on their financial statements. The accounting standards supplement cash accounting, under which the expense for postemployment benefits is equal to benefit and administrative costs paid on behalf of retirees and their dependents (*i.e.*, a pay-as-you-go basis).

The statements cover postemployment benefits of health, prescription drug, dental, vision and life insurance coverage for retirees; long-term care coverage, life insurance and death benefits that are *not* offered as part of a pension plan; and long-term disability insurance for employees. The benefits valued in this report are limited to those described in Exhibit III of Section 4, which are based on those provided under the terms of the substantive plan in effect at the time of the valuation and on the pattern of sharing costs between the employer and plan members. The projection of benefits is not limited by legal or contractual limits on funding the plan unless those limits clearly translate into benefit limits on the substantive plan being valued.

The new standards introduce an accrual-basis accounting requirement, thereby recognizing the employer cost of postemployment benefits over an employee's career. The standards also introduce a consistent accounting requirement for both pension and non-pension benefits.

The total cost of providing postemployment benefits is projected, taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions. These assumptions are summarized in Exhibit II of Section 4. This amount is then discounted to determine the actuarial present value of the total projected benefits (APB). The actuarial accrued liability (AAL) is the portion of the present value of the total projected benefits allocated to years of employment prior to the measurement date. The unfunded actuarial accrued liability (UAAL) is the difference between the AAL and actuarial value of assets in the Plan.

Once the UAAL is determined, the Annual Required Contribution (ARC) is determined as the normal cost (the APB allocated to the current year of service) and the amortization of the UAAL. This ARC is compared to actual contributions made and any difference is reported as the Net OPEB Obligation (NOO). In addition, Required Supplementary Information (RSI) must be reported, including historical information about the UAAL and the progress in funding the Plan. Exhibit IV of Section 4 contain a definition of terms.

The calculation of an accounting obligation does not, in and of itself, imply that there is any legal liability to provide the benefits valued, nor is there any implication that the Employer is required to implement a funding policy to satisfy the projected expense.

Actuarial calculations reflect a long-term perspective, and the methods and assumptions use techniques designed to reduce short term volatility in accrued liabilities and the actuarial value of assets, if any.

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future, and the actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.

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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, 2017

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. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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November 9, 2017

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, 2017. It contains various information that will need to be disclosed in order to comply with GAS 67.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Plan. The census and financial information on which our calculations were based was prepared by Los Angeles Fire & Police Pensions (LAFPP). That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law.

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

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

Sincerely,

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

By:

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

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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, 2017. 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, 2016, provided by LAFPP;
- The assets of the Plan as of June 30, 2017, 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 can 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, 2017 and 2016 have been determined by rolling forward the results of the actuarial valuations as of June 30, 2016 and June 30, 2015, respectively. In addition, changes in actuarial assumptions that occurred between the June 30, 2016 valuation date and the June 30, 2017 measurement date have been reflected as of June 30, 2017.

Significant Issues in Valuation Year

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

- The NPL decreased from $2.461 billion as of June 30, 2016 to $1.817 billion as of June 30, 2017 mainly due to the gain from a return on the market value of assets of 13.1% during 2016/2017 that was more than the assumption of 7.50% used in the June 30, 2016 valuation (that gain was about $1.0 billion). That gain was offset to some degree by the change in actuarial assumptions as of June 30, 2017, which increased the liability by about $695.4 million. Changes in these values during the last two fiscal years ending June 30, 2016 and June 30, 2017 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. Since the effective date of this amendment is January 2018, there is no impact on the liabilities shown in this report.

- The discount rate originally used to roll forward the TPL and NPL as of June 30, 2017 was 7.50% following the same assumption used by LAFPP in the pension funding valuation as of June 30, 2016. However, as the Board adopted new actuarial assumptions (which include a new discount rate of 7.25% together with other new demographic assumptions) for use in the pension funding valuation as of June 30, 2017, we have estimated the impact of those assumption changes by (1) revaluing the TPL as of June 30, 2016 (before roll forward) using the new actuarial assumptions and (2) using this revalued TPL in rolling forward the results from June 30, 2016 to June 30, 2017.

- The discount rate used to determine the TPL and NPL as of June 30, 2017 and 2016 was 7.25% and 7.50%, respectively. 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

	2017	2016
Disclosure elements for fiscal year ending June 30:		
Service Cost[(1)]	$367,600,389	$365,956,485
Total Pension Liability	20,814,044,544	19,565,408,718
Plan's Fiduciary Net Position	18,996,721,329	17,104,276,335
Net Pension Liability	1,817,323,215	2,461,132,383
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	91.27%	87.42%
Schedule of contributions for fiscal year ending June 30:		
Actuarially determined contributions	$454,308,852	$478,385,438
Actual contributions	454,308,852	478,385,438
Contribution deficiency (excess)	0	0
Demographic data for plan year ending June 30:[(2)]		
Number of retired members and beneficiaries	12,836	12,819
Number of vested terminated members[(3)]	374	128
Number of DROP members	1,303	1,243
Number of active members	12,024	11,807
Key assumptions as of June 30:		
Investment rate of return	7.25%	7.50%
Inflation rate	3.00%	3.25%
Projected salary increases[(4)]	Ranges from 4.30% to 12.00% based on years of service	Ranges from 4.75% to 11.50% based on years of service

(1) *Excludes administrative expense load. The service cost is based on the previous year's valuation, meaning the June 30, 2017 and June 30, 2016 values are based on the valuations as of June 30, 2016 and June 30, 2015, respectively. Furthermore, the actuarial assumptions used to determine the service cost in the June 30, 2015 valuation were the same as those used in the June 30, 2016 valuation.*

(2) *Data as of June 30, 2016 is used in the measurement of the TPL as of June 30, 2017.*

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

(4) *Includes inflation at 3.00% plus real across the board salary increases of 0.50% plus merit and promotional increases for 2017 and includes inflation at 3.25% plus real across the board salary increases of 0.75% plus merit and promotional increases for 2016.*

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.

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, 2017, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	12,836
Vested terminated members entitled to, but not yet receiving benefits(1)	374
DROP members	1,303
Active members	12,024
Total	26,537

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

Note: Data as of June 30, 2017 is not used in the measurement of the TPL as of June 30, 2017.

Benefits provided. LAFPP provides service retirement, disability, death and survivor benefits to eligible sworn members of the Los Angeles Fire, Police and Harbor Departments. 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. 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 2016 – 2017 (based on the June 30, 2015 valuation) was 32.51% of compensation if paid on July 15, 2016.

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 2016 – 2017 (based on the June 30, 2015 valuation) was 9.23% of compensation paid biweekly.

EXHIBIT 2

Net Pension Liability

	June 30, 2017	June 30, 2016
The components of the Net Pension Liability are as follows:		
Total Pension Liability	$20,814,044,544	$19,565,408,718
Plan's Fiduciary Net Position	18,996,721,329	17,104,276,335
Net Pension Liability	$1,817,323,215	$2,461,132,383
Plan's Fiduciary Net Position as a percentage of the Total Pension Liability	91.27%	87.42%

The Net Pension Liability (NPL) was measured as of June 30, 2017 and 2016. 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, 2016 and 2015, respectively.

Plan Provisions. The plan provisions used in the measurement of the NPL as of June 30, 2017 and 2016 are the same as those used in the LAFPP actuarial valuation as of June 30, 2017 and 2016, respectively.

Actuarial assumptions. 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 has 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, 2017 funding actuarial valuation for LAFPP. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

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

The TPL as of June 30, 2016 that was determined by an actuarial valuation as of June 30, 2015 used the following actuarial assumptions, applied to all periods in the measurement:

Inflation	3.25%
Salary increases	Ranges from 4.75% to 11.50% based on years of service, including inflation
Investment rate of return	7.50%, including inflation but net of pension plan investment expense
Other assumptions	See analysis of actuarial experience during the period July 1, 2010 through June 30, 2013.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation and 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 are summarized in the following table:

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, 2017 and 7.50% as of June 30, 2016. 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, 2017 and June 30, 2016.

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the NPL of LAFPP as of June 30, 2017, 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, 2017	$4,662,373,070	$1,817,323,215	$(508,142,400)

EXHIBIT 3

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

	2017	2016
Total Pension Liability		
1. Service Cost	$367,600,389	$365,956,485
2. Interest	1,436,067,479	1,399,576,068
3. Change of benefit terms	0	0
4. Differences between expected and actual experience	(320,403,684)	(595,188,412)
5. Changes of assumptions	695,449,707	0
6. Benefit payments, including refunds of employee contributions	(930,078,065)	(990,363,179)
7. **Net change in Total Pension Liability**	$1,248,635,826	$179,980,962
8. **Total Pension Liability – beginning**	19,565,408,718	19,385,427,756
9. **Total Pension Liability – ending**	$20,814,044,544	$19,565,408,718
Plan's Fiduciary Net Position		
10. Contributions – employer	$454,308,852	$478,385,438
11. Contributions – employee	128,900,736	129,733,559
12. Net investment income	2,260,129,893	159,312,887
13. Benefit payments, including refunds of employee contributions	(930,078,065)	(990,363,179)
14. Administrative expense	(20,816,422)	(19,346,446)
15. Other	0	0
16. **Net change in Plan's Fiduciary Net Position**	$1,892,444,994	$(242,277,741)
17. **Plan's Fiduciary Net Position – beginning**	17,104,276,335	17,346,554,076
18. **Plan's Fiduciary Net Position – ending**	$18,996,721,329	$17,104,276,335
19. **Net Pension Liability – ending (9) – (18)**	$1,817,323,215	$2,461,132,383
20. **Plan's Fiduciary Net Position as a percentage of the Total Pension Liability**	91.27%	87.42%
21. **Covered employee payroll**[1]	$1,397,244,974	$1,351,788,221
22. **Net Pension Liability as percentage of covered employee payroll**	130.06%	182.06%

[1] *Covered employee payroll represents the collective total of the LAFPP eligible wages of all LAFPP member categories.*

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-Employee Payroll(2)	Contributions as a Percentage of Covered Employee Payroll(3)
2008(4)	$261,635,491	$261,635,491	$0	$1,188,972,417	22.01%
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(5)	33.69%
2015	480,332,251	480,332,251	0	1,314,360,387(5)	36.54%(5)
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%

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 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) *Figures include amounts transferred and contributed during the fiscal year that were related to the transfer of certain Harbor Port Police members from the Los Angeles City Employees' Retirement System into LAFPP.*

(5) *Using updated data provided by LAFPP, these amounts have been revised since the issuance of the GAS 67 Report dated November 18, 2016.*

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, 2017 were based on the June 30, 2015 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, 2015 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, 2015 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, 2017 ($ 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)
2016	$17,104	$583	$930	$21	$2,260	$18,997
2017	18,997	616	968	16	1,381	20,010
2018	20,010	631	1,056	16	1,452	21,021
2019	21,021	605	1,195	16	1,517	21,933
2020	21,933	551	1,283	15	1,576	22,761
2021	22,761	546	1,326	15	1,634	23,600
2022	23,600	553	1,281	15	1,697	24,555
2023	24,555	541	1,341	15	1,763	25,504
2024	25,504	477	1,404	14	1,824	26,386
2025	26,386	430	1,478	14	1,882	27,206
2040	33,688	188	2,597	6	2,347	33,620
2041	33,620	121	2,651	5	2,335	33,420
2042	33,420	103	2,696	4	2,317	33,140
2043	33,140	87	2,728	4	2,295	32,790
2044	32,790	72	2,754	3	2,267	32,371
2084	1,992	0	394	0	128	1,725
2085	1,725	0	335	0	111	1,502
2086	1,502	0	281	0	97	1,318
2087	1,318	0	232	0	86	1,172
2088	1,172	0	190	0	77	1,059
2103	1,447	0	1	0	105	1,550
2104	1,550	0	1	0	112	1,662
2105	1,662	0	0 *	0	120	1,782
2106	1,782	0	0 *	0	129	1,911
2107	1,911	0	0 *	0	139	2,049
2127	7,747	0	0 *	0	562	8,308
2128	8,308					
2128	Discounted Value: 4 **					

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

** *$8,308 million when discounted with interest at the rate of 7.25% per annum has a value of $4 million as of June 30, 2017.*

EXHIBIT 5 (continued)

Projection of Plan's Fiduciary Net Position for Use in Calculation of Discount Rate as of June 30, 2017 ($ in millions)

Notes:

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

(2) Amounts shown in the year beginning July 1, 2016 row are actual amounts, based on the information provided by LAFPP.

(3) Years 2026-2039, 2045-2083, 2089-2102, and 2108-2126 have been omitted from this table.

(4) Column (a): Except for the "discounted value" shown for 2128, 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, 2016); 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, 2016. The projected benefit payments reflect the cost of living increase assumptions used in the June 30, 2017 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, 2016. 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 2016/2017.

(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, 2017 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, 2017 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)

	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

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

	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	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, 2017

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November 9, 2017

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, 2017. 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. 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

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, 2017. 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, 2017, provided by LAFPP;
- The assets of the Plan as of June 30, 2017, 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 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 discount rate used in the valuation for financial disclosure purposes as of June 30, 2017 is the assumed investment return on Plan assets (e.g. 7.25% for the June 30, 2017 funding valuation). As contributions that are required to be made by the City to amortize the Unfunded Actuarial Accrued Liability in the funding valuation are determined on an actuarial basis, the future Actuarially Determined Contributions and current Plan assets, when projected in accordance with the method prescribed by GAS 74, are expected to be sufficient to make all benefit payments to current members.
- The NOL has increased from $1,644 million as of June 30, 2016 to $1,692 million as of June 30, 2017. The 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 valuation as of June 30, 2017.
- The NOLs measured as of June 30, 2017 and 2016 have been determined from the valuations as of June 30, 2017 and 2016, 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. Since the transfer date is January 2018, we do not yet have data on the actual members who would elect to transfer. We have not reflected liabilities (if any) in this report.

Summary of Key Valuation Results

	2017	2016
Disclosure elements for fiscal year ending June 30:		
1. Service cost[1]	$65,407,443	$61,291,559
2. Total OPEB Liability	3,357,827,513	3,079,669,517
3. Plan Fiduciary Net Position	1,665,685,267	1,435,403,645
4. Net OPEB Liability	1,692,142,246	1,644,265,872
Schedule of contributions for fiscal year ending June 30:		
5. Actuarially determined contributions	$165,170,422	$150,315,374
6. Actual contributions	165,170,422	150,315,374
7. Contribution deficiency (excess)	$0	$0
Demographic data for plan year ending June 30:		
8. Number of retired members, married dependents and beneficiaries receiving a health subsidy	17,034	16,773
9. Number of vested terminated members, retirees, and beneficiaries entitled to, but not yet receiving benefits	882	1,010
10. Number of active members	13,327	13,050
Key assumptions as of June 30:		
11. Discount rate	7.25%	7.50%
12. Health care premium trend rates		
Non-Medicare medical plan	Graded from 7.00% to ultimate 4.50% over 10 years	Graded from 7.00% to ultimate 5.00% over 9 years
Medicare medical plan	Graded from 6.50% to ultimate 4.50% over 8 years	Graded from 7.00% to ultimate 5.00% over 9 years
Dental and Medicare Part B	4.50%	5.00%

[1] *The service cost is always based on the previous year's valuation, meaning the 2017 and 2016 values are based on the valuations as of June 30, 2016 and June 30, 2015, respectively.*

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.
- **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.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by LAFPP.

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, 2017, pension plan membership consisted of the following:

Retired members, married dependents and beneficiaries currently receiving benefits	17,034
Vested terminated members, retirees and beneficiaries entitled to, but not yet receiving benefits	882
Active members	13,327
Total	31,243

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, 2017, maximum is $1,627.73 per month. For surviving spouse or domestic partner, the maximum subsidy is $826.43 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, 2017, the single coverage maximum subsidy for retirees and surviving spouse or domestic partner is $505.93. The multi-person coverage maximum subsidy is $1,502.10 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, 2017 (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, 2017 (e.g., Police Blue Cross), increase with lesser of 7% or medical trend as shown in Exhibit II - Healthcare Premium Cost Trend Rates.

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 2017, 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, 2017, 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, 2017	June 30, 2016
Total OPEB Liability	$3,357,827,513	$3,079,669,517
Plan Fiduciary Net Position	1,665,685,267	1,435,403,645
System's Net OPEB Liability	$1,692,142,246	$1,644,265,872
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	49.61%	46.61%

The Net OPEB Liability was measured as of June 30, 2017 and 2016. The Plan's Fiduciary Net Position (plan assets) was valued as of the measurement date, while the Total OPEB Liability was determined based upon the results of the funding actuarial valuations as of June 30, 2017 and 2016, respectively, with the following exception:

- The NOL as of June 30, 2017 reflects the impact of the excise tax imposed in 2020 by ACA.

Plan provisions. The plan provisions used in the measurement of the TOL as of June 30, 2017 and 2016 are the same as those used in the LAFPP funding valuations as of June 30, 2017 and 2016, respectively.

Actuarial assumptions. The Total OPEB Liability as of June 30, 2017 was determined by an actuarial valuation as of June 30, 2017. 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, 2017 funding actuarial valuation for LAFPP with the exception of the inclusion of the impact of the excise tax. 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, 2017 funding actuarial valuation

The Total OPEB Liability as of June 30, 2016 was determined by an actuarial valuation as of June 30, 2016. The actuarial assumptions used in the June 30, 2016 valuation were based on the results of an experience study for the period from July 1, 2010 through June 30, 2013, and a review of economic actuarial assumptions for the June 30, 2014 actuarial valuations. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

Inflation	3.25%
Salary increases	Ranges from 4.75% to 11.50% based on years of service, including inflation
Discount rate	7.50%, net of OPEB Plan investment expense, including inflation
Other assumptions	Same as those used in the June 30, 2016 funding actuarial valuation

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation and 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 are summarized in the following table:

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 Total OPEB Liability was 7.25% as of June 30, 2017 and 7.50% as of June 30, 2016. 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, 2017, 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, 2017	$2,187,545,421	$1,692,142,246	$1,288,630,757

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, 2017, 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, 2017	$1,251,292,410	$1,692,142,246	$2,287,940,351

** Current trend rates: 7.00% graded down to 4.5% over 10 years for Non-Medicare medical plan costs; 6.50% graded down to 4.5% over 8 years for Medicare medical plan costs and 4.5% 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

	2017	2016
Total OPEB Liability		
Service cost	$65,407,443	$61,291,559
Interest	231,284,711	222,424,142
Change of benefit terms	0	0
Difference between expected and actual experience	-144,021,528	-50,070,625
Changes of assumptions	248,049,010	0
Benefit payments	-122,561,640	-116,678,443
Net change in Total OPEB Liability	$278,157,996	$116,966,633
Total OPEB Liability – beginning	3,079,669,517	2,962,702,884
Total OPEB Liability – ending (a)	$3,357,827,513	$3,079,669,517
Plan Fiduciary Net Position		
Employer contributions	$165,170,422	$150,315,374
Employee contributions	0	0
Net investment income	189,419,745	12,770,952
Benefit payments	-122,561,640	-116,678,443
Administrative expense	-1,746,905	-1,550,864
Other	0	0
Net change in Plan Fiduciary Net Position	$230,281,622	$44,857,019
Plan Fiduciary Net Position – beginning	1,435,403,645	1,390,546,626
Plan Fiduciary Net Position – ending (b)	$1,665,685,267	$1,435,403,645
Plan's Net OPEB Liability – ending (a) – (b)	$1,692,142,246	$1,644,265,872
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	49.61%	46.61%
Covered payroll[(1)]	$1,397,244,974	$1,351,788,221
Plan Net OPEB Liability as percentage of covered payroll	121.11%	121.64%

(1) *The service cost is always based on the previous year's valuation, meaning the 2017 and 2016 values are based on the valuations as of June 30, 2016 and June 30, 2015, respectively*

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

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-Employee Payroll
2008	$98,033,338[3]	$78,257,328[3]	$19,776,010	$1,188,972,417	6.58%
2009	98,444,833[4]	88,178,910[4]	10,265,923	1,253,658,885	7.03%
2010	106,648,282[4]	106,648,282[4]	0	1,266,311,709	8.42%
2011	111,681,208[4]	111,681,208[4]	0	1,289,856,708	8.66%
2012	122,971,851[4]	122,971,851[4]	0	1,213,395,874	10.13%
2013	132,939,191[4]	132,939,191[4]	0	1,277,031,317	10.41%
2014	138,106,847[4]	138,106,847[4]	0	1,308,198,504	10.56%
2015	148,476,512[4]	148,476,512[4]	0	1,314,360,387	11.30%
2016	150,315,374[4]	150,315,374[4]	0	1,351,788,221	11.12%
2017	165,170,422[4]	165,170,422[4]	0	1,397,244,974	11.82%

See accompanying notes to this exhibit on next page.

(1) *All "Actuarially Determined Contributions" through June 30, 2017 were determined as the "Annual Required Contribution" under GAS 43 and 45. The ADC shown for 2008 and 2009 were greater than the actual contributions as those amounts have to be adjusted to reflect the maximum amortization period as required by GASB 43/45.*

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

(3) *Shown at beginning of year.*

(4) *Payable as of July 15.*

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, 2017 were based on the June 30, 2015 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, 2015 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, 2015 funding actuarial valuation.

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