Segal Consulting

Sacramento County Employees' Retirement System (SCERS)

Governmental Accounting Standards Board Statement 67 (GASBS 67) Actuarial Valuation as of June 30, 2018

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

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October 30, 2018

Board of Retirement
Sacramento County Employees' Retirement System
980 9th Street, Suite 1900
Sacramento, CA 95814

Dear Board Members:

We are pleased to submit this Governmental Accounting Standards Board Statement 67 (GASBS 67) Actuarial Valuation as of June 30, 2018. It contains various information that will need to be disclosed in order to comply with GASBS 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 Retirement System. The census and financial information on which our calculations were based was provided by the Retirement System. 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, 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 Retirement System.

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

Sincerely,

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

By:

Paul Angelo	Andy Yeung	Molly Calcagno
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SECTION 1
VALUATION SUMMARY

SECTION 2
GASBS 67 INFORMATION

Purpose

This report has been prepared by Segal Consulting to present certain disclosure information required by Governmental Accounting Standards Board Statement 67 (GASBS 67) as of June 30, 2018. This valuation is based on:

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

General Observations on GASBS 67 Actuarial Valuation

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

- The Governmental Accounting Standards Board (GASB) rules only define pension liability and expense for financial reporting purposes, and do not apply to contribution amounts for pension funding purposes. Employers and plans still develop and adopt funding policies under current practices.
- When measuring pension liability GASB uses the same actuarial cost method (Entry Age method) and the same type of discount rate (expected return on assets) as SCERS uses for funding. This means that the Total Pension Liability (TPL) measure for financial reporting shown in this report is determined on the same basis as SCERS' Actuarial Accrued Liability (AAL) measure for funding. We note that the same is generally true for the Normal Cost component of the annual plan cost for funding and financial reporting.
- The Net Pension Liability (NPL) is equal to the difference between the TPL and the Plan Fiduciary Net Position. The Plan 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) on a market value basis.

Significant Issues in Valuation Year

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

- The NPL was measured as of June 30, 2018 and June 30, 2017 and determined based upon the results of the actuarial valuations as of June 30, 2018 and June 30, 2017, respectively.

  The NPL decreased from $2,096.8 million as of June 30, 2017 to $1,961.3 million as of June 30, 2018 primarily as a result of favorable investment return (a decrease in the liability by about $841.4 million) offset by some actuarial losses. Changes in these values during the last two fiscal years ending June 30, 2017 and June 30, 2018 can be found in Exhibit 3.

- The discount rate used to determine the TPL and NPL as of both June 30, 2018 and June 30, 2017 was 7.00%. Details on the derivation of the discount rate as of June 30, 2018 can be found in Exhibit 5 of Section 2. Various other information that is required to be disclosed can be found throughout Exhibits 1 through 4 in Section 2.

- The NPL as of June 30, 2018 excludes a liability of $44.9 million that is attributable to members of Florin Fire based on the latest estimate of the asset shortfall for this withdrawn employer available as of June 30, 2017 to June 30, 2018 adjusted with interest at the assumed rate of investment return (i.e., 7.00% as of June 30, 2017) and with contributions made during 2017/2018.

- The Plan Fiduciary Net Position includes $17.2 million that is available to offset a portion of the members' future COLA contribution rates. Since the $17.2 million can only be used in the future to reduce contribution rates for the employees, we have included a liability of the same amount so that the employer's net NPL is unchanged by the availability of this amount.

Summary of Key Valuation Results

	2018	2017
Disclosure elements for fiscal year ending June 30:		
Service Cost[1]	$234,325,324	$193,490,288
Total Pension Liability	11,213,263,000	10,680,998,000
Plan Fiduciary Net Position	9,251,937,000	8,584,225,000
Net Pension Liability	1,961,326,000	2,096,773,000
Schedule of contributions[2] for fiscal year ending June 30:		
Actuarially determined contributions	$201,631,134	$203,928,296
Actual contributions	201,631,134	203,928,296
Contribution deficiency (excess)	0	0
Demographic data for plan year ending June 30:		
Number of retired members and beneficiaries	11,883	11,396
Number of vested terminated members[3]	3,509	3,425
Number of active members	12,677	12,587
Key assumptions:		
Investment rate of return	7.00%	7.00%
Inflation rate	3.00%	3.00%
Projected salary increases[4]	4.50% - 10.75%, varying by service, including inflation	4.50% - 10.75%, varying by service, including inflation

(1) *The Service Cost is based on the previous year's valuation, meaning the 2018 and 2017 values are based on the valuations as of June 30, 2017 and June 30, 2016, respectively.*

(2) *Includes contributions made by Florin Fire.*

(3) *Includes terminated members with member contributions on deposit.*

(4) *Includes inflation at 3.00% plus real across the board salary increase of 0.25% plus merit and promotional increases.*

Important Information about Actuarial Valuations

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

In order to prepare an actuarial valuation, Segal 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 (as well as the plan summary included in our funding valuation report) to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by SCERS. 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 SCERS.
- **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 the Board to assist the sponsors of the Fund in preparing items related to the pension plan in their financial reports. Segal is not responsible for the use or misuse of its report, particularly by any other party.

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

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

EXHIBIT 1

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

Plan Description

Plan administration. The Sacramento County Employees' Retirement System (SCERS) was established by the County of Sacramento in 1941. SCERS is administered by the Board of Retirement and governed by the County Employees' Retirement Law of 1937 (California Government Code Section 31450 et. seq). SCERS is a cost-sharing multiple employer public employee retirement system whose main function is to provide service retirement, disability, death and survivor benefits to the Safety and Miscellaneous members employed by the County of Sacramento. SCERS also provides retirement benefits to the employee members of the Superior Court of California (County of Sacramento) and twelve Special Districts.

The management of SCERS is vested with the Sacramento County Board of Retirement. The Board consists of nine members and two alternates. Four members are appointed by the Board of Supervisors, two members are elected by the Miscellaneous membership, one member and one alternate are elected by the Safety membership, one member and one alternate are elected by the retired members of the System; and the County Director of Finance serves as ex officio member. All members of the Board of Retirement serve terms of three years except for the County Director of Finance whose term runs concurrent with his term as Director of Finance.

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

Retired members or beneficiaries currently receiving benefits	11,883
Vested terminated members entitled to but not yet receiving benefits	3,509
Active members	12,677
Total	28,069

Benefits provided. SCERS provides service retirement, disability, death and survivor benefits to eligible employees. All permanent full-time or part-time employees of the County of Sacramento or contracting district become members of SCERS upon employment. There are separate retirement plans for Safety and Miscellaneous members. Safety membership is extended to those involved in active law enforcement, fire suppression, and certain other classifications. There are four tiers applicable to Safety members. Those hired prior to January 1, 2012 are included in either Tier 1 or Tier 2 depending on date of hire and bargaining unit. Those hired after that date but prior to January 1, 2013 are included in Tier 3. Any new Safety member who becomes a member on or after January 1, 2013 is designated PEPRA Safety (Tier 4) and is subject to the provisions of

California Public Employees' Pension Reform Act of 2013 (PEPRA), California Government Code 7522 et seq. and Assembly Bill (AB) 197. All other employees are classified as Miscellaneous members. There are five tiers applicable to Miscellaneous members. Those hired prior to September 27, 1981 are included in Tier 1. Those hired after that date but prior to January 1, 2012 are included in Tier 2 or Tier 3 depending on date of hire and bargaining unit. County members hired after that date but prior to January 1, 2013 are included in Tier 4. New members hired on or after January 1, 2013 are designated as PEPRA Miscellaneous (Tier 5) and are subject to the provisions of California Government Code 7522 et seq. and AB 197.

Safety members hired prior to January 1, 2013, are eligible to retire once they attain the age of 50 and have acquired 10 or more years of retirement service credit. A member with 20 years of service is eligible to retire regardless of age. Safety members who are first hired on or after January 1, 2013, are eligible to retire once they have attained the age of 50, and have acquired five years of retirement service credit.

Miscellaneous members hired prior to January 1, 2013, are eligible to retire once they attain the age of 50 and have acquired 10 or more years of retirement service credit. A member with 30 years of service is eligible to retire regardless of age. Miscellaneous members who are first hired on or after January 1, 2013, are eligible to retire once they have attained the age of 52, and have acquired five years of retirement service credit.

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

Safety member benefits for Tier 1 and Tier 2 are calculated pursuant to the provisions of California Government Code Section 31664.1. Safety member benefits for Tier 3 are calculated pursuant to the provision of California Government Code Section 31664.2. The monthly allowance is equal to 2% of the first $350 of final compensation, plus 3% of the excess final compensation times years of accrued retirement service credit times age factor from either Section 31664.1 (Tier 1 and 2) or 31664.2 (Tier 3). Safety member benefits for those who are first hired on or after January 1, 2013, are calculated pursuant to the provision of California Government Code Section 7522.25(d). The monthly allowance is equal to the final compensation multiplied by years of accrued retirement credit multiplied by the age factor from Section 7522.25(d).

Miscellaneous member benefits for Tier 1, Tier 2 and Tier 3 are calculated pursuant to the provisions of California Government Code Section 31676.14. Miscellaneous member benefits for Tier 4 are calculated pursuant to the provisions of California Government Code Section 31676.1. The monthly allowance is equal to 1/90th of the first $350 of final compensation, plus 1/60th of the excess final compensation times years of accrued retirement service credit times age factor from either Section 31676.14 (Tier 1, Tier 2 and Tier 3) or Section 31676.1 (Tier 4). Miscellaneous member benefits for those who are first hired on or after January 1, 2013, are calculated pursuant to the provision of California Government Code Section 7522.20(a). The monthly allowance is equal to the final compensation multiplied by years of accrued retirement credit multiplied by the age factor from Section 7522.20(a).

For members with membership dates before January 1, 2013, the maximum monthly retirement allowance is 100% of final compensation. There is no maximum for members with membership dates on or after January 1, 2013.

Final average compensation consists of the highest 12 consecutive months for a Tier 1 Safety or Tier 1 Miscellaneous member and the highest 36 consecutive months for a Tier 2, Tier 3, Tier 4 or Tier 5 member.

The member may elect an unmodified retirement allowance, or choose an optional retirement allowance. The unmodified retirement allowance provides the highest monthly benefit and a 60% continuance to an eligible surviving spouse. An eligible surviving spouse is one married to the member one year prior to the effective retirement date. There are four optional retirement allowances the member may choose. Each of the optional retirement allowances requires a reduction in the unmodified retirement allowance in order to allow the member the ability to provide certain benefits to a surviving spouse or named beneficiary having an insurable interest in the life of the member.

SCERS provides an annual cost-of-living benefit to Safety Tier 1, Tier 2, Tier 3 and Tier 4 members and Miscellaneous Tier 1, Tier 3, Tier 4 and Tier 5 members. The cost-of-living adjustment, based upon the Consumer Price Index for the San Francisco-Oakland-San Jose area, is capped at 4.0% for Tier 1 members and 2% for all other members eligible for a cost-of-living adjustment.

The County of Sacramento and contracting districts contribute to the retirement plan based upon actuarially determined contribution rates adopted by the Board of Retirement. Employer contribution rates are adopted annually based upon recommendations received from SCERS' actuary after the completion of the annual actuarial valuation. The average employer contribution rate as of June 30, 2018 for 2017/2018 (based on the June 30, 2016 valuation) was 20.46% of compensation.

All members are required to make contributions to SCERS regardless of the retirement plan or tier in which they are included. The average member contribution rate as of June 30, 2018 for 2017/2018 (based on the June 30, 2016 valuation) was 10.14% of compensation.

EXHIBIT 2

Net Pension Liability

The components of the Net Pension Liability of the SCERS as follows:

	June 30, 2018	June 30, 2017
Total Pension Liability	$11,213,263,000	$10,680,998,000
Plan Fiduciary Net Position	(9,251,937,000)	(8,584,225,000)
Net Pension Liability	$1,961,326,000	$2,096,773,000
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	82.51%	80.37%

The Net Pension Liability (NPL) was measured as of June 30, 2018 and 2017 and determined based upon the Total Pension Liability (TPL) from actuarial valuations as of June 30, 2018 and 2017, respectively.

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

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

Inflation	3.00%
Salary increases	4.50% to 10.75%, varying by service, including inflation
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Other assumptions	See the analysis of actuarial experience study for the period July 1, 2013 through June 30, 2016.

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

Inflation	3.00%
Salary increases	4.50% to 10.75%, varying by service, including inflation
Investment rate of return	7.00%, net of pension plan investment expense, including inflation
Other assumptions	See the analysis of actuarial experience study for the period July 1, 2013 through June 30, 2016.

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, adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation (approved by the Board) and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before deducting 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 Real Rate of Return
U.S. Large Cap Equity	17.00%	5.61%
U.S. Small Cap Equity	4.00%	6.37%
International Developed Equity	16.00%	6.96%
Emerging Markets Equity	4.00%	9.28%
High Yield Bonds	1.00%	3.65%
Bank Loans	1.00%	2.96%
Growth Oriented Abs. Return	3.00%	4.97%
Private Equity	9.00%	8.70%
Private Credit/Private Debt	4.00%	5.10%
Core/Core Plus Bonds	10.00%	1.06%
Global Bonds	3.00%	0.07%
U.S. Treasury	5.00%	0.16%
Diversifying Abs. Return	7.00%	3.04%
Private Real Estate	7.00%	4.37%
Private Assets	7.00%	7.74%
Commodities	2.00%	3.76%
Total	100.00%	

Discount rate. The discount rate used to measure the TPL was 7.00% as of June 30, 2018. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. 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 Fiduciary Net Position was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the TPL as of both June 30, 2018 and June 30, 2017.

Sensitivity of the June 30, 2018 NPL to changes in the discount rate. The following presents the NPL of the SCERS as of June 30, 2018, calculated using the discount rate of 7.00%, as well as what the SCERS' NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.00%) or 1-percentage-point higher (8.00%) than the current rate:

	1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
Net Pension Liability as of June 30, 2018	$3,531,085,000	$1,961,326,000	$679,078,000

Sensitivity of the June 30, 2017 NPL to changes in the discount rate. The following presents the NPL of the SCERS as of June 30, 2017, calculated using the discount rate of 7.00%, as well as what the SCERS' NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (6.00%) or 1-percentage-point higher (8.00%) than the current rate:

	1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
Net Pension Liability as of June 30, 2017	$3,611,235,000	$2,096,773,000	$860,712,000

EXHIBIT 3

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

	2018	2017
Total Pension Liability		
Service Cost[1]	$234,325,324	$193,490,288
Interest	747,681,853	706,016,047
Change of benefit terms	0	0
Differences between expected and actual experience	18,565,823	-46,244,335
Changes of assumptions	0	823,712,000
Benefit payments, including refunds of employee contributions	-468,308,000	-432,066,000
Net change in Total Pension Liability	$532,265,000	$1,244,908,000
Total Pension Liability – beginning	10,680,998,000	9,436,090,000
Total Pension Liability – ending (a)	$11,213,263,000	$10,680,998,000
Plan Fiduciary Net Position		
Contributions – employer	$198,331,000	$201,928,000
Contributions – employee	99,906,000	89,489,000
Net investment income	841,371,000	1,048,915,000
Benefit payments, including refunds of employee contributions	-468,308,000	-432,066,000
Administrative expense	-6,888,000	-6,906,000
Other	3,300,000[2]	2,000,000[3]
Net change in Plan Fiduciary Net Position	667,712,000	903,360,000
Plan Fiduciary Net Position – beginning	8,584,225,000	7,680,865,000
Plan Fiduciary Net Position – ending (b)	$9,251,937,000	$8,584,225,000
Net Pension Liability – ending (a) – (b)	$1,961,326,000	$2,096,773,000
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	82.51%	80.37%
Covered payroll[4]	$985,375,000	$958,934,000
Plan Net Pension Liability as percentage of covered payroll	199.04%	218.66%

EXHIBIT 3

Schedule of Changes in SCERS Net Pension Liability – Last Two Fiscal Years (continued)

(1) *The Service Cost is based on the previous year's valuation, meaning the 2018 and 2017 values are based on the valuations as of June 30, 2017 and June 30, 2016, respectively.*

(2) *We have classified the $3,300,000 contribution made by Florin Fire, a non-active employer, during 2017/2018 in the "Other" category. This is done to anticipate that the NPL for the active employers to be disclosed later in our GASBS 68 actuarial valuation as of June 30, 2019 will be allocated using the employer contributions excluding the $3,300,000 contribution made during 2017/2018.*

Throughout the rest of this report, those contributions are included in the Actuarially Determined Contributions for the System's active and non-active employers.

(3) *In last year's report, we classified the $2,000,000 contribution made by Florin Fire during 2016/2017 in the "Other" category. This was done because the NPL for the non-active employer disclosed in our GASBS 68 actuarial valuation as of June 30, 2018 was calculated by adjusting with interest only the latest withdrawal liability amount determined for that non-active employer (and without adjusting for the $2,000,000 contribution made during 2016/2017).*

Throughout the rest of this report, those contributions are included in the Actuarially Determined Contributions for the System's active and non-active employers.

(4) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of the retirement benefits are included.*

Notes to Schedule:

Benefit changes: None

EXHIBIT 4

Schedule of SCERS' Contributions – Last Ten Fiscal Years

Year Ended June 30	Actuarially Determined Contributions[(1),(2)]	Contributions in Relation to the Actuarially Determined Contributions[(2)]	Contribution Deficiency (Excess)	Covered Payroll[(3),(4)]	Contributions as a Percentage of Covered Payroll
2009	$177,011,005	$177,011,005	$0	$923,375,000	19.17%
2010	167,141,893	167,141,893	0	872,804,000	19.15%
2011	182,920,751	182,920,751	0	818,804,000	22.34%
2012	179,098,469	179,098,469	0	835,737,000	21.43%
2013	189,663,720	189,663,720	0	858,551,000	22.09%
2014	210,503,324	210,503,324	0	858,343,000	24.52%
2015	222,959,365	222,959,365	0	873,328,000	25.53%
2016	209,020,162	209,020,162	0	912,421,000	22.91%
2017	203,928,296	203,928,296	0	958,934,000	21.27%
2018	201,631,134	201,631,134	0	985,375,000	20.46%

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 GASBS 25 and 27.*

(2) *Includes contributions made by Florin Fire, as applicable.*

(3) *Payroll for the years ending 2009 through 2012 are calculated by dividing the contribution dollar amount by the contribution as a percentage of payroll.*

(4) *Covered payroll represents compensation earnable and pensionable compensation. Only compensation earnable and pensionable compensation that would possibly go into the determination of the retirement benefits are included.*

Notes to Exhibit 4

Methods and assumptions used to establish "actuarially determined contribution" rates:	
Valuation date	Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported
Actuarial cost method	Entry Age Actuarial Cost Method
Amortization method	Level percent of payroll (3.50% payroll growth assumed)
Remaining amortization period	
June 30, 2016 valuation	20 years (declining) as of June 30, 2016 for the outstanding balance of the June 30, 2012 UAAL. The UAAL established as a result of the Early Retirement Incentive Program for LEMA members is amortized over a 10-year period, beginning June 30, 2010. Effective June 30, 2013, any changes in UAAL due to actuarial gains or losses or due to changes in actuarial assumptions or methods will be amortized over a 20-year closed period effective with each valuation. Any change in UAAL that arises due to plan amendments will be amortized over its own declining 15-year period and any change in UAAL due to retirement incentive programs will be amortized over a declining period of up to 5 years.
Asset valuation method	The market value of assets less unrecognized returns from each of the last six years. Unrecognized return is equal to the difference between actual and expected returns on a market value basis and is recognized over a seven-year period. The deferred return is further adjusted, if necessary, so that the actuarial value of assets will stay within 30% of the market value of assets. Deferred gains and losses as of June 30, 2013 have been combined and will be recognized in equal amounts over a six-year period starting July 1, 2013.
Actuarial assumptions:	
June 30, 2016 valuation (used for the year ended June 30, 2018 ADC)	
Investment rate of return	7.50%, net of pension plan investment expense, including inflation
Inflation rate	3.25%
Projected salary increases	4.50% - 11.50%, varying by age, including inflation
Cost of living adjustments	3.25% of Miscellaneous and Safety Tier 1 retirement income, 2.00% of Miscellaneous Tier 3, Tier 4 and Tier 5 and Safety Tier 2, Tier 3 and Tier 4 retirement income, and 0.00% of Miscellaneous Tier 2 retirement income.
Other assumptions	Same as those used in the June 30, 2016 funding actuarial valuation.
Other information:	All members with membership dates on or after January 1, 2013 enter the new tiers created by the California Public Employees' Pension Reform Act of 2013 (PEPRA).

EXHIBIT 5

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

Year Beginning July 1,	Projected Beginning Plan Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expense (d)	Projected Investment Earnings (e)	Projected Ending Plan Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2018	$9,252	$388	$529	$7	$641	$9,743
2019	9,743	385	556	8	674	10,239
2020	10,239	382	588	8	707	10,733
2021	10,733	385	621	9	741	11,229
2022	11,229	384	656	9	774	11,722
2023	11,722	375	692	9	807	12,202
2024	12,202	372	729	10	839	12,674
2025	12,674	370	767	10	870	13,137
2026	13,137	369	806	11	901	13,591
2027	13,591	368	845	11	931	14,035
2045	16,443	54 (1)	1,364	13	1,100	16,220
2046	16,220	50 (1)	1,371	13	1,084	15,970
2047	15,970	47 (1)	1,375	13	1,066	15,695
2065	8,962	22 (1)	998	7	589	8,568
2066	8,568	22 (1)	958	7	563	8,189
2067	8,189	21 (1)	917	7	538	7,825
2085	5,620	11 (1)	220	5	385	5,792
2086	5,792	10 (1)	193	5	398	6,002
2087	6,002	10 (1)	169	5	414	6,253
2105	17,817	15 (1)	2	14	1,247	19,063
2106	19,063	16 (1)	2	15	1,334	20,396
2107	20,396	17 (1)	1	16	1,428	21,823
2136	145,081	116 (1)	0 (2)	116	10,156	155,237
2137	155,237					
2137	Discounted Value: 49 (3)					

(1) Mainly attributable to employer contributions to fund each year's annual administrative expenses.

(2) Less than $1 million, when rounded.

(3) $155,237 million when discounted with interest at the rate of 7.00% per annum has a value of $49 million (or 0.53% of the Plan Fiduciary Net Position) as of June 30, 2018.

EXHIBIT 5 (continued)

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

Notes:

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

(2) Years 2028-2044, 2048-2064, 2068-2084, 2088-2104, and 2108-2135 have been omitted from this table.

(3) Column (a): Except for the "discounted value" shown for 2137, all of the projected beginning Plan Fiduciary Net Position amounts shown have not been adjusted for the time value of money.

(4) Column (b): Projected total contributions include employee and employer normal cost contributions based on closed group projections (based on covered active members as of June 30, 2018); plus employer contributions to the unfunded actuarial accrued liability. Contributions are assumed to occur halfway through the year, on average.

(5) Column (c): Projected benefit payments have been determined in accordance with paragraph 39 of GASB Statement No. 67, and are based on the closed group of active, inactive vested, retired members, and beneficiaries as of June 30, 2018. The projected benefit payments reflect the cost of living increase assumptions used in the June 30, 2018 report.

(6) Column (d): Projected administrative expenses are calculated as approximately 0.08% of the beginning Plan Fiduciary Net Position amount. The 0.08% portion was based on the actual fiscal year 2017-2018 administrative expenses as a percentage of the beginning Plan Fiduciary Net Position amount as of July 1, 2017. Administrative expenses are assumed to occur halfway through the year, on average.

(7) Column (e): Projected investment earnings are based on the assumed investment rate of return of 7.00% per annum.

(8) As illustrated in this Exhibit, the Plan 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 7.00% per annum was applied to all periods of projected benefit payments to determine the Total Pension Liability as of June 30, 2018 shown earlier in this report, pursuant to paragraph 44 of GASB Statement No. 67.

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