SCERS
SACRAMENTO COUNTY
EMPLOYEES' RETIREMENT SYSTEM

ITEM 12

Executive Staff

Richard Stensrud
Chief Executive Officer

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Chief Investment Officer

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General Counsel

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Chief Operations Officer

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Chief Benefits Officer

For Agenda of:
November 7, 2016

November 3, 2016

TO: President and Members
Board of Retirement

FROM: Richard Stensrud
Chief Executive Officer

SUBJECT: Actuarial Valuation as of June 30, 2016

Recommendation:

That your Board: (1) Receive and file the Actuarial Valuation and Review as of June 30, 2016 as prepared by Segal Consulting; (2) Adopt the 2017-2018 fiscal year employer and employee contribution rates recommended by Segal in their report; and (3) Consider any other recommendations made in the Segal report.

Introduction:

Attached for your consideration is the Actuarial Valuation and Review as of June 30, 2016 prepared by Segal Consulting. The discussion that follows will outline the key components of the report. At the Board Meeting, Segal will present their report and answer any questions you might have. Please note that action on the actuarial valuation is critical for timely completion of projects that rely on that report, such as the annual independent audit and the Comprehensive Annual Financial Report (CAFR).

Background:

As you know, SCERS is governed by and administered in accordance with the requirements of the County Employees Retirement Law of 1937 (1937 Act) and with the provisions of Article XVI, Section 17 of the California Constitution. Under the law, the SCERS Board has plenary authority and fiduciary responsibility for the administration of the retirement system. While Section 31453 of the 1937 Act requires an actuarial valuation at intervals not to exceed three years, your Board's policy is to conduct such a valuation annually.

The annual actuarial valuation measures the current and projected assets and liabilities of the retirement system, as well as the system's funded status. This information forms the basis for establishing the actuary's recommendations for the employer and employee contribution rates for the upcoming fiscal year. Your Board then uses the actuary's recommendations in adopting the appropriate contribution rates, which are conveyed to the Board of Supervisors for implementation.

In measuring the assets and liabilities, and determining the plan's funded status, the actuary utilizes investment and actuarial experience to-date, plus various assumptions about the projected future growth in assets and liabilities. The actuarial assumptions include both economic and demographic assumptions which are long term in nature, as opposed to the experience that might be anticipated in the next few years.

In each valuation, the previous year's experience is compared to the assumptions, and to the extent there are differences, the contribution rates are adjusted. This is referred to as the 'experience reconciliation' or 'annual experience adjustment' and can result in either an upward or downward adjustment in the next year's contribution rate depending on whether the experience produced an 'actuarial gain' or 'actuarial loss.'

In certain instances, however, experience or trends may call into question the continued reasonableness of an assumption, and in such a case, the actuary will recommend a change in the assumption itself. An assumption change typically has a greater effect on contribution rates than the reconciliation in the annual experience adjustment, however the use of realistic assumptions is important to maintain adequate funding and an equitable distribution of the cost of the retirement system across generations. As with experience adjustments, an assumption change can result in either an upward adjustment or downward adjustment in future cost.

Absent compelling circumstances, SCERS considers proposed changes to the demographic and economic assumptions as part of the triennial experience study. As the name suggests, in such a study the actuary analyzes the investment and actuarial experience over a three-year period for the purposes of determining whether the experience is consistent with the actuarial assumptions.

The last triennial experience study prepared by Segal Consulting covered the period July 1, 2010 through June 30, 2013 and was presented for your Board's consideration in June 2014. At that time, your Board approved various actuarial assumptions which have been used in preparing the subsequent annual actuarial valuations, including the valuation as of June 30, 2016. Those assumptions include demographic assumptions related to: (1) Retirement rates (the probability of retirement at each age at which participants are eligible to retire); (2) Mortality rates (the probability of dying at each age); (3) Termination rates (the probability of leaving employment at each age and receiving either a refund of contributions or a deferred vested benefit); (4) Disability incidence rates (the probability of becoming disabled at each age); and (5) Merit and promotional salary increases. The economic assumptions include: (1) A 7.50% investment return assumption; (2) A 3.25% inflation assumption; (3) A 0.25% real 'across the board' salary increase assumption; and (4) A 3.50% active member payroll growth assumption.

In early 2017, Segal Consulting will be performing the next triennial experience study, covering the period from July 1, 2013 through June 30, 2016. The results of the triennial experience study, including any recommended assumption changes, will be presented for your Board's consideration in the summer of 2017. The actuarial assumptions adopted by your Board as a result of the triennial experience study will be utilized in preparing the actuarial valuation as of June 30, 2017. Please note that changes to the actuarial assumptions related to the target investment return, inflation, payroll growth, and mortality may be recommended in the upcoming triennial experience study.

In determining appropriate contribution rates, the overall goal is to establish employer and employee contribution rates which, together with investment earnings, will provide sufficient funding to pay the benefits earned by SCERS members. To accomplish this, the actuary identifies two cost components.

First, the actuary determines the contribution rate necessary to cover the 'normal cost' of the retirement benefits. This is the amount which, when applied to the projected future compensation of the member, along with projected future investment earnings, will be sufficient to provide for the payment of the prospective benefits for the member as established by the relevant provisions of the 1937 Act and CalPEPRA. The normal cost is shared by the employer and employee, with the specific cost-sharing formula established either by statute or pursuant to collective bargaining or other labor agreements. With certain limitations, the cost-sharing burden can be modified by changes in those agreements.

Second, the actuary determines the contribution rate necessary to fund the portion of the ultimate benefit liability that has not been covered by previous normal cost contributions and investment returns. This cost component is referred to as 'unfunded accrued actuarial liability' (UAAL) and arises from several factors, including actuarial losses; investment under-performance; the adoption of retroactive benefit enhancements for which additional contributions were not collected; and retirement incentives. Historically, the cost of the UAAL has been borne solely by the employer and is paid off pursuant to an amortization schedule that declines annually, with the amortization period dependent on the source of the UAAL – i.e., UAAL due to actuarial gains and losses or due to changes in actuarial assumptions/methods is amortized over a 20 year declining period; UAAL due to plan amendments is amortized over a 15 year declining period; and UAAL due to a retirement incentive program is amortized over a 5 year declining period.

Both contribution rate components are expressed as a level percentage of the member's pension-eligible compensation.

With respect to the recognition of investment experience, under SCERS' Actuarial Funding Policy, investment gains and losses are recognized ('smoothed') over a seven (7) year period, subject to market value corridors which require that the actuarial value of assets (AVA) stay within a range of 70% to 130% of the market value of assets (MVA). Pursuant to SCERS' Interest Crediting and Unallocated Earnings Policy, unallocated earnings available after smoothing, and after meeting the target interest crediting rate, may be applied to reduce the UAAL and/or to fund the Contingency Reserve.

The actuarial valuation as of June 30, 2016 was prepared in accordance with the provisions of SCERS' Actuarial Funding Policy, the Interest Crediting and Unallocated Earnings Policy, and generally accepted actuarial principles and practices.

Discussion:

Some of the highlights of the actuarial valuation as of June 30, 2016 include the following:

- SCERS' actuarial funded status has increased from 86.8% to 87.3%. On a market value of assets basis, SCERS' funded status is 81.4%. The difference between the actuarial funded status and the market value funded status is that seven year asset smoothing is utilized in determining the actuarial funded status but not the market value funded status. [See pages ii, vi, 7, 9-11, and 23 of the valuation]

- The aggregate employer contribution rate (i.e., for all participating employers, and for all membership categories and tiers) in FY 2017-2018 will be declining from 22.29% of payroll to 21.13% (a 1.16% of payroll decrease). [See pages ii and v of the valuation]

    - The County employer aggregate contribution rate will decline from 22.30% of payroll to 21.03% of payroll (a 1.27% of payroll decrease). [See pages 16 and 17 of the valuation]

    - The Superior Court aggregate employer contribution rate will increase slightly from 19.24% of payroll to 19.26% of payroll. [See page 18 of the valuation]

    - For other participating employers (Districts), the aggregate employer contribution rate will increase slightly from 26.87% of payroll to 26.98% of payroll. [See page 19 of the valuation]

    - Please note that the cited employer contribution rates are a combination of the normal cost rate and the rate attributable to addressing the UAAL. The higher employer contribution rate for the District employers category is attributable to a higher UAAL cost component since, unlike the County and the Superior Court, those employers did not provide UAAL funding from pension obligation bonds when benefit formulas were enhanced in 2004. [See pages 16-19 of the valuation]

- The aggregate employer normal cost rate declined as a result of the net effect of: (1) Certain employee groups paying a greater percentage of normal cost (reduction of 0.63% of payroll and 0.38% of payroll, respectively); (2) Salary increases being lower than expected (reduction of 0.30% of payroll); (3) Retiree benefit COLAs being lower than expected (reduction of 0.21% of payroll); (4) A decrease in the UAAL rate due to a higher than expected increase in total payroll (reduction of 0.10% of payroll); and (5) Higher than expected contributions (reduction of 0.09% of payroll). Together, these factors offset upward pressure on the employer contribution rate due to: (a) Investment performance below the target return (increase of 0.48% of payroll); (b) The effect of demographic changes and other actuarial gains/losses (increase of 0.04% of payroll); and (c) Methodology changes for allocating normal cost and the COLA contribution offset for members who reach the 30 years of service contribution cut-off (increase of 0.03% of payroll). [See page iii and 21 of the valuation]

- Please note that the change in the employer normal cost rate did not impact all employers equally. The County's employer normal cost rate has declined whereas that of the Superior Court and the other District employers has remained stable due to County employees paying more toward the overall normal cost. [See pages 16-19 and 21 of the valuation] Also, please note that the base (i.e., non-adjusted) employer normal cost rate for the County is higher than for other participating employers because the County is the only employer with Safety members in its workforce.

- The annual decrease seen in the County's employer normal cost rate over the past few years due to employees in legacy tiers continuing to pick up an additional portion of the total normal cost will be ending as most employees will soon be paying a full 50% portion of normal cost. [See pages iv, 14-15, 74-75 and 83-85]

- Primarily due to the change in normal cost sharing noted above, the aggregate employee contribution rate (i.e., the average rate for all employees across all tiers and membership categories) will increase from 8.88% of payroll to 10.06% of payroll. [See pages iii and 22 of the valuation] Information regarding the base (unadjusted) employee contribution rates by tier can be found on pages 76-81 of the valuation. Information regarding the expected change in employee contribution rates due to the ongoing shifting of normal cost to the employees can be found on pages 74-75 and 82-85 of the valuation.

- The generally strong investment performance following the Global Financial Crisis (GFC) has been followed by two successive years of investment performance below the 7.50% investment return target. As a result, under the seven year asset smoothing process, SCERS has shifted from having net deferred gains of $40 million as of June

30, 2015 to having net deferred losses of $555.5 million as of June 30, 2016. If SCERS simply meets its investment return assumption going forward, for the next six years material net losses will be recognized each year, which will put upward pressure on the employer contribution rate. While SCERS has $81 million in the Contingency Reserve available to help mitigate that increase in cost, it will not be sufficient to fully offset the cost increase. [See pages iii, iv, 6 and 10 of the valuation]

- Information regarding the UAAL amortization layers and amortization periods can be found on page 82 of the valuation.

- As noted in previous valuation reports, the downsizing of the County workforce combined with an increased number of retirees and beneficiaries (primarily due to the 'baby boom' demographic) has impacted the ratio of non-active participants to active participants. Compared to 2007, when there were considerably more active participants than non-active participants, there are now 1.15 non-active participants for every active participant. [See page 1 of the valuation] While a steady increase in retirees and beneficiaries is expected to continue for the next 5-8 years [See page 2 of the valuation], for the first time in several years there was a material increase in the number of active SCERS members, which helped to keep the ratio of non-active participants to active participants stable. It is unclear, however, if and/or for how long, the growth in active employees will keep pace with the growth in retirees and beneficiaries.

    - An important ramification of the ratio of active employees to retirees and beneficiaries is the cash flow relationship between retirement system income (contributions plus investment income) versus benefit payments. Notwithstanding the increasing level of benefit payments and a lower level of contributions, SCERS has had been able to stay cash flow positive due to the income generated by the investment portfolio. However, given the steady increase in retirees and beneficiaries and an extended low interest rate investment environment, it was expected that eventually benefit payments would exceed the contributions and investment income. In 2016 that threshold was crossed. [See page 4 of the valuation] Steps have already been taken to bring more income generating investment components into the investment portfolio (e.g., in the real assets asset class) and ongoing cash flow needs will be an important consideration in the asset/liability study that is currently being conducted.

- The average monthly benefit paid to SCERS' retirees and beneficiaries remains low at $3,156 and the vast majority of retirees and beneficiaries continue to receive a benefit of less than $36,000 per year. [See pages vii and 3 of the valuation]

There are two matters that deserve special attention.

First, in the past, employees came to work for a SCERS' participating employer at a relatively young age and spent a long career in the public sector – e.g., the average entry age for active Miscellaneous Tier 1 members is age 26, and the average service career is a little more than 34 years. [See page 26 of the valuation] Over the last twenty years, however, going to work for a SCERS' participating employer typically does not occur until an employee is in his/her mid-30s – e.g., the average entry age for active Miscellaneous Tier 3 members is age 35 and the average length of service in SCERS is 15.3 years. [See page 28 of the valuation] This shift is also occurring, but to a lesser degree in the Safety workforce, with the entry age for Safety Tier 1 and Tier 2 members averaging age 26-28, but moving to age 30-31 for Safety Tier 3 and Tier 4 members.

It is fair to assume that employees are drawn into the public sector in their mid-30s by considerations such as perceived job stability, and pension and health care benefits. It is probably fair to ask, therefore, if public employee pension and health care benefits are eliminated or greatly reduced, as some people advocate, will employers continue to be successful in recruiting employees in their mid-30s? How might the demographic profile of the workforce change? How might the stability of the workforce change? Would an increase in current compensation levels be needed for employers to attract and retain good employees?

Second, in a related vein, the effects of 'pension reform' are already being seen in the SCERS member workforce, and the cost impact of those measures is projected to increase materially over the next 5-10 years.

You will recall that the new, lower employer cost CalPEPRA benefit tiers became operative on January 1, 2013 for new Miscellaneous and Safety members (i.e., Miscellaneous Tier 5 and Safety Tier 4). The lower employer cost for those tiers is primarily attributable to: (1) Lower benefit formulas than in the legacy tiers; (2) Pension-eligible compensation is limited to base salary (i.e., no differentials or allowances); (3) An annual cap on the compensation that is pension-eligible; and (4) Employees must pay half of the normal cost of the benefits. In addition, as previously discussed, CalPEPRA also established a mechanism for moving legacy tier members toward paying 50% of normal cost.

You will further recall that even before the adoption of CalPEPRA the County had implemented new lower employer cost tiers for Miscellaneous and Safety members (i.e., Miscellaneous Tier 4 and Safety Tier 3). The lower employer cost of those tiers relative to the legacy tiers is primarily attributable to lower benefit formulas and the employees paying a larger share of normal cost.

The employer normal cost for the County under the 'pension reform' tiers versus the last open legacy tiers can be seen on pages 16 and 17 of the valuation.

For Miscellaneous members, the last open tier prior to the implementation of the reform tiers was Miscellaneous Tier 3. Before the shift in normal cost sharing, the employer normal cost for Miscellaneous Tier 3 was 13.69% of payroll. [See page 83 of the valuation] As a result of bargained cost shifting, the employer normal cost is now 9.71% of payroll and will decline further. [See pages 16 and 85 of the valuation] The employer normal cost is even lower under the reform tiers with Miscellaneous Tier 4 at 8.83% of payroll and Miscellaneous Tier 5 at 7.93% of payroll. [See page 16 of the valuation]

For Safety members, the last open tier prior to the implementation of the reform tiers was Safety Tier 2. Before the shift in normal cost sharing, the employer normal cost rate was 20.08% of payroll. [See page 83 of the valuation] As a result of bargained cost shifting, the employer normal cost is now 16.47% of payroll and scheduled to decline further. [See pages 17 and 85 of the valuation] The employer normal cost is even lower under the reform tiers with Safety Tier 3 at 15.54% of payroll and Safety Tier 4 at 13.14% of payroll. [See page 17 of the valuation]

Equally important to the lower cost of the new tiers is the transition of the workforce from participation levels in the legacy tiers versus participation levels in the new tiers.

As of June 30, 2016 there were 2,472 active Miscellaneous Tier 4 and Miscellaneous Tier 5 members (out of a total of 10,363 Miscellaneous members). This constitutes nearly 24% of the Miscellaneous membership, and is an increase of 47% relative to the number of members in these tiers as of June 30, 2015.

On the Safety side, as of June 30, 2016 there were 475 Safety Tier 3 and Safety Tier 4 members (out of a total of 2,030 Safety members), which constitutes nearly 23% of the Safety membership. The 2016 level is an increase of 34% from the number of members in these tiers in 2015.

This transition has taken place in just the last four years. It is projected that in three to five years, 50% or more of the membership will be in the new tiers.

I would respectfully submit that this data is evidence that ‘pension reform’ is working, and that it will continue to have a positive impact on employer normal cost for the next decade and beyond.

Two final matters should be noted:

Page 25 of the valuation contains some relatively new metrics. One metric is the Asset Volatility Ratio (AVR), which is calculated by dividing the market value of assets by the total active member payroll. The AVR provides an indication of the potential for movement in the contribution rates for any given change in investment returns. The second metric is the Liability Volatility Ratio (LVR), which is calculated by dividing the Actuarial Accrued Liability (AAL) by the total payroll. The LVR provides an indication of the potential for movement in the contribution rates relative to changes in the AAL.

While it is certainly important to understand how contribution rates are likely to change based on changes in the level of assets and/or liabilities, four observations are in order regarding the AVR and LVR data in the valuation: (1) The higher the level of benefits provided by a plan, the more volatile the costs of the plan will be. This is reflected in the higher volatility associated with the higher Safety benefits versus the lower Miscellaneous benefits; (2) No context is provided in the report indicating how the cited AVR or LVR numbers compare to those of other retirement systems, so it is difficult to assess whether the values for SCERS are higher or lower than for comparable plans; and (3) Since both the AVR and LVR are tied to the level of the active member payroll, significant changes in the payroll will have a material impact on the ratios. Given that the County's payroll has gone down substantially over the period of time reflected in the report, the changes in the AVR and LVR during the period have likely been driven more by the payroll than by changes in asset or liability levels. This is reinforced by the data for 2016, where there was a material increase in payroll yielding a reduction in the AVR and a stable LVR.

Finally, you will note that a number of the tables in the report include an 'Estimated Annual Amount.' This number represents the estimated annual dollar cost for a given contribution rate or rates. [See, e.g., pages v, and 16-19 of the valuation] Segal calculates these amounts based on a projected payroll for the year. [See page 20 of the valuation] This projection is derived from the payroll numbers for the current fiscal year provided by the County last December, to which Segal applies a payroll growth assumption of 3.5%. Since it is unclear whether the County payroll will increase by 3.5% in the upcoming fiscal year, caution should be exercised with respect to relying on those numbers for the actual dollar cost that will need to be paid by the County or other participating employers.

I hope this information is helpful.

Respectfully,

Richard Stensrud
Chief Executive Officer

Attachment

Sacramento County Employees' Retirement System

Actuarial Valuation and Review as of June 30, 2016

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

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November 3, 2016

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 Actuarial Valuation and Review as of June 30, 2016. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2017-2018 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 Retirement System. The census information and financial information on which our calculations were based was prepared by the Retirement System. That assistance is gratefully acknowledged. The actuarial calculations were completed under the supervision of Andy Yeung, ASA, MAAA, 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 are reasonably related to the experience of and the expectations for the Retirement System.

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

Sincerely,

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

By:

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

JAC/hy

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 to present a valuation of the Sacramento County Employees' Retirement System as of June 30, 2016. The valuation was performed to determine whether the asset and contribution levels will be sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of the Retirement System, as administered by the Board of Retirement;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of June 30, 2016, provided by the Retirement System;
- The assets of the plan as of June 30, 2016, provided by the Retirement System;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

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

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

Reference: Pg. 82

The contribution requirements are determined as a percentage of payroll. The System's employer rates provide for both Normal Cost and a contribution to amortize any unfunded or overfunded actuarial accrued liabilities. In this valuation, we have applied the funding policy adopted by the Board on June 19, 2013 to (1) continue to amortize the unfunded actuarial accrued liability (UAAL) established as a result of the 2010 Early Retirement Incentive Program for the Sacramento County Law Enforcement Managers Association (LEMA) members over a 10-year period beginning June 30, 2010 and (2) to amortize the System's remaining outstanding balance of the June 30, 2012 UAAL over a declining 23-year period (19 years as of June 30, 2016). Effective with the June 30, 2013 valuation, the Board of Retirement's funding policy is to amortize any change in UAAL that arises due to actuarial gains or losses or from changes in actuarial assumptions or methods at each valuation over its own declining 20-year period. 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 its own declining period of up to 5 years. The rates calculated in this report may be adopted by the Board for the fiscal year that extends from July 1, 2017 through June 30, 2018.

Significant Issues in Valuation Year

- It is our understanding that there are additional members who have not been reported to the Retirement System by their employers but who are entitled to accrue pension benefits. We have been informed by the System that these member records are currently being reviewed and that, in order to deliver our valuation report in a timely manner, we should not wait for these additional member records. These members have not been included in this valuation report.

Reference: Pg. 66

- Based on our letter dated August 11, 2016 titled "Options for Allocation of Normal Cost and Adjustment of Board Provided Member Future COLA Contribution Offset for Members in Non-PEPRA Tiers," we have allocated the Normal Cost to the Employers and applied the credit to 30-year members based on action taken by the Board.

Reference: Pgs. 85-86

- As part of the transition to phase-in the full 50:50 sharing of the Normal Cost, an adjustment will be applied to gross up the member rates to account for the difference in how the contributions paid by the employer and the member are collected with respect to integration with Social Security. Because members in SCERS are covered by Social Security, the member contribution rates paid to SCERS (as well as the benefits received from SCERS) for the first $4,200 in annual salary are reduced by one-third to allow for integration with Social Security. It should be noted that under current practice, the employer pays the same Normal Cost rate for the entire annual salary.

  In preparing the 50:50 Normal Cost rates during the phase-in period, we have assumed that the above member and employer rate structures would be preserved. Since the transition to phase-in the full 50:50 sharing of the Normal Cost will be completed starting in 2017/2018, we would recommend an additional adjustment under the 50:50 Normal Cost rate allocation for the member Normal Cost rate for the first $4,200 in annual salary being less (by one-third) when compared to the employer Normal Cost rate. The member rates before and after the gross-up to account for the difference (which vary by membership group and by tier is about 0.1% to 0.2% of payroll) are provided in Section 4, Appendix C in Subsections B and C, respectively.

Reference: Pg. 24

- The ratio of the actuarial value of assets to actuarial accrued liabilities increased from 86.8% to 87.3%. On a market value of assets basis, the funded ratio decreased from 87.3% to 81.4%. The System's unfunded actuarial accrued liability increased from $1,190 million as of June 30, 2015 to $1,200 million as of June 30, 2016. The change in the UAAL is primarily due to investment returns (after "smoothing") lower than the 7.50% investment return assumption used in the June 30, 2015 valuation and other experience losses. A reconciliation of the System's unfunded actuarial accrued liability is provided in Section 3, Exhibit H.

Reference: Pg. 51

Reference: Pg. 21

- The aggregate employer rate decreased from 22.29% of payroll to 21.13% of payroll. The reasons for this change in contribution rate are: (i) higher than expected contributions, (ii) lower than expected individual salary increases during 2015/2016, (iii) lower UAAL rate due to higher expected increase in total payroll, (iv) lower than expected COLA increases, (v) Orangevale and Rep Units 8, 18 and 29 members agreeing to pick up an additional portion of the Normal Cost starting in 2016/2017 and (vi) most County members in the legacy tiers continuing to pick up an additional portion of the Normal Cost in 2017/2018,[1] all offset to some degree by lower than expected returns on investments (after "smoothing") and other actuarial losses. A reconciliation of the System's aggregate employer rate is provided in Section 2, Subsection D, Chart 14.

Reference: Pg. 22

- The aggregate member rate calculated in this valuation has increased from 8.88% of payroll to 10.06% of payroll. The increase in member rate is primarily due to Orangevale and Rep Units 8, 18 and 29 members agreeing to pick up an additional portion of the Normal Cost starting in 2016/2017 and most County members in the legacy tiers continuing to pick up an additional portion of the Normal Cost in 2017/2018.[1] A reconciliation of the System's aggregate member rate is provided in Section 2, Subsection D, Chart 15.

- As of June 30, 2016, about 20% of active members are enrolled in the CalPEPRA tiers. As a result of the implementation of the CalPEPRA tiers, the aggregate Normal Cost rate is lower by about 0.3% of payroll, which is primarily due to the shift in payroll to the lower cost CalPEPRA tiers.

Reference: Pg. 6

- As indicated in Section 2, Subsection B, Chart 7 of this report, the total net unrecognized investment <u>loss</u> as of June 30, 2016 is $555.5 million (as compared to a net unrecognized investment <u>gain</u> of $40.0 million as of June 30, 2015). This investment loss will be recognized in the determination of the actuarial value of assets for funding purposes over the next six years. That means that even if the System earns the assumed rate of investment return of 7.50% per year on a market value basis, there will still be investment losses on the actuarial value of assets in the next few years. Therefore, if the actual market return is equal to the assumed rate of 7.50% and all the other actuarial assumptions are met, the employer contribution requirements would increase in the next few years.

- The unrecognized investment losses represent about 7% of the market value of assets. Unless offset by future investment gains or other favorable experience, the recognition of the $555.5 million in past market losses is expected to have an impact on the System's future funded ratio and the aggregate employer contributions. This potential impact may be illustrated as follows:

  - If the deferred losses were recognized immediately in the actuarial value of assets, the funded percentage would decrease from 87.3% to 81.4%.

[1] *Starting in 2017/2018, most Miscellaneous County members and all Safety County members in the legacy tiers would be paying 50% of the total Normal Cost rates in their Tiers.*

For comparison purposes, if all the deferred gains in the June 30, 2015 valuation had been recognized immediately in the June 30, 2015 valuation, the funded percentage would have increased from 86.8% to 87.3%.

- If the deferred losses were recognized immediately in the actuarial value of assets, the aggregate employer contribution rate would increase from 21.1% of payroll to 25.4% of payroll.

  For comparison purposes, if all the deferred gains in the June 30, 2015 valuation had been recognized immediately in the June 30, 2015 valuation, the aggregate employer contribution rate would have decreased from 22.5% of payroll to 22.2% of payroll.

- The $81.1 million in the Contingency Reserve carried over from the previous valuation is available to offset future actuarial losses at the Board’s discretion. If that amount were applied in the June 30, 2016 valuation, the aggregate employer contribution rate would have decreased by about 0.6% of payroll.
- The actuarial valuation report as of June 30, 2016 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increase the actuarial cost of the plan, while increases will decrease the actuarial cost of the plan.
- The actuarial valuation report as of June 30, 2016 only reflects the sharing of the total Normal Cost rate between the employer and most Miscellaneous County members and all Safety County members in the legacy tiers through 2017/2018. Any additional Normal Cost that the other Miscellaneous County members in the legacy tiers may agree to pick up beyond 2017/2018 will be reflected in future actuarial valuations.

Impact of Future Experience on Contribution Rates

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

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

Summary of Key Valuation Results

	June 30, 2016		June 30, 2015	
Employer Contribution Rates (Dollar amounts in thousands):	Total Rate	Estimated Annual Amount[1]	Total Rate	Estimated Annual Amount[1]
Miscellaneous Tier 1	16.33%	$1,076	16.63%	$1,096
Miscellaneous Tier 2	14.45%	632	15.27%	668
Miscellaneous Tier 3	16.69%	96,565	17.95%	103,867
Miscellaneous Tier 4	15.01%	3,597	15.23%	3,650
Miscellaneous Tier 5	14.44%	15,869	14.45%	15,882
Safety Tier 1	41.30%	11,827	42.11%	12,058
Safety Tier 2	37.44%	55,832	39.42%	58,784
Safety Tier 3	36.51%	3,566	37.73%	3,685
Safety Tier 4	34.11%	9,415	34.40%	9,494
All Categories Combined	21.13%	$198,379	22.29%	$209,184
Aggregate Member Contribution Rates (Dollar amounts in thousands):	Total Rate	Estimated Annual Amount[1]	Total Rate	Estimated Annual Amount[1]
All Categories Combined	10.06%	$94,419	8.88%	$83,328
Individual Member Contribution Rates: (Before reflecting members in legacy tiers agreeing to pick up an additional portion of the Normal Cost)	Total Rate[2]	Per Member Annual Amount[3]	Total Rate[2]	Per Member Annual Amount[3]
Miscellaneous Tier 1	4.95%	$3,865	4.75%	$3,703
Miscellaneous Tier 2	3.54%	2,448	3.54%	2,448
Miscellaneous Tier 3	4.78%	3,501	4.76%	3,489
Miscellaneous Tier 4	7.24%	5,185	7.19%	5,156
Miscellaneous Tier 5	7.93%	4,064	8.02%	4,110
Safety Tier 1	16.09%	20,908	15.39%	19,997
Safety Tier 2	12.42%	13,681	12.37%	13,628
Safety Tier 3	12.10%	11,420	12.06%	11,377
Safety Tier 4	13.14%	9,723	13.11%	9,701

(1) *Based on June 30, 2016 projected annual compensation.*
(2) *Based on single full-rates payable by members who enter on or after January 1, 1975.*
(3) *Based on average projected annual compensation for members in each respective tier.*

Summary of Key Valuation Results – continued

	June 30, 2016	June 30, 2015
Funded Status (Dollar Amounts in thousands):		
Actuarial accrued liability[1]	$9,436,090	$9,028,679
Actuarial value of assets (AVA)[1]	8,236,402	7,838,825
Market value of assets (MVA)	7,680,865	7,878,814
Funded percentage on an AVA basis	87.3%	86.8%
Funded percentage on a MVA basis	81.4%	87.3%
Unfunded actuarial accrued liability on an AVA basis	$1,199,688	$1,189,854
Unfunded actuarial accrued liability on a MVA basis	1,755,225	1,149,865
Key Assumptions:		
Interest rate	7.50%	7.50%
Inflation rate	3.25%	3.25%
Across-the-board real salary increase	0.25%	0.25%

(1) *Includes non-valuation reserves and designations.*

Summary of Key Valuation Demographic and Financial Data

	June 30, 2016	June 30, 2015	Percentage Change
Active Members:			
Number of members	12,393	12,072	2.7%
Average age	46.3	46.7	N/A
Average service	12.4	12.7	N/A
Projected total compensation	$938,554,870	$897,340,379	4.6%
Average projected compensation	$75,733	$74,332	1.9%
Retired Member and Beneficiaries:			
Number of members:			
Service retired	8,710	8,333	4.5%
Disability retired	717	729	-1.6%
Beneficiaries	1,533	1,479	3.7%
Total	10,960	10,541	4.0%
Average age	69.4	69.2	N/A
Average monthly benefit	$3,156	$3,072	2.7%
Vested Terminated Members:			
Number of terminated vested members(1)	3,301	3,261	1.2%
Average age	47.2	47.4	N/A
Summary of Financial Data (dollar amounts in thousands)**:**			
Market value of assets	$7,680,865	$7,878,814	-2.5%
Return on market value of assets	-1.00%	1.94%	N/A
Actuarial value of assets	$8,236,402	$7,838,825	5.1%
Return on actuarial value of assets	6.57%	8.28%	N/A
Valuation value of assets	$8,169,906	$7,767,116	5.2%
Return on valuation value of assets	6.70%	7.82%	N/A

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

Important Information about Actuarial Valuations

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 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.

A. MEMBER DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, 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: 2007 – 2016

Year Ended June 30	Active Members	Vested Terminated Members[1]	Retired Members and Beneficiaries	Ratio of Non-Actives to Actives
2007	14,716	2,437	7,464	0.67
2008	15,180	2,661	7,709	0.68
2009	14,796	2,818	7,968	0.73
2010	13,340	2,740	8,346	0.83
2011	12,434	2,710	8,821	0.93
2012	12,155	2,851	9,239	0.99
2013	12,026	3,249	9,634	1.07
2014	12,049	3,201	10,049	1.10
2015	12,072	3,261	10,541	1.14
2016	12,393	3,301	10,960	1.15

[1] *Includes terminated members due a refund of member contributions*

Active Members

Plan costs are affected by the age, years of service and compensation of active members. In this year's valuation, there were 12,393 active members with an average age of 46.3, average years of service of 12.4 years and average compensation of $75,733. The 12,072 active members in the prior valuation had an average age of 46.7, average service of 12.7 years and average compensation of $74,332.

Inactive Members

In this year's valuation, there were 3,301 members with a vested right to a deferred or immediate vested benefit or entitled to a return of their member contributions versus 3,261 in the prior valuation.

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

CHART 2

Distribution of Active Members by Age as of June 30, 2016

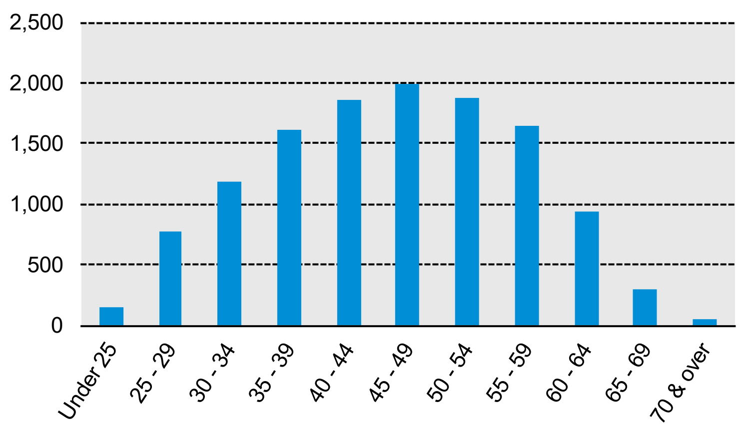
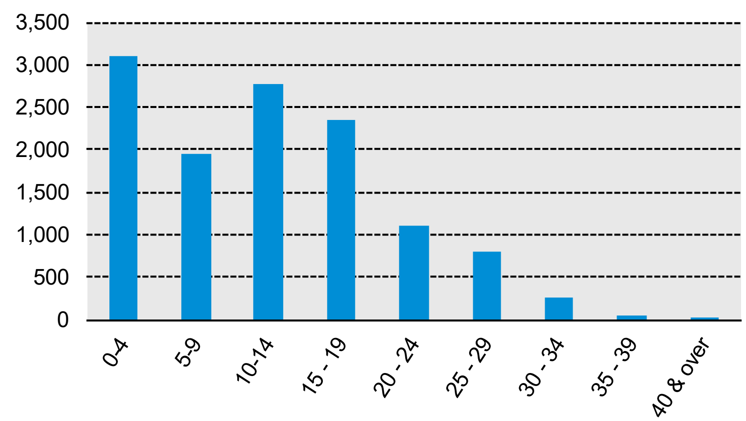


CHART 3

Distribution of Active Members by Years of Service as of June 30, 2016



Retired Members and Beneficiaries

As of June 30, 2016, 9,427 retired members and 1,533 beneficiaries were receiving total monthly benefits of $34,592,112. For comparison, in the previous valuation, there were 9,062 retired members and 1,479 beneficiaries receiving monthly benefits of $32,379,365.

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

CHART 4

Distribution of Retired Members and Beneficiaries by Type and by Monthly Amount as of June 30, 2016

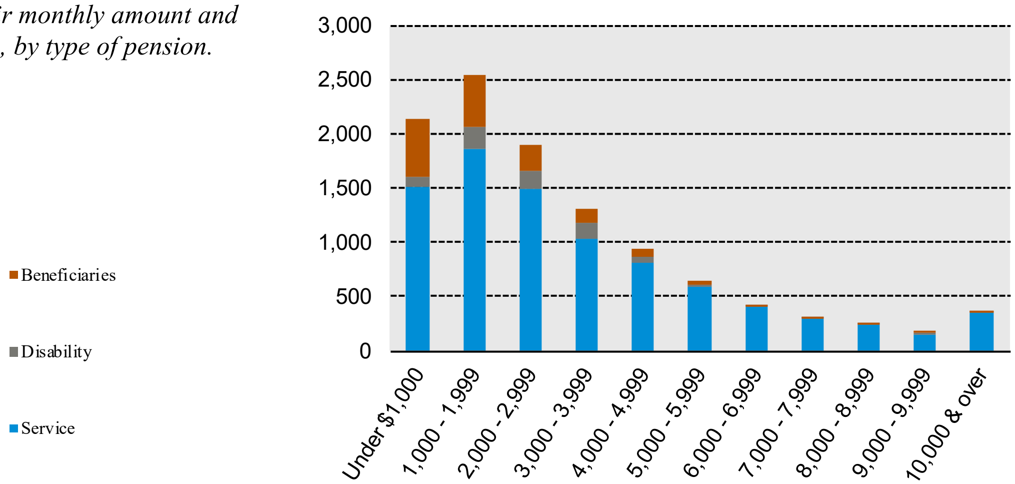
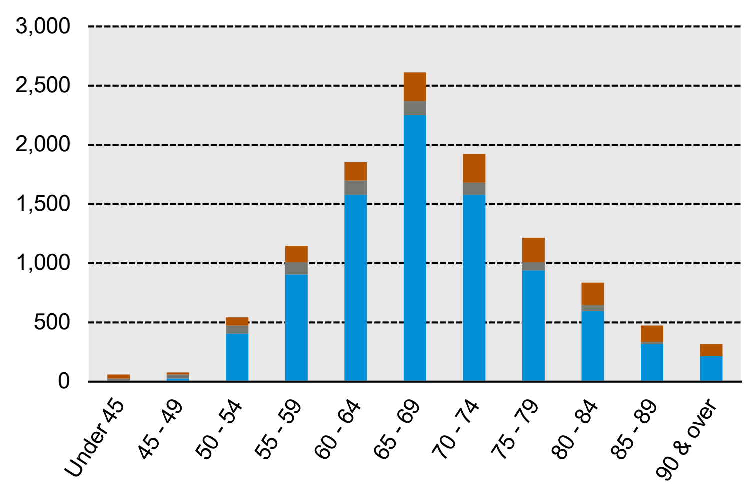


CHART 5

Distribution of Retired Members and Beneficiaries by Type and by Age as of June 30, 2016



B. FINANCIAL INFORMATION

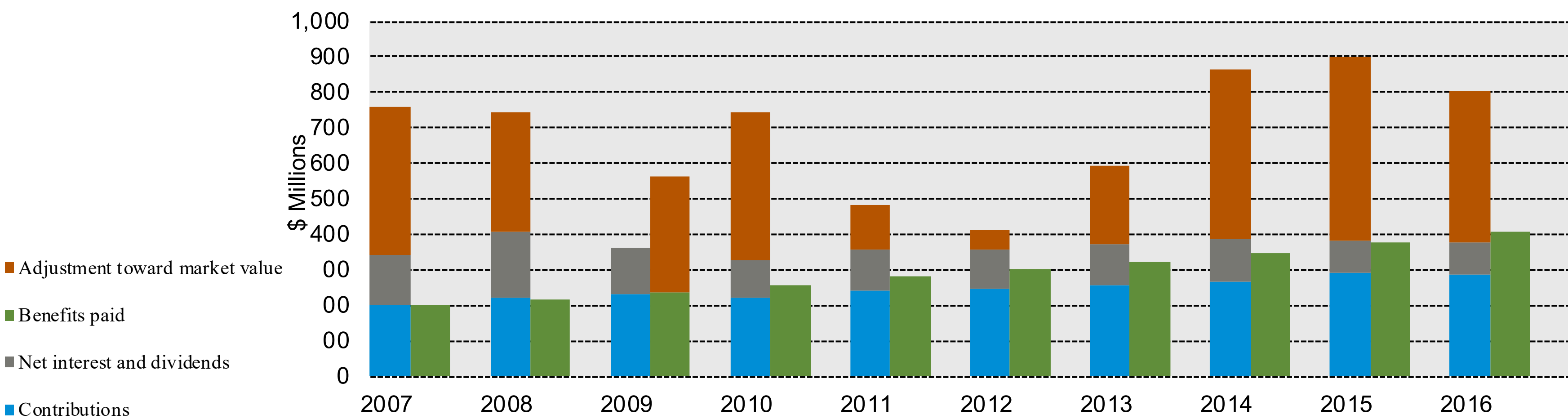
Retirement plan funding anticipates that, over the long term, both contributions and net investment earnings (less investment fees and administrative expenses) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. The adjustment toward market value shown in the chart is the "non-cash" earnings on investments implicitly included in the actuarial value of assets. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits D and E.

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, 2007 - 2016



It is generally considered desirable to have level and predictable plan costs from one year to the next. For this reason, the Board of Retirement 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 does not have an impact on the actuarial value of assets.

The determination of the Actuarial and Valuation Value of Assets is provided on the following page.

In developing the actuarial value of assets as of June 30, 2016, we have used the investment gains/losses from the last few years starting July 1, 2008. The investment loss for the year ending June 30, 2016 was calculated by comparing the actual market return against an expected market return of 7.50% per annum used in the June 30, 2015 valuation. As adopted by the Board, any investment gains/losses established after July 1, 2008 will be recognized over a seven-year period and the deferred return will be 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 period of six years starting July 1, 2013.

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

CHART 7 - Determination of Actuarial and Valuation Value of Assets for Year Ended June 30, 2016

From	To	Contributions	Benefits	Market Value	Average Market Value
7/2008	6/2009	$231,634,350	$235,677,778	$4,407,858,000	$5,807,291,027
7/2009	6/2010	219,555,464	258,023,786	4,980,962,000	4,462,064,342
7/2010	6//2011	240,071,877	280,594,039	6,140,644,000	5,040,052,530
7/2011	6/2012	244,788,721	301,803,914	6,073,926,000	6,187,197,677
7/2012	6/2013	257,906,339	323,566,930	6,787,995,000	6,124,682,749
7/2013	6/2014	268,138,220	347,619,527	7,810,001,000	6,828,714,719
7/2014	6/2015	291,101,995	374,657,240	7,878,814,000	7,856,443,766
7/2015	6/2016	286,513,833	405,702,024	7,680,865,000	7,900,083,408

From	To	Total Actual Market Return (net)	Expected Market Return (net)	Investment Gain (Loss)	Deferred Factor	Deferred Return
7/2008	6/2009	$(1,324,427,572)	$457,324,168	$(1,781,751,740)		
7/2009	6/2010	611,572,322	351,387,567	260,184,755		
7/2010	6//2011	1,200,204,162	390,604,071	809,600,091	See footnote (1) below	
7/2011	6/2012	(9,702,807)	479,507,820	(489,210,627)		
7/2012	6/2013	779,729,591	459,351,206	320,378,385	0.500	$(4,880,835)
7/2013	6/2014	1,101,487,307	512,153,604	589,333,703	0.571	336,762,116
7/2014	6/2015	152,368,245	589,233,282	(436,865,037)	0.714	(312,046,455)
7/2015	6/2016	(78,760,809)	592,506,256	(671,267,065)	0.857	(575,371,769)

1.	Total Deferred Return[(2)]	$(555,536,943)
2.	Net Market Value	7,680,865,000
3.	Actuarial Value of Assets (Item 2 – Item 1)	8,236,401,943
4.	Actuarial Value as a Percentage of Market Value (Before Corridor: Item 3 / Item 2)	107.23%
5.	Actuarial Value of Assets – Corridor Limits:	
	a. Lower Limit – 70% of Net Market Value	$5,376,605,500
	b. Upper Limit – 130% of Net Market Value	9,985,124,500
6.	Actuarial Value of Assets (within corridor)	8,236,401,943
7.	Non-valuation reserves and designations:	
	a. Contingency Reserve	$81,139,092
	b. Other Non-Valuation Reserves	0
	c. Subtotal	$81,139,092
8.	Preliminary Valuation Value of Assets (Item 6 – Item 7c)	8,155,262,851
9.	Adjustment to Preliminary Valuation Value of Assets	
	a. Balance of transfer to offset member COLA rate	$19,861,000
	b. Surplus/(deficit) for withdrawn employer (preliminary)[(3)]	(34,503,755)
	c. Subtotal	$(14,642,755)
10.	Final Valuation Value of Assets (Item 8 – Item 9c)	$8,169,905,606

(1) *Based on action taken by the Board, the net deferred loss of $9,761,669 through June 30, 2013 as of that valuation has been recognized in six level amounts with three periods of recognition remaining after the June 30, 2016 valuation.*

(2) *The amounts of deferred return that will be recognized in each subsequent valuation are as follows:*

6/30/2017	$(75,741,002)	6/30/2019	$(75,741,001)	6/30/2021	$(158,304,586)
6/30/2018	$(75,741,002)	6/30/2020	$(74,114,057)	6/30/2022	$(95,895,295)

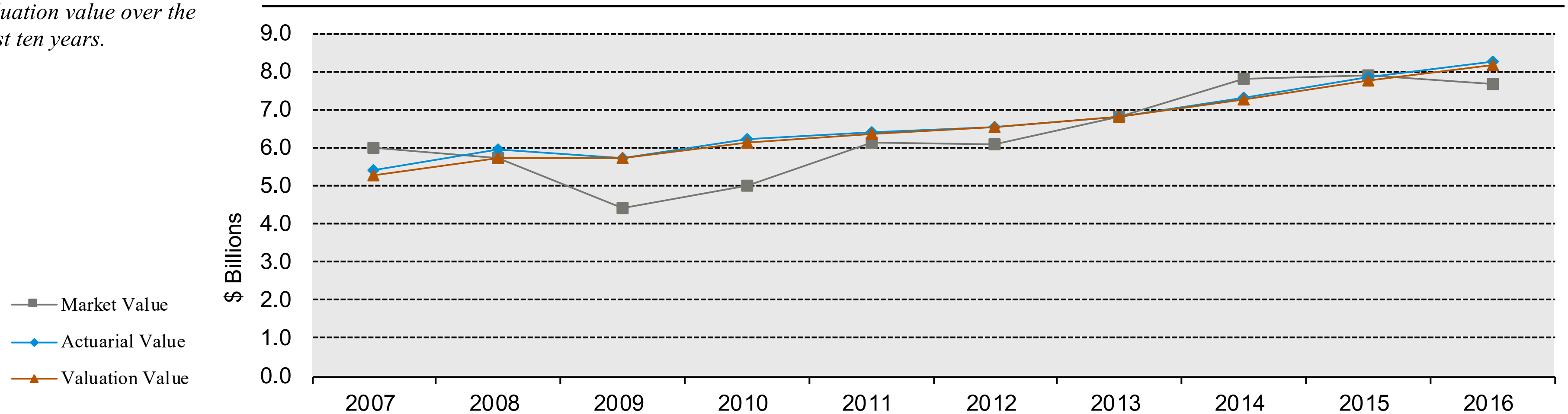
(3) *Based on the latest estimate available as of June 30, 2015 for Florin Fire adjusted with interest at the assumed rate of investment return to June 30, 2016.*

The market value, actuarial value, and valuation value of assets are representations of SCERS' financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets, but with less volatility. The valuation value of assets is the actuarial value, excluding any non-valuation reserves. The valuation asset value is significant because SCERS' 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 market value, actuarial value and valuation value over the past ten years.

CHART 8

Market Value, Actuarial Value and Valuation Value of Assets as of June 30, 2007 – 2016



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 net experience loss was $11.8 million, $62.1 million loss from investments and $50.3 million gain from all other sources. The net experience variation from individual sources other than investments was 0.5% of the actuarial accrued liability. An explanation of the experience variation is provided on page 12 and in Section 3, Exhibit H. 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, 2016

1.	Net loss from investments[1]	$(62,151,000)
2.	Net gain from other experience[2]	50,304,000
3.	Net experience loss: (1) + (2)	$(11,847,000)

[1] *Details in Chart 10.*
[2] *Details in Section 3, Exhibit H. Does not include the effect of plan or assumption changes, if any.*

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 SCERS' investment policy. For valuation purposes, the assumed rate of return on the valuation value of assets was 7.50% in the June 30, 2015 valuation. The actual rate of return on a valuation basis for the 2015/2016 plan year was 6.70%.

Since the actual return on the valuation value of assets for the year was less than the assumed return, SCERS experienced an actuarial loss during the year ended June 30, 2016 with regard to its investments.

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

CHART 10

Investment Experience for Year Ended June 30, 2016 – Market, Actuarial and Valuation Value of Assets

	Market Value	Actuarial Value	Valuation Value
1. Actual return	$(78,761,000)	$516,765,000	$521,978,000
2. Average value of assets	7,900,084,000	7,860,095,000	7,788,386,000
3. Actual rate of return: (1) ÷ (2)	-1.00%	6.57%	6.70%
4. Assumed rate of return	7.50%	7.50%	7.50%
5. Expected return:	592,506,000	589,507,000	584,129,000
6. Actuarial gain/(loss): (1) – (5)	$(671,267,000)	$(72,742,000)	$(62,151,000)

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, valuation, and market basis for the last ten years.

CHART 11

Investment Return – Market Value, Actuarial Value and Valuation Value: 2007 – 2016

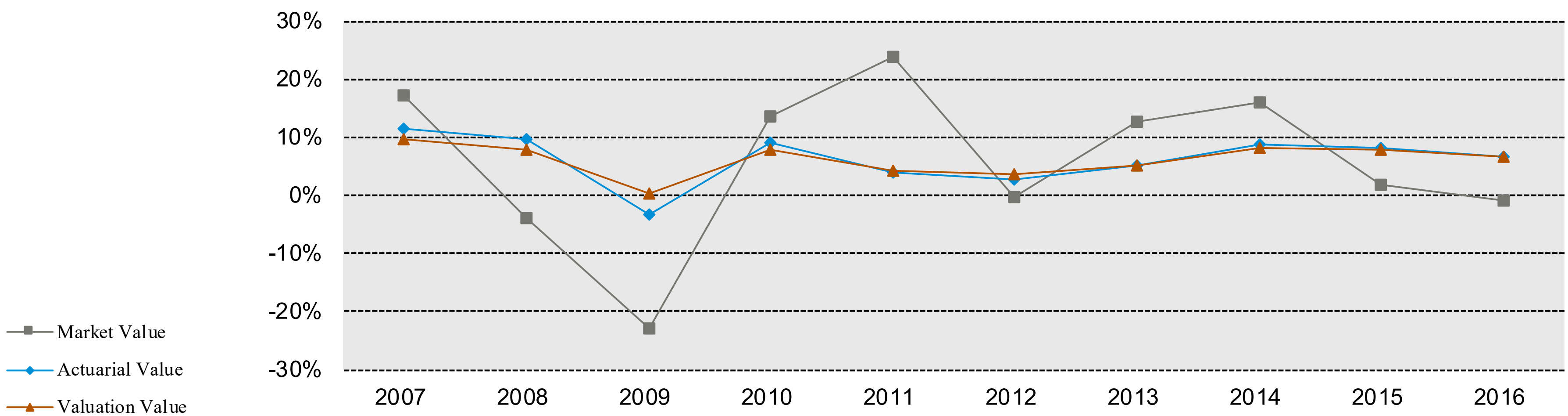
	Market Value Investment Return		Actuarial Value Investment Return		Valuation Value Investment Return	
Year Ended June 30	Amount	Percent	Amount	Percent	Amount	Percent
2007	$885,687,000	17.19%	$558,262,000	11.37%	$470,717,000	9.65%
2008	(240,661,000)	(3.98%)	523,169,000	9.56%	413,272,000	7.72%
2009	(1,324,428,000)	(22.81%)	(196,500,000)	(3.27%)	9,241,000	0.16%
2010	611,573,000	13.71%	525,248,000	9.08%	450,949,000	7.83%
2011	1,200,204,000	23.81%	244,352,000	3.89%	269,937,000	4.37%
2012	(9,702,000)	(0.16%)	166,087,000	2.57%	238,467,000	3.73%
2013	779,729,000	12.73%	333,523,000	5.07%	341,373,000	5.19%
2014	1,101,488,000	16.13%	594,718,000	8.70%	551,884,000	8.06%
2015	152,368,000	1.94%	609,387,000	8.28%	572,950,000	7.82%
2016	(78,761,000)	(1.00%)	516,765,000	6.57%	521,978,000	6.70%
Five-Year Average Return		5.70%		6.22%		6.29%
Ten-Year Average Return		4.90%		6.10%		6.09%

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

This chart illustrates how this leveling effect has actually worked over the years 2007 - 2016.

CHART 12

Market, Actuarial and Valuation Rates of Return for Years Ended June 30, 2007 – 2016



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:

- actual 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, 2016 amounted to $50.3 million which is 0.5% of the actuarial accrued liability. See Section 3, Exhibit H for a detailed development of the Unfunded Actuarial Accrued Liability, and the breakdown of the actuarial gain/loss from other experience.

D. EMPLOYER AND MEMBER CONTRIBUTIONS

Employer contributions consist of two components:

Normal Cost	The annual contribution rate that, if paid annually from a member's first year of membership through the year of retirement, would accumulate to the amount necessary to fully fund the member's retirement-related benefits. Accumulation includes annual crediting of interest at the assumed investment earning rate. The contribution rate is expressed as a level percentage of the member's compensation.
Contribution to the Unfunded Actuarial Accrued Liability (UAAL)	The annual contribution rate that, if paid annually over the UAAL amortization period, would accumulate to the amount necessary to fully fund the UAAL. Accumulation includes annual crediting of interest at the assumed investment earning rate. The contribution (or rate credit in the case of a negative unfunded actuarial accrued liability) is calculated to remain as a level percentage of future active member payroll (including payroll for new members as they enter the System) assuming a constant number of active members. In order to remain as a level percentage of payroll, amortization payments (credits) are scheduled to increase at the annual inflation rate of 3.50% (i.e., 3.25% inflation plus 0.25% real across-the-board salary increase). 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 with the June 30, 2013 valuation, the System's remaining outstanding balance of the June 30, 2012 UAAL is being amortized over a declining 23-year period (19 years as of June 30, 2016). The change in UAAL that arises due to actuarial gains or losses or from changes in actuarial assumptions or methods at each valuation is amortized over its own declining 20-year period. 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 its own declining period of up to 5 years.

Starting with the June 30, 2015 valuation, we have added to the Miscellaneous employer UAAL rate for the County an amount to reflect the net withdrawal liability for the Library Authority and Air Quality Districts when they terminated their affiliation with the County and became special districts.

The recommended employer contributions are provided on Chart 13.

Employer Normal Cost and UAAL contribution rates are calculated assuming payments made at the end of every pay period.

Member Contributions

Miscellaneous Tiers 1, 2, 3 & 4
Safety Tiers 1, 2, & 3

Articles 6 and 6.8 of the 1937 Act define the methodology to be used in the calculation of member basic contribution rates for Miscellaneous members and Safety members, respectively, in the legacy tiers. The basic contribution rate is determined as that percentage of compensation which if paid annually from a member's first year of membership through the prescribed retirement age would accumulate to the amount necessary to fund a prescribed annuity.

The annuity is equal to:

- 1/240 of Final Average Salary per year of service at age 55 for current Miscellaneous Tier 1, Tier 2 and Tier 3 members
- 1/120 of Final Average Salary per year of service at age 60 for current Miscellaneous Tier 4 members
- 1/100 of Final Average Salary per year of service at age 50 for current Safety Tier 1, Tier 2 and Tier 3 members

In addition to their basic contributions, members in the legacy tiers pay one-half of the total Normal Cost necessary to fund their cost-of-living benefits. The cost to provide the cost-of-living benefits is offset somewhat by the balance available in an account maintained in the valuation to offset member's COLA rates in the legacy tiers. Accumulation includes semi-annual crediting of interest at the assumed investment earning rate. For members paying half rates prior to the June 30, 2015 valuation, their rates should be exactly one-half of the rates described above. Note that effective with the June 30, 2015 valuation, all members are reported as paying at least full-rate.

After we completed the June 30, 2013 valuation, we were informed by SCERS that starting in 2014/2015, most County members in the legacy tiers have agreed to pick up either 1/3, 1/4, or 1/5 of the difference between the employee's then current Normal Cost and 50% of the total Normal Cost rate. The adjustments required for the employer and employee rates were subsequently provided to the System.

As those members have agreed to pick up an additional 1/3, 1/4, or 1/5 of the difference in the Normal Cost rate in 2015/2016, 2016/2017 and 2017/2018, we have reflected these adjustments in preparing the recommended rates for the June 30, 2014, June 30, 2015 and June 30, 2016 valuations, respectively.

For Rep Unit 26 Miscellaneous members, the member rates they have started to pay in 2015/2016 are 1% of payroll higher than the rates they paid in 2014/2015. In developing their rates for 2016/2017, we have added an additional 2% of payroll to the rates for 2015/2016.

For 2017/2018, all of the above members who have previously agreed to pay a higher Normal Cost rate are paying 50% of the total Normal Cost rate.

Miscellaneous Tier 5 & Safety Tier 4

Pursuant to Section 7522.30(a) of the Government Code, Miscellaneous Tier 5 and Safety Tier 4 members are required to contribute at least 50% of the Normal Cost rate. In addition, there are certain additional requirements that would have to be met such as requiring the new employees to pay the contribution rate of "similarly situated employees", if it is greater. (reference: Section 7522.30(c)). We further understand that different rules may have to be applied for collectively bargained employees, non-represented, managerial or other supervisory employees. (reference: Section 7522.30(e)). In preparing the Normal Cost rates in this report, we have assumed that exactly 50% of the Normal Cost would be paid by the new members and we have taken into account in this valuation only the requirements of Section 7522.30(c), but not requirements of Section 7522.30(e).

The member contribution rates are provided in Appendix A.

Member contributions are assumed to be made at the end of every pay period.

CHART 13

Recommended Employer Contribution Rates (Dollar Amounts in Thousands)

County Only[1]	June 30, 2016 Actuarial Valuation		June 30, 2015 Actuarial Valuation	
Miscellaneous – Tier 1 Members	Rate	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Normal Cost	9.65%	$555	10.08%[3]	$580
UAAL	6.18%	355	6.11%	352
Total Contribution	15.83%	$910	16.19%[3]	$932
Miscellaneous – Tier 2 Members				
Normal Cost	7.67%	$268	8.81%[3]	$308
UAAL	6.18%	216	6.11%	214
Total Contribution	13.85%	$484	14.92%[3]	$522
Miscellaneous – Tier 3 Members				
Normal Cost	9.71%	$49,693	11.21%[3]	$57,369
UAAL	6.18%	31,618	6.11%	31,269
Total Contribution	15.89%	$81,311	17.32%[3]	$88,638
Miscellaneous – Tier 4 Members				
Normal Cost	8.83%	$2,116	9.12%[3]	$2,186
UAAL	6.18%	1,481	6.11%	1,464
Total Contribution	15.01%	$3,597	15.23%[3]	$3,650
Miscellaneous – Tier 5 Members				
Normal Cost	7.93%	$8,021	8.02%	$8,112
UAAL	6.18%	6,250	6.11%	6,180
Total Contribution	14.11%	$14,271	14.13%	$14,292
All Miscellaneous County Categories Combined				
Normal Cost	9.39%	$60,653	10.61%	$68,555
UAAL	6.18%	39,920	6.11%	39,479
Total Contribution	15.57%	$100,573	16.72%	$108,034

(1) Includes elected officials (Board of Supervisors, Sheriff, District Attorney and Assessor).
(2) Based on June 30, 2016 projected annual payroll, see page 20.
(3) These rates reflect an adjustment since the issuance of the June 30, 2015 valuation report to reflect the correct pickup in 2016/2017 for the G15A cost sharing group.

CHART 13 (continued)

Recommended Employer Contribution Rates (Dollar Amounts in Thousands)

County Only[1]	June 30, 2016 Actuarial Valuation		June 30, 2015 Actuarial Valuation	
Safety – Tier 1 Members	Rate	Estimated Annual Amount[2]	Rate	Estimated Annual Amount[2]
Normal Cost	20.33%	$5,822	20.82%	$5,962
UAAL	20.97%	6,005	21.29%	6,096
Total Contribution	41.30%	$11,827	42.11%	$12,058
Safety – Tier 2 Members				
Normal Cost	16.47%	$24,561	18.13%	$27,036
UAAL	20.97%	31,271	21.29%	31,748
Total Contribution	37.44%	$55,832	39.42%	$58,784
Safety – Tier 3 Members				
Normal Cost	15.54%	$1,518	16.44%	$1,606
UAAL	20.97%	2,048	21.29%	2,079
Total Contribution	36.51%	$3,566	37.73%	$3,685
Safety – Tier 4 Members				
Normal Cost	13.14%	$3,627	13.11%	$3,618
UAAL	20.97%	5,788	21.29%	5,876
Total Contribution	34.11%	$9,415	34.40%	$9,494
All Safety County Categories Combined				
Normal Cost	16.51%	$35,528	17.77%	$38,222
UAAL	20.97%	45,112	21.29%	45,799
Total Contribution	37.48%	$80,640	39.06%	$84,021
All County Categories Combined				
Normal Cost	11.16%	$96,181	12.40%	$106,777
UAAL	9.87%	85,032	9.90%	85,278
Total Contribution	21.03%	$181,213	22.30%	$192,055

(1) *Includes elected officials (Board of Supervisors, Sheriff, District Attorney and Assessor).*
(2) *Based on June 30, 2016 projected annual payroll, see page 20.*

CHART 13 (continued)

Recommended Employer Contribution Rates (Dollar Amounts in Thousands)

Superior Court Only	June 30, 2016 Actuarial Valuation		June 30, 2015 Actuarial Valuation	
Miscellaneous – Tier 1 Members	Rate	Estimated Annual Amount[1]	Rate	Estimated Annual Amount[1]
Normal Cost	12.01%	$80	11.92%	$80
UAAL	6.15%	41	6.07%	40
Total Contribution	18.16%	$121	17.99%	$120
Miscellaneous – Tier 2 Members				
Normal Cost	10.72%	$94	10.59%	$93
UAAL	6.15%	54	6.07%	53
Total Contribution	16.87%	$148	16.66%	$146
Miscellaneous – Tier 3 Members				
Normal Cost	13.69%	$5,747	13.76%	$5,777
UAAL	6.15%	2,581	6.07%	2,548
Total Contribution	19.84%	$8,328	19.83%	$8,325
Miscellaneous – Tier 5 Members				
Normal Cost	7.93%	$333	8.02%	$336
UAAL	6.15%	258	6.07%	255
Total Contribution	14.08%	$591	14.09%	$591
All Superior Court Categories Combined				
Normal Cost	13.11%	$6,254	13.71%	$6,286
UAAL	6.15%	2,934	6.07%	2,896
Total Contribution	19.26%	$9,188	19.24%	$9,182

[1] *Based on June 30, 2016 projected annual payroll, see page 20.*

Note: Superior Court members have not agreed to pick up any additional portion of the total Normal Cost.

CHART 13 (continued)

Recommended Employer Contribution Rates (Dollar Amounts in Thousands)

District Only	June 30, 2016 Actuarial Valuation		June 30, 2015 Actuarial Valuation	
Miscellaneous – Tier 1 Members	Rate	Estimated Annual Amount[1]	Rate	Estimated Annual Amount[1]
Normal Cost	12.01%	$21	11.92%	$20
UAAL	14.26%	24	14.00%	24
Total Contribution	26.27%	$45	25.92%	$44
Miscellaneous – Tier 3 Members				
Normal Cost	13.59%	$3,380	13.76%	$3,422
UAAL	14.26%	3,546	14.00%	3,482
Total Contribution	27.85%	$6,926	27.76%	$6,904
Miscellaneous – Tier 5 Members				
Normal Cost	7.93%	$360	8.02%	$364
UAAL	14.26%	647	14.00%	635
Total Contribution	22.19%	$1,007	22.02%	$999
All District Categories Combined				
Normal Cost	12.72%	$3,761	12.87%	$3,806
UAAL	14.26%	4,217	14.00%	4,141
Total Contribution	26.98%	$7,978	26.87%	$7,947
All County and District Categories Combined				
Normal Cost	11.31%	$106,196	12.45%	$116,869
UAAL	9.82%	92,183	9.84%	92,315
Total Contribution	21.13%	$198,379	22.29%	$209,184

(1) *Based on June 30, 2016 projected annual payroll, see page 20.*

CHART 13 (continued)

Recommended Employer Contribution Rates (Dollar Amounts in Thousands)

June 30, 2016 projected annual payroll used in developing employer contribution rates on the four previous pages

	County[1]	Superior Court	District	Total
Miscellaneous Tier 1	$5,753	$667	$171	$6,591
Miscellaneous Tier 2	3,497	878	0	4,375
Miscellaneous Tier 3	511,765	41,981	24,870	578,616
Miscellaneous Tier 4	23,965	0	0	23,965
Miscellaneous Tier 5	101,153	4,193	4,536	109,882
Subtotal	$646,133	$47,719	$29,577	$723,429
Safety Tier 1	$28,635	$0	$0	$28,635
Safety Tier 2	149,124	0	0	149,124
Safety Tier 3	9,767	0	0	9,767
Safety Tier 4	27,600	0	0	27,600
Subtotal	$215,126	$0	$0	$215,126
Total	$861,259	$47,719	$29,577	$938,555

[1] *Includes elected officials (Board of Supervisors, Sheriff, District Attorney and Assessor).*

The contribution rates as of June 30, 2016 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. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

Reconciliation of Recommended Contribution Rate
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 rate from the prior valuation to the amount determined in this valuation.

CHART 14
Reconciliation of Average Recommended Employer Contribution Rate from June 30, 2015 to June 30, 2016 (Dollar Amounts in Thousands)

	Contribution Rate	Estimated Annual Dollar Cost[1]
Average Recommended Contribution Rate as of June 30, 2015 (After Reflecting Pick Up of Additional Normal Cost by Legacy Members for 2016/2017)	22.29%	$209,184
Effect of investment losses	0.48%	4,505
Effect of actual contributions greater than expected	-0.09%	(845)
Effect of actual individual salary increases less than expected	-0.30%	(2,816)
Effect of decrease in UAAL rate from higher than expected increase in total payroll	-0.10%	(939)
Effect of actual COLA increases less than expected	-0.21%	(1,971)
Effect of Orangevale and Rep Units 8, 18 and 29 paying additional Normal Cost	-0.38%	(3,541)
Effect of member pick up of additional Normal Cost in 2017/2018	-0.63%	(5,933)
Effect of reflecting Board's recent action on allocation of Normal Cost and adjustment of Board provided future COLA contribution offset for legacy members	0.03%	276
Effect of demographic changes and other actuarial (gains)/losses[2]	0.04%	459
Subtotal	-1.16%	(10,805)
Average Recommended Contribution Rate as of June 30, 2016 (After Reflecting Pick Up of Additional Normal Cost by Legacy Members for 2017/2018)	21.13%	$198,379

(1) *Based on June 30, 2016 projected annual payroll of $938,555,000.*
(2) *Includes the effect of the change in aggregate Normal Cost due to the shift in proportion of payroll among Rep Units during the phase-in period for legacy members to pay 50% of the Normal Cost.*

The member contribution rates as of June 30, 2016 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. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

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

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

CHART 15
Reconciliation of Average Recommended Member Contribution Rate from June 30, 2015 to June 30, 2016 (Dollar Amounts in Thousands)

	Contribution Rate	Estimated Amount[1]
Average Recommended Contribution Rate as of June 30, 2015 (After Reflecting Pick Up of Additional Normal Cost by Legacy Members for 2016/2017)	8.88%[2]	$83,328
Effect of reduction in COLA offset reserve	0.03%	282
Effect of Orangevale and Rep Units 8, 18 and 29 paying additional Normal Cost	0.39%	3,671
Effect of member pick up of additional Normal Cost in 2017/2018	0.65%	6,090
Effect of demographic changes[3]	0.11%	1,048
Subtotal	1.18%	11,091
Average Recommended Contribution Rate as of June 30, 2016 (After Reflecting Pick Up of Additional Normal Cost by Legacy Members for 2017/2018)	10.06%[2]	$94,419

(1) *Based on June 30, 2016 projected annual payroll of $938,555,000.*
(2) *Rates have been adjusted to reflect a reserve available to reduce part of the COLA contributions.*
(3) *Includes the effect of the change in aggregate Normal Cost due to the shift in proportion of payroll among Rep Units during the phase-in period for legacy members to pay 50% of the Normal Cost.*

E. FUNDED RATIO

A critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the actuarial value of assets and market value of assets to the actuarial accrued liabilities of the plan. High ratios indicate a well-funded plan that is well positioned to pay benefits when they are due. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other changes.

The Chart below depicts a history of the funded ratio for the 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 Plan Years Ending June 30, 2007 – 2016

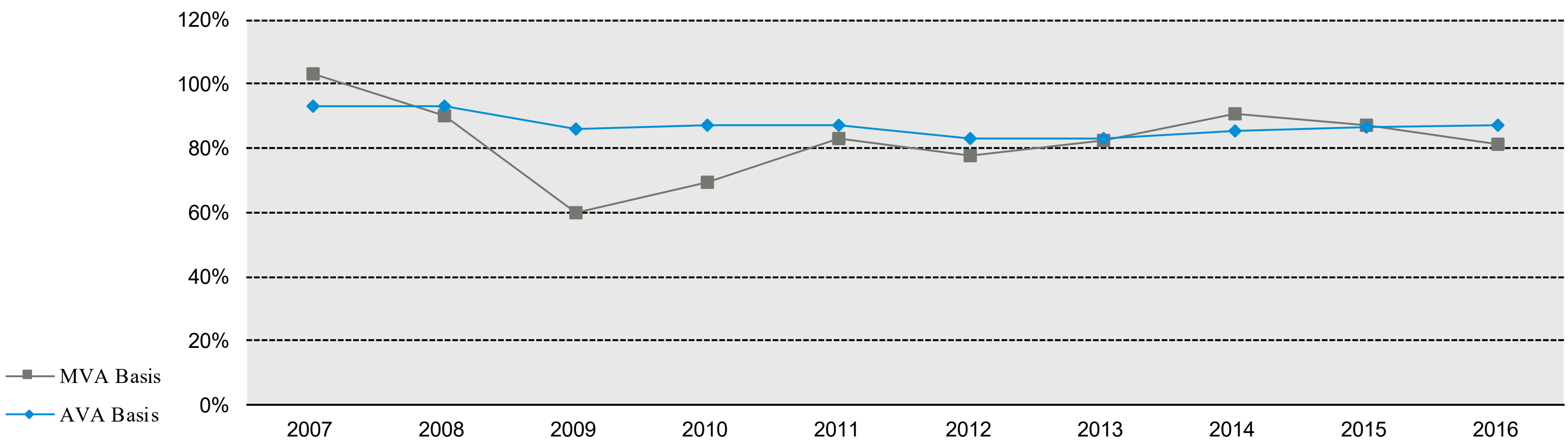


CHART 17

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets[1] (a)	Actuarial Accrued Liability (AAL)[1] (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (%) (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (%) [(b) - (a)] / (c)
6/30/2007	$5,406,461,000	$5,788,336,000	$381,875,000	93.4	$832,484,000	45.9
6/30/2008	5,930,758,000	6,363,355,000	432,597,000	93.2	902,971,000	47.9
6/30/2009	5,730,215,000	6,661,993,000	931,778,000	86.0	968,130,000	96.2
6/30/2010	6,216,994,000	7,090,497,000	873,503,000	87.7	912,644,000	95.7
6/30/2011	6,420,824,000	7,382,897,000	962,073,000	87.0	880,766,000	109.2
6/30/2012	6,529,895,000	7,838,223,000	1,308,328,000	83.3	875,672,000	149.4
6/30/2013	6,797,757,000	8,210,980,000	1,413,223,000	82.8	877,657,000	161.0
6/30/2014	7,312,993,000	8,580,928,000	1,267,935,000	85.2	879,999,000	144.1
6/30/2015	7,838,825,000	9,028,679,000	1,189,854,000	86.8	897,341,000	132.6
6/30/2016	8,236,402,000	9,436,090,000	1,199,688,000	87.3	938,555,000	127.8

[1] *Includes contingency reserve and other non-valuation reserves.*

F. VOLATILITY RATIOS

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

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

For SCERS, the current AVR is 8.2. This means that a 1% asset gain/(loss) (relative to the assumed investment return) translates to 8.2% of one-year's payroll. Since SCERS amortizes actuarial gains and losses over a period of 20 years as of June 30, 2016, there would be a 0.6% of payroll decrease/(increase) in the required contribution for each 1% asset gain/(loss).

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

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

For SCERS, the current LVR is 10.1. This is about 23% 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 19

Volatility Ratios for Years Ended June 30, 2008 – 2016

	Asset Volatility Ratios			Liability Volatility Ratios		
Year Ended June 30	Miscellaneous	Safety	Total	Miscellaneous	Safety	Total
2008	5.3	10.0	6.4	5.9	11.3	7.0
2009	3.8	7.4	4.6	5.7	11.3	6.9
2010	4.5	9.1	5.5	6.4	13.4	7.8
2011	5.8	11.6	7.0	6.9	14.0	8.4
2012	5.8	11.0	6.9	7.5	14.5	9.0
2013	6.6	11.7	7.7	7.9	14.6	9.4
2014	7.6	13.2	8.9	8.1	15.2	9.8
2015	7.5	13.0	8.8	8.4	15.8	10.1
2016	7.0	12.2	8.2	8.4	15.7	10.1

EXHIBIT A

Table of Plan Coverage

i. Miscellaneous Tier 1

Category	Year Ended June 30 2016	2015	Change From Prior Year
Active members in valuation			
Number	83	104	-20.2%
Average age	60.7	59.8	N/A
Average service	34.5	33.9	N/A
Projected total compensation(1)	$6,591,339	$8,193,946	-19.6%
Projected average compensation	$79,414	$78,788	0.8%
Account balances	$13,179,286	$16,664,391	-20.9%
Total active vested members	83	104	-20.2%
Vested terminated members			
Number(2)	48	63	-23.8%
Average age	64.3	63.1	N/A
Retired members			
Number in pay status	2,894	2,988	-3.1%
Average age	74.7	74.3	N/A
Average monthly benefit	$3,482	$3,339	4.3%
Disabled members			
Number in pay status	173	191	-9.4%
Average age	75.7	75.3	N/A
Average monthly benefit	$2,185	$2,127	2.7%
Beneficiaries			
Number in pay status	762	768	-0.8%
Average age	77.4	77.2	N/A
Average monthly benefit	$1,770	$1,666	6.2%

(1) *Projected compensation for the June 30, 2016 valuation was calculated by increasing the annualized compensation earned during 2015-2016 by 3.50%.*

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

EXHIBIT A

Table of Plan Coverage

ii. Miscellaneous Tier 2

Category	Year Ended June 30 2016	Year Ended June 30 2015	Change From Prior Year
Active members in valuation			
Number	62	68	-8.8%
Average age	55.2	54.8	N/A
Average service	25.3	24.7	N/A
Projected total compensation[1]	$4,375,098	$4,676,113	-6.4%
Projected average compensation	$70,566	$68,766	2.6%
Account balances	$4,981,868	$5,322,023	-6.4%
Total active vested members	62	68	-8.8%
Vested terminated members			
Number[2]	170	185	-8.1%
Average age	56.9	56.1	N/A
Retired members			
Number in pay status	330	317	4.1%
Average age	68.2	67.7	N/A
Average monthly benefit	$1,068	$1,029	3.8%
Disabled members			
Number in pay status	31	33	-6.1%
Average age	65.8	65.4	N/A
Average monthly benefit	$931	$895	4.0%
Beneficiaries			
Number in pay status	53	46	15.2%
Average age	69.3	69.2	N/A
Average monthly benefit	$730	$684	6.7%

(1) *Projected compensation for the June 30, 2016 valuation was calculated by increasing the annualized compensation earned during 2015-2016 by 3.50%.*

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

EXHIBIT A

Table of Plan Coverage

iii. Miscellaneous Tier 3

Category	Year Ended June 30		Change From Prior Year
	2016	2015	
Active members in valuation			
Number	7,746	8,238	-6.0%
Average age	50.0	49.4	N/A
Average service	15.3	14.5	N/A
Projected total compensation(1),(2)	$578,615,519	$589,808,360	-1.9%
Projected average compensation	$74,699	$71,596	4.3%
Account balances	$444,544,752	$436,990,756	1.7%
Total active vested members	7,548	7,922	-4.7%
Vested terminated members			
Number(3)	2,343	2,357	-0.6%
Average age	48.1	47.9	N/A
Retired members			
Number in pay status	3,922	3,528	11.2%
Average age	66.9	66.6	N/A
Average monthly benefit	$2,392	$2,306	3.7%
Disabled members			
Number in pay status	260	253	2.8%
Average age	62.7	62.2	N/A
Average monthly benefit	$1,798	$1,747	2.9%
Beneficiaries			
Number in pay status	361	324	11.4%
Average age	65.4	64.6	N/A
Average monthly benefit	$1,017	$981	3.7%

(1) *Projected compensation for the June 30, 2016 valuation was calculated by increasing the annualized compensation earned during 2015-2016 by 3.50%.*

(2) *For members without a salary reported for the June 30, 2016 valuation, we have assigned them an annual salary of $74,520.*

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

EXHIBIT A

Table of Plan Coverage

iv. Miscellaneous Tier 4

Category	Year Ended June 30 2016	Year Ended June 30 2015	Change From Prior Year
Active members in valuation			
Number	328	306	7.2%
Average age	41.7	40.6	N/A
Average service	3.3	2.7	N/A
Projected total compensation[1]	$23,965,104	$20,409,812	17.4%
Projected average compensation	$73,064	$66,699	9.5%
Account balances	$5,348,557	$3,777,051	41.6%
Total active vested members	10	8	25.0%
Vested terminated members			
Number[2]	63	51	23.5%
Average age	37.8	36.3	N/A
Retired members			
Number in pay status	2	- -	N/A
Average age	57.8	- -	N/A
Average monthly benefit	$704	- -	N/A
Disabled members			
Number in pay status	- -	- -	N/A
Average age	- -	- -	N/A
Average monthly benefit	- -	- -	N/A
Beneficiaries			
Number in pay status	- -	- -	N/A
Average age	- -	- -	N/A
Average monthly benefit	- -	- -	N/A

[1] *Projected compensation for the June 30, 2016 valuation was calculated by increasing the annualized compensation earned during 2015-2016 by 3.50%.*

[2] *Includes terminated members due a refund of contributions.*

EXHIBIT A

Table of Plan Coverage

v. Miscellaneous Tier 5

Category	Year Ended June 30 2016	Year Ended June 30 2015	Change From Prior Year
Active members in valuation			
Number	2,144	1,377	55.7%
Average age	37.3	37.3	N/A
Average service	1.4	1.1	N/A
Projected total compensation(1)	$109,881,536	$69,050,148	59.1%
Projected average compensation	$51,251	$50,145	2.2%
Account balances	$12,509,733	$5,816,818	115.1%
Total active vested members	10	5	140.0%
Vested terminated members			
Number(2)	221	129	71.3%
Average age	37.3	39.1	N/A
Retired members			
Number in pay status	- -	- -	N/A
Average age	- -	- -	N/A
Average monthly benefit	- -	- -	N/A
Disabled members			
Number in pay status	- -	- -	N/A
Average age	- -	- -	N/A
Average monthly benefit	- -	- -	N/A
Beneficiaries			
Number in pay status	- -	- -	N/A
Average age	- -	- -	N/A
Average monthly benefit	- -	- -	N/A

(1) *Projected compensation for the June 30, 2016 valuation was calculated by increasing the annualized compensation earned during 2015-2016 by 3.50%.*

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

EXHIBIT A

Table of Plan Coverage

vi. Safety Tier 1

Category	Year Ended June 30 2016	Year Ended June 30 2015	Change From Prior Year
Active members in valuation			
Number	218	254	-14.2%
Average age	50.4	49.9	N/A
Average service	23.8	23.1	N/A
Projected total compensation[(1),(2)]	$28,634,501	$32,288,171	-11.3%
Projected average compensation	$131,351	$127,119	3.3%
Account balances	$43,645,257	$46,182,258	-5.5%
Total active vested members	218	254	-14.2%
Vested terminated members			
Number[(3)]	77	93	-17.2%
Average age	51.4	50.9	N/A
Retired members			
Number in pay status	1,250	1,222	2.3%
Average age	65.3	64.8	N/A
Average monthly benefit	$6,898	$6,676	3.3%
Disabled members			
Number in pay status	195	200	-2.5%
Average age	65.3	64.7	N/A
Average monthly benefit	$4,495	$4,375	2.7%
Beneficiaries			
Number in pay status	320	311	2.9%
Average age	67.6	67.0	N/A
Average monthly benefit	$2,944	$2,849	3.3%

(1) *Projected compensation for the June 30, 2016 valuation was calculated by increasing the annualized compensation earned during 2015-2016 by 3.50%.*

(2) *For members without a salary reported for the June 30, 2016 valuation, we have assigned them an annual salary of $131,445.*

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

EXHIBIT A

Table of Plan Coverage

vii. Safety Tier 2

Category	Year Ended June 30 2016	Year Ended June 30 2015	Change From Prior Year
Active members in valuation			
Number	1,337	1,370	-2.4%
Average age	43.4	42.6	N/A
Average service	15.2	14.3	N/A
Projected total compensation[1], [2]	$149,123,940	$145,949,556	2.2%
Projected average compensation	$111,536	$106,533	4.7%
Account balances	$143,337,770	$125,287,345	14.4%
Total active vested members	1,325	1,345	-1.5%
Vested terminated members			
Number[3]	356	368	-3.3%
Average age	41.8	41.4	N/A
Retired members			
Number in pay status	312	278	12.2%
Average age	64.3	64.5	N/A
Average monthly benefit	$4,646	$4,639	0.2%
Disabled members			
Number in pay status	57	52	9.6%
Average age	52.7	52.3	N/A
Average monthly benefit	$3,115	$3,108	0.2%
Beneficiaries			
Number in pay status	37	30	23.3%
Average age	54.7	56.7	N/A
Average monthly benefit	$2,110	$2,240	-5.8%

[1] *Projected compensation for the June 30, 2016 valuation was calculated by increasing the annualized compensation earned during 2015-2016 by 3.50%.*

[2] *For members without a salary reported for the June 30, 2016 valuation, we have assigned them an annual salary of $111,780.*

[3] *Includes terminated members due a refund of contributions.*

EXHIBIT A

Table of Plan Coverage

viii. Safety Tier 3

Category	Year Ended June 30 2016	Year Ended June 30 2015	Change From Prior Year
Active members in valuation			
Number	102	97	5.2%
Average age	37.0	35.6	N/A
Average service	5.2	4.2	N/A
Projected total compensation(1)	$9,767,462	$8,708,725	12.2%
Projected average compensation	$95,759	$89,781	6.7%
Account balances	$4,013,814	$2,663,306	50.7%
Total active vested members	30	18	66.7%
Vested terminated members			
Number(2)	6	5	20.0%
Average age	38.7	40.4	N/A
Retired members			
Number in pay status	- -	- -	N/A
Average age	- -	- -	N/A
Average monthly benefit	- -	- -	N/A
Disabled members			
Number in pay status	1	- -	N/A
Average age	38.1	- -	N/A
Average monthly benefit	$3,002	- -	N/A
Beneficiaries			
Number in pay status	- -	- -	N/A
Average age	- -	- -	N/A
Average monthly benefit	- -	- -	N/A

(1) *Projected compensation for the June 30, 2016 valuation was calculated by increasing the annualized compensation earned during 2015-2016 by 3.50%.*

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

EXHIBIT A

Table of Plan Coverage

ix. Safety Tier 4

Category	Year Ended June 30 2016	Year Ended June 30 2015	Change From Prior Year
Active members in valuation			
Number	373	258	44.6%
Average age	32.4	31.8	N/A
Average service	1.8	1.4	N/A
Projected total compensation[1]	$27,600,372	$18,255,550	51.2%
Projected average compensation	$73,996	$70,758	4.6%
Account balances	$6,035,418	$2,887,306	109.0%
Total active vested members	10	10	0.0%
Vested terminated members			
Number[2]	17	10	70.0%
Average age	32.1	33.5	N/A
Retired members			
Number in pay status	- -	- -	N/A
Average age	- -	- -	N/A
Average monthly benefit	- -	- -	N/A
Disabled members			
Number in pay status	- -	- -	N/A
Average age	- -	- -	N/A
Average monthly benefit	- -	- -	N/A
Beneficiaries			
Number in pay status	- -	- -	N/A
Average age	- -	- -	N/A
Average monthly benefit	- -	- -	N/A

[1] *Projected compensation for the June 30, 2016 valuation was calculated by increasing the annualized compensation earned during 2015-2016 by 3.50%.*

[2] *Includes terminated members due a refund of contributions.*

EXHIBIT B

Members in Active Service and Projected Average Compensation as of June 30, 2016
By Age and Years of Service

i. Miscellaneous 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	6	- -	- -	- -	- -	- -	- -	3	3	- -
	$84,991	- -	- -	- -	- -	- -	- -	$107,162	$62,819	- -
55 - 59	31	- -	- -	1	- -	2	3	12	12	1
	74,303	- -	- -	$48,146	- -	$46,586	$60,919	86,861	74,815	$39,222
60 - 64	33	- -	- -	- -	- -	2	4	5	17	5
	78,304	- -	- -	- -	- -	98,683	103,843	61,101	76,969	71,467
65 - 69	13	- -	- -	1	- -	1	1	1	5	4
	91,842	- -	- -	160,472	- -	47,371	178,179	60,794	82,834	83,240
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	83	- -	- -	2	- -	5	8	21	37	10
	$79,414	- -	- -	$104,309	- -	$67,582	$97,038	$82,387	$75,915	$72,952

EXHIBIT B

Members in Active Service and Projected Average Compensation as of June 30, 2016
By Age and Years of Service

ii. Miscellaneous 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	11	--	--	--	--	6	5	--	--	--
	$68,708	--	--	--	--	$75,156	$60,972	--	--	--
50 - 54	19	--	--	1	2	7	6	3	--	--
	70,551	--	--	$27,712	$67,884	79,672	74,592	$57,247	--	--
55 - 59	24	--	--	2	--	2	16	4	--	--
	73,153	--	--	72,941	--	70,461	73,618	72,745	--	--
60 - 64	6	--	--	1	--	--	4	1	--	--
	60,568	--	--	26,895	--	--	72,538	46,358	--	--
65 - 69	2	--	--	--	--	2	--	--	--	--
	79,872	--	--	--	--	79,872	--	--	--	--
70 & over	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
Total	62	--	--	4	2	17	31	8	--	--
	$70,566	--	--	$50,122	$67,884	$77,018	$71,628	$63,635	--	--

EXHIBIT B

Members in Active Service and Projected Average Compensation as of June 30, 2016
By Age and Years of Service

iii. Miscellaneous 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	43	13	28	2	- -	- -	- -	- -	- -	- -
	$49,739	$42,039	$53,345	$49,314	- -	- -	- -	- -	- -	- -
30 - 34	402	36	245	114	7	- -	- -	- -	- -	- -
	64,064	57,484	65,652	61,738	$80,238	- -	- -	- -	- -	- -
35 - 39	874	40	369	354	111	- -	- -	- -	- -	- -
	67,865	69,039	66,846	70,106	63,683	- -	- -	- -	- -	- -
40 - 44	1,104	20	276	472	302	33	1	- -	- -	- -
	74,952	60,747	71,112	76,004	76,247	$88,027	$99,747	- -	- -	- -
45 - 49	1,338	33	257	412	399	174	59	4	- -	- -
	76,841	60,242	70,547	73,938	79,890	87,242	80,226	$110,598	- -	- -
50 - 54	1,454	24	204	343	357	249	229	45	3	- -
	78,753	59,670	70,699	73,392	76,955	87,068	87,194	90,729	$91,696	- -
55 - 59	1,392	21	166	303	341	217	226	109	9	- -
	77,574	66,963	64,126	69,590	73,640	82,534	90,599	95,106	109,156	- -
60 - 64	814	9	122	206	217	105	98	54	3	- -
	74,146	47,232	68,680	69,040	72,493	81,704	82,443	85,254	111,779	- -
65 - 69	272	2	49	70	78	46	17	9	1	- -
	71,218	74,520	80,000	60,642	68,820	80,705	72,322	63,388	176,923	- -
70 & over	53	2	9	12	16	6	6	1	1	- -
	68,561	52,884	53,050	78,474	67,014	59,948	76,237	140,613	78,883	- -
Total	7,746	200	1,725	2,288	1,828	830	636	222	17	- -
	$74,699	$60,493	$68,317	$71,660	$75,103	$84,730	$86,544	$91,021	$108,743	- -

EXHIBIT B

Members in Active Service and Projected Average Compensation as of June 30, 2016
By Age and Years of Service

iv. Miscellaneous 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	2	2	- -	- -	- -	- -	- -	- -	- -	- -
	$39,395	$39,395	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	33	33	- -	- -	- -	- -	- -	- -	- -	- -
	61,668	61,668	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	73	70	3	- -	- -	- -	- -	- -	- -	- -
	69,911	70,165	$63,983	- -	- -	- -	- -	- -	- -	- -
35 - 39	60	59	1	- -	- -	- -	- -	- -	- -	- -
	76,360	77,295	21,205	- -	- -	- -	- -	- -	- -	- -
40 - 44	48	47	1	- -	- -	- -	- -	- -	- -	- -
	71,267	71,849	43,928	- -	- -	- -	- -	- -	- -	- -
45 - 49	32	31	1	- -	- -	- -	- -	- -	- -	- -
	76,313	76,549	68,991	- -	- -	- -	- -	- -	- -	- -
50 - 54	36	34	1	1	- -	- -	- -	- -	- -	- -
	71,318	72,437	42,887	$61,691	- -	- -	- -	- -	- -	- -
55 - 59	29	28	1	- -	- -	- -	- -	- -	- -	- -
	74,682	74,223	87,544	- -	- -	- -	- -	- -	- -	- -
60 - 64	13	13	- -	- -	- -	- -	- -	- -	- -	- -
	94,032	94,032	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	77,622	77,622	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	1	1	- -	- -	- -	- -	- -	- -	- -	- -
	270,083	270,083	- -	- -	- -	- -	- -	- -	- -	- -
Total	328	319	8	1	- -	- -	- -	- -	- -	- -
	$73,064	$73,501	$57,063	$61,691	- -	- -	- -	- -	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Compensation as of June 30, 2016
By Age and Years of Service

v. Miscellaneous 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	109	109	- -	- -	- -	- -	- -	- -	- -	- -
	$41,546	$41,546	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	506	505	1	- -	- -	- -	- -	- -	- -	- -
	49,291	49,241	$74,891	- -	- -	- -	- -	- -	- -	- -
30 - 34	483	482	1	- -	- -	- -	- -	- -	- -	- -
	52,402	52,353	75,876	- -	- -	- -	- -	- -	- -	- -
35 - 39	310	310	- -	- -	- -	- -	- -	- -	- -	- -
	52,307	52,307	- -	- -	- -	- -	- -	- -	- -	- -
40 - 44	256	256	- -	- -	- -	- -	- -	- -	- -	- -
	52,041	52,041	- -	- -	- -	- -	- -	- -	- -	- -
45 - 49	188	185	3	- -	- -	- -	- -	- -	- -	- -
	51,506	51,795	33,647	- -	- -	- -	- -	- -	- -	- -
50 - 54	134	133	1	- -	- -	- -	- -	- -	- -	- -
	52,958	52,828	70,321	- -	- -	- -	- -	- -	- -	- -
55 - 59	103	102	1	- -	- -	- -	- -	- -	- -	- -
	53,716	53,815	43,627	- -	- -	- -	- -	- -	- -	- -
60 - 64	41	39	1	1	- -	- -	- -	- -	- -	- -
	57,993	58,685	12,506	$76,497	- -	- -	- -	- -	- -	- -
65 - 69	14	13	1	- -	- -	- -	- -	- -	- -	- -
	62,444	64,048	41,590	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	2,144	2,134	9	1	- -	- -	- -	- -	- -	- -
	$51,251	$51,258	$46,639	$76,497	- -	- -	- -	- -	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Compensation as of June 30, 2016
By Age and Years of Service

vi. Safety 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	16	- -	- -	- -	4	12	- -	- -	- -	- -
	$133,005	- -	- -	- -	$96,003	$145,339	- -	- -	- -	- -
45 - 49	100	- -	- -	1	6	53	40	- -	- -	- -
	138,475	- -	- -	$118,225	123,569	140,864	$138,053	- -	- -	- -
50 - 54	71	- -	- -	2	7	27	31	4	- -	- -
	127,941	- -	- -	159,888	113,216	125,274	130,088	$139,091	- -	- -
55 - 59	25	- -	1	1	6	3	14	- -	- -	- -
	116,673	- -	$107,739	176,193	111,466	115,139	115,619	- -	- -	- -
60 - 64	5	- -	- -	- -	1	2	2	- -	- -	- -
	107,088	- -	- -	- -	78,690	118,599	109,777	- -	- -	- -
65 - 69	1	- -	- -	- -	- -	- -	1	- -	- -	- -
	122,840	- -	- -	- -	- -	- -	122,840	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	218	- -	1	4	24	97	88	4	- -	- -
	$131,351	- -	$107,739	$153,549	$111,059	$135,823	$130,863	$139,091	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Compensation as of June 30, 2016
By Age and Years of Service

vii. Safety 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	4	- -	3	1	- -	- -	- -	- -	- -	- -
	$100,063	- -	$105,634	$83,349	- -	- -	- -	- -	- -	- -
30 - 34	111	6	48	57	- -	- -	- -	- -	- -	- -
	104,428	$87,656	100,543	109,465	- -	- -	- -	- -	- -	- -
35 - 39	316	3	54	200	57	2	- -	- -	- -	- -
	105,093	69,219	99,947	103,200	$119,248	$83,698	- -	- -	- -	- -
40 - 44	405	1	29	126	217	29	3	- -	- -	- -
	113,008	83,886	99,524	105,786	115,430	138,749	$132,421	- -	- -	- -
45 - 49	304	1	15	51	152	81	4	- -	- -	- -
	117,184	117,450	94,193	109,294	117,417	125,394	128,862	- -	- -	- -
50 - 54	135	- -	10	23	40	39	22	1	- -	- -
	115,881	- -	110,762	110,249	114,089	122,246	115,687	$124,325	- -	- -
55 - 59	37	- -	8	4	13	9	3	- -	- -	- -
	114,583	- -	122,418	109,086	108,389	123,756	100,336	- -	- -	- -
60 - 64	24	1	4	8	7	2	1	1	- -	- -
	106,625	122,839	107,774	121,062	92,554	98,769	92,500	98,658	- -	- -
65 - 69	1	- -	1	- -	- -	- -	- -	- -	- -	- -
	87,963	- -	87,963	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	1,337	12	172	470	486	162	33	2	- -	- -
	$111,536	$88,147	$101,426	$105,971	$115,871	$126,093	$116,707	$111,492	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Compensation as of June 30, 2016
By Age and Years of Service

viii. Safety 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	19	16	3	- -	- -	- -	- -	- -	- -	- -
	$93,184	$94,138	$88,099	- -	- -	- -	- -	- -	- -	- -
30 - 34	33	23	9	1	- -	- -	- -	- -	- -	- -
	91,907	91,781	89,793	$113,846	- -	- -	- -	- -	- -	- -
35 - 39	21	15	4	1	1	- -	- -	- -	- -	- -
	94,664	97,612	99,819	62,403	$62,072	- -	- -	- -	- -	- -
40 - 44	10	8	- -	1	1	- -	- -	- -	- -	- -
	105,266	107,596	- -	75,373	116,517	- -	- -	- -	- -	- -
45 - 49	11	4	6	1	- -	- -	- -	- -	- -	- -
	101,916	122,486	89,667	93,134	- -	- -	- -	- -	- -	- -
50 - 54	3	2	- -	- -	- -	- -	1	- -	- -	- -
	67,377	73,337	- -	- -	- -	- -	$55,457	- -	- -	- -
55 - 59	3	2	1	- -	- -	- -	- -	- -	- -	- -
	118,663	123,075	109,840	- -	- -	- -	- -	- -	- -	- -
60 - 64	2	2	- -	- -	- -	- -	- -	- -	- -	- -
	122,120	122,120	- -	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	102	72	23	4	2	- -	1	- -	- -	- -
	$95,759	$98,182	$92,154	$86,189	$89,294	- -	$55,457	- -	- -	- -

EXHIBIT B

Members in Active Service and Projected Average Compensation as of June 30, 2016
By Age and Years of Service

ix. Safety 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	40	40	- -	- -	- -	- -	- -	- -	- -	- -
	$71,414	$71,414	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	163	163	- -	- -	- -	- -	- -	- -	- -	- -
	73,046	73,046	- -	- -	- -	- -	- -	- -	- -	- -
30 - 34	77	75	2	- -	- -	- -	- -	- -	- -	- -
	73,424	73,518	$69,869	- -	- -	- -	- -	- -	- -	- -
35 - 39	34	31	3	- -	- -	- -	- -	- -	- -	- -
	71,521	70,666	80,355	- -	- -	- -	- -	- -	- -	- -
40 - 44	19	18	1	- -	- -	- -	- -	- -	- -	- -
	71,433	71,544	69,432	- -	- -	- -	- -	- -	- -	- -
45 - 49	11	9	2	- -	- -	- -	- -	- -	- -	- -
	79,570	79,695	79,009	- -	- -	- -	- -	- -	- -	- -
50 - 54	19	19	- -	- -	- -	- -	- -	- -	- -	- -
	87,786	87,786	- -	- -	- -	- -	- -	- -	- -	- -
55 - 59	8	7	1	- -	- -	- -	- -	- -	- -	- -
	83,666	91,808	26,672	- -	- -	- -	- -	- -	- -	- -
60 - 64	2	1	1	- -	- -	- -	- -	- -	- -	- -
	91,124	100,495	81,753	- -	- -	- -	- -	- -	- -	- -
65 - 69	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	373	363	10	- -	- -	- -	- -	- -	- -	- -
	$73,996	$74,060	$71,668	- -	- -	- -	- -	- -	- -	- -

EXHIBIT C

Reconciliation of Member Data – June 30, 2015 to June 30, 2016

	Active Members	Vested Terminated Members[1]	Pensioners	Disableds	Beneficiaries	Total
Number as of June 30, 2015	12,072	3,261	8,333	729	1,479	25,874
New members	1,095	71	0	0	119	1,285
Terminations – with vested rights	-281	281	0	0	0	0
Contributions refunds	-95	-74	0	0	0	-169
Retirements	-406	-186	592	0	0	0
New disabilities	-7	-4	-11	22	0	0
Return to work	29	-29	0	0	0	0
Deaths	-11	-13	-204	-34	-70	-332
Data adjustments	-3	-6	0	0	5	-4
Number as of June 30, 2016	12,393	3,301	8,710	717	1,533	26,654

[1] *Includes terminated members due a refund of member contributions.*

EXHIBIT D

Summary Statement of Income and Expenses on an Actuarial Value Basis

	Year Ended June 30, 2016		Year Ended June 30, 2015	
Contribution income:				
Employer contributions	$209,020,000		$222,959,000	
Employee contributions	77,494,000		68,143,000	
Net contribution income		$286,514,000		$291,102,000
Investment income:				
Interest, dividends and other income	$158,454,000		$157,110,000	
Recognition of capital appreciation	424,051,000		519,569,000	
Less investment and administrative fees	-65,740,000		-67,292,000	
Net investment income		516,765,000		609,387,000
Total income available for benefits		$802,279,000		$900,489,000
Less benefit payments:				
Benefits paid	-$403,356,000		-$372,369,000	
Withdrawal of contributions	-2,346,000		-2,288,000	
Net benefit payments		-$405,702,000		-$374,657,000
Change in reserve for future benefits		$397,577,000		$525,832,000

Note: Results may be slightly off due to rounding.

EXHIBIT E
Summary Statement of Assets

	Year Ended June 30, 2016		Year Ended June 30, 2015	
Cash equivalents		$416,441,000		$658,971,000
Accounts receivable:				
Securities sold	$113,982,000		$51,263,000	
Accrued investment income	45,917,000		33,230,000	
Employee and employer contributions	8,073,000		7,892,000	
Total accounts receivable		167,972,000		92,385,000
Investments:				
Equities	$3,953,054,000		$3,815,035,000	
Absolute return	724,682,000		773,662,000	
Opportunities	165,182,000		134,137,000	
Fixed income investments	1,555,857,000		1,470,797,000	
Real assets	973,077,000		1,210,739,000	
Securities lending collateral	422,520,000		320,650,000	
Total investments at market value		7,794,372,000		7,725,020,000
Other assets		378,000		1,199,000
Total assets		$8,379,163,000		$8,477,575,000
Less accounts payable:				
Accounts payable and other liabilities	-$38,485,000		-$37,112,000	
Investment trades, mortgages, and warrants payable	-237,293,000		-240,999,000	
Securities lending liability	-422,520,000		-320,650,000	
Total accounts payable		-$698,298,000		-$598,761,000
Net assets at market value		$7,680,865,000		$7,878,814,000
Net assets at actuarial value		$8,236,402,000		$7,838,825,000
Net assets at valuation value		$8,169,906,000		$7,767,116,000

Note: Results may be slightly off due to rounding.

EXHIBIT F

Actuarial Balance Sheet

An overview of the Plan's funding is given by an Actuarial Balance Sheet. In this approach, we first determine the amount and timing of all future payments that will be made by the Plan for current participants. We then discount these payments at the valuation interest rate to the date of the valuation, thereby determining their present value. We refer to this present value as the "liability" of the Plan.

Second, we determine how this liability will be met. These actuarial "assets" include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future employer Normal Cost contributions, and the present value of future employer amortization payments.

Actuarial Balance Sheet (Dollar Amounts in Thousands)

Assets	Basic	Cola	Total
1. Total valuation assets			
a. Valuation value assets	$5,538,193	$2,631,713	$8,169,906
b. Balance of transfer to offset member COLA rate	0	19,861	19,861
c. Adjustment to 1a. for surplus/(deficit) for withdrawn employer (preliminary)(1)	-34,504	0	-34,504
d. Contingency Reserve	81,139	0	81,139
2. Present value of future contributions by members	398,467	116,258	514,725
3. Present value of future employer contributions for:			
a. Entry age Normal Cost	801,850	134,742	936,592
b. Unfunded actuarial accrued liability	1,109,694	89,994	1,199,688
4. Total current and future assets	$7,894,839	$2,992,567	$10,887,406
Liabilities			
5. Present value of retirement allowances payable to present retired members	$3,353,388	$1,952,992	$5,306,380
6. Present value of retirement allowances to be granted			
a. Active members	4,226,683	978,840	5,205,523
b. Inactive members with vested rights	268,133	60,735	328,868
7. Surplus/(deficit) for withdrawn employer (preliminary)(1)	-34,504	0	-34,504
8. Contingency Reserve	81,139	0	81,139
9. Total liabilities	$7,894,839	$2,992,567	$10,887,406

(1) *Based on the latest estimate available as of June 30, 2015 for Florin Fire adjusted with interest at the assumed rate of investment return to June 30, 2016.*

Note: Results may be slightly off due to rounding.

EXHIBIT G

Summary of Reported Asset Information as of June 30, 2016

Reserves

Included in Valuation Value of Assets	
Employee reserve	$758,437,459
Employer reserve	2,722,084,072
Retiree reserve	4,658,693,869
Retiree death benefit reserve	16,047,451
Subtotal: Preliminary Valuation Value of Assets[1]	$8,155,262,851
Not Included in Valuation Value of Assets	
Contingency Reserve	$81,139,092
Subtotal: Actuarial Value of Assets	$8,236,401,943
Market stabilization reserve	(555,536,943)
Total Market Value of Assets	$7,680,865,000

(1) *Please note that the final Valuation Value of Assets (i.e. $8,169,905,606) is calculated by taking the preliminary Valuation Value of Assets and adjusting for the balance of transfer to offset member COLA rate and for the surplus/(deficit) for the withdrawn employer.*

EXHIBIT G

Summary of Reported Asset Information as of June 30, 2016 (Continued) – Change in Reserves

	Balance at 06/30/2015	Interest Credited	Contributions	Benefits	Transfers	Balance at 06/30/2016
Employee Reserve	$726,980,210	$9,656,607	$77,493,671	$(2,346,060)	$(53,346,969)	$758,437,459
Employer Reserve	2,621,588,317	183,261,332	209,020,162	(352,047)	(291,433,692)	2,722,084,072
Retiree Reserve	4,393,326,559	322,719,333	0	(402,132,684)	344,780,661	4,658,693,869
Death Benefit Reserve	15,790,702	1,127,982	0	(871,233)	0	16,047,451
Subtotal	$7,757,685,788	$516,765,254	$286,513,833	$(405,702,024)	$0	$8,155,262,851
Contingency Reserve	$81,139,092	$0	$0	$0	$0	$81,139,092
Subtotal	$81,139,092	$0	$0	$0	$0	$81,139,092
Total Allocated Reserves	$7,838,824,880	$516,765,254	$286,513,833	$(405,702,024)	$0	$8,236,401,943
Market Stabilization Reserve	$39,989,120	$(595,526,063)	$0	$0	$0	$(555,536,943)
Net Market Value of Assets	$7,878,814,000	$(78,760,809)	$286,516,833	$(405,702,024)	$0	$7,680,865,000

Note: Results may be slightly off due to rounding.

EXHIBIT G
Summary of Reported Asset Information as of June 30, 2016 (Continued) – Summary of Earnings

	Per Excess Earnings Policy
Earnings from July 1, 2015 to June 30, 2016	$(78,760,809)
Contingency Reserve[1]	N/A
Subtotal:	$(78,760,809)
Amounts Credited for:	
Market Stabilization Reserve	$595,526,063
Regular Interest Crediting	(516,765,254)
Subtotal	$(78,760,809)
Net Earnings	$0
Amount Credited Under Excess Earnings Policy for:	
Contingency Reserve[1]	$0
Board Provided Supplemental Benefits	0
Amount Over Reserved Benefits	0
Employer Reserves	0
Member Future COLA Contribution Offset	0
Subtotal	$0
Remaining Excess Earnings	$0

(1) The Board has decided to carry over the entire balance of $81,139,092 in the Contingency Reserve on June 30, 2015 unchanged (i.e., at $81,139,092) to June 30, 2016.

EXHIBIT H

Development of Unfunded/(Overfunded) Actuarial Accrued Liability for Year Ended June 30, 2016

1.	Unfunded actuarial accrued liability at beginning of year		$1,189,854,000
2.	Total Normal Cost		193,303,000
3.	Expected employer and member contributions		-281,603,000
4.	Interest		86,287,000
5.	Expected unfunded actuarial accrued liability		$1,187,841,000
6.	Actuarial (gain)/loss due to all changes:		
	(a) Investment return	$62,151,000	
	(b) Actual contributions greater than expected[(1),(2)]	-11,160,000	
	(c) Salary increases less than expected[(2)]	-38,804,000	
	(d) COLA increases less than expected[(2)]	-26,690,000	
	(e) Other experience loss[(2)]	26,350,000	
	(f) Total changes		$11,847,000
7.	Unfunded actuarial accrued liability at end of year		$1,199,688,000

(1) *Due to the one-year lag in implementation of the contribution rates determined in the June 30, 2015 valuation.*

(2) *The sum of 6(b) through 6(e) is equal to the net gain of $50.3 million shown in Section 2, Chart 9.*

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 amount indexed for inflation. That limit is $210,000 for 2015 and 2016. 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 for members in non-CalPEPRA tiers 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.

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

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 level cost 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 (or is exceeded by) the assets of the Plan. There is a wide range of approaches to recognizing the unfunded or overfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

Amortization of the Unfunded (Overfunded) Actuarial Accrued Liability: Payments made over a period of years equal in value to the Plan's unfunded or overfunded actuarial accrued liability.

Investment Return: The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the market value 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 1,533 beneficiaries in pay status)		10,960
2.	Members inactive during year ended June 30, 2016 with vested rights		3,301
3.	Members active during the year ended June 30, 2016		12,393

The actuarial factors as of the valuation date are as follows (amounts in 000s):

1.	Normal Cost		$200,615
2.	Present value of future benefits		10,840,771
3.	Present value of future Normal Costs		1,471,177
4.	Actuarial accrued liability(1)		9,369,594
	Retired members and beneficiaries	$5,306,380	
	Inactive members with vested rights	328,868	
	Active members	3,734,346	
5.	Valuation value of assets(1) ($7,680,865 at market value as reported by Retirement System)		8,169,906
6.	Unfunded actuarial accrued liability		$1,199,688

(1) *Excludes non-valuation reserves and designations.*

EXHIBIT I (continued)

Summary of Actuarial Valuation Results

The determination of the recommended average employer contribution is as follows (amounts in 000s):	Dollar Amount	% of Payroll
1. Total Normal Cost	$200,615	21.37%
2. Expected employee contributions	-94,419	-10.06%
3. Employer Normal Cost: (1) + (2)	$106,196	11.31%
4. Amortization of unfunded actuarial accrued liability	92,183	9.82%
5. Total recommended average employer contribution: (3) + (4)	$198,379	21.13%
6. Projected compensation	$938,555	

EXHIBIT II

Schedule of Employer Contributions

Plan Year Ended June 30	Annual Required Contributions	Actual Contributions	Percentage Contributed
2007	$156,804,528	$156,804,528	100.0%
2008	167,054,356	167,054,356	100.0%
2009	177,011,005	177,011,005	100.0%
2010	167,141,893	167,141,893	100.0%
2011	182,920,751	182,920,751	100.0%
2012	179,098,469	179,098,469	100.0%
2013	189,663,720	189,663,720	100.0%
2014	210,503,324	210,503,324	100.0%
2015	222,959,365	222,959,365	100.0%
2016	209,020,000	209,020,000	100.0%

EXHIBIT III

Actuarial Assumptions/Methods

Rationale for Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the July 1, 2010 through June 30, 2013 Actuarial Experience Study and June 30, 2014 Economic Actuarial Assumptions Reports both dated June 12, 2014.
Economic Assumptions	
Net Investment Return:	7.50%; net of administration and investment expenses.
Employee Contribution Crediting Rate[1]:	3.25% (assumed rate of inflation); compounded semi-annually.
Cost-of-Living Adjustment for Retirees:	Miscellaneous and Safety Tier 1 benefits are assumed to increase at 3.25% per year. Miscellaneous Tier 3, Tier 4 and Tier 5 and Safety Tier 2, Tier 3 and Tier 4 benefits are assumed to increase at 2.0% per year. Miscellaneous Tier 2 receive no COLA increases.
Increase in Section 7522.10 Compensation Limit	Increase of 3.25% per year from the valuation date.

[1] *Current policy is to credit the member contribution account with interest up to the current 5-year Treasury rate, if such earnings are available. However, the difference in earnings between the 5-year Treasury rate and the target crediting rate will be applied to the other valuation reserves so that the overall valuation reserve target crediting rate is maintained at 7.50%.*

<u>Demographic Assumptions</u>

Post – Retirement Mortality Rates:

Healthy:	For Miscellaneous Members and Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2022. For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2022 set back one year for males and set forward two years for females.
Disabled:	For Miscellaneous Members: RP-2000 Disabled Retiree Mortality Table projected with Scale BB to 2022 with no age adjustment for males and set forward three years for females. For Safety members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2022 set forward two years. The mortality tables shown above were determined to contain sufficient provision appropriate to reasonably reflect future mortality improvement, based on a review of the mortality experience in the June 30, 2013 Actuarial Experience Study.
Member Contribution Rates:	For Miscellaneous members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2022 weighted 40% male and 60% female. For Safety members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2022 set back one year for males and set forward two years for females weighted 70% male and 30% female.

Termination Rates Before Retirement:

Rate (%)

Mortality

	Miscellaneous		Safety	
Age	**Male**	**Female**	**Male**	**Female**
25	0.04	0.02	0.04	0.02
30	0.04	0.02	0.04	0.03
35	0.07	0.04	0.07	0.05
40	0.10	0.07	0.10	0.08
45	0.14	0.11	0.13	0.12
50	0.20	0.16	0.19	0.19
55	0.34	0.24	0.30	0.30
60	0.58	0.41	0.52	0.51
65	0.98	0.74	0.88	0.93

All Miscellaneous pre-retirement deaths are assumed to be non-duty. For Safety, 50% of pre-retirement deaths are assumed to be non-duty and the rest are assumed to be duty.

Termination Rates Before Retirement (continued):

	Rate (%) Disability	
Age	Miscellaneous[1]	Safety[2]
20	0.00	0.10
25	0.01	0.10
30	0.03	0.16
35	0.05	0.26
40	0.08	0.45
45	0.16	0.61
50	0.26	0.80
55	0.36	1.26
60	0.52	2.10

(1) 25% of Miscellaneous disabilities are assumed to be duty disabilities. The other 75% are assumed to be non-duty disabilities.

(2) 90% of Safety disabilities are assumed to be duty disabilities. The other 10% are assumed to be non-duty disabilities.

Termination Rates Before Retirement (continued):

Rate (%)

Withdrawal (< 5 Years of Service)[1]

Years of Service	Miscellaneous	Safety
0	13.00	8.00
1	8.00	6.00
2	7.00	5.00
3	6.00	4.00
4	5.50	3.00

Withdrawal (5+ Years of Service)[2]

Age	Miscellaneous	Safety
20	5.00	2.50
25	5.00	2.50
30	4.70	2.50
35	4.20	2.20
40	3.40	1.85
45	2.70	1.60
50	2.20	1.50
55	1.85	1.50
60	1.30	1.50
65	1.00	0.00

(1) 75% of the Miscellaneous members and 50% of the Safety members are assumed to elect a refund of contribution balance while the remaining 25% and 50% of Miscellaneous and Safety members, respectively, are assumed to elect a deferred retirement benefit. No withdrawal is assumed after a member is assumed to retire.

(2) 50% of the Miscellaneous members and 20% of the Safety members are assumed to elect a refund of contribution balance while the remaining 50% and 80% of Miscellaneous and Safety members, respectively, are assumed to elect a deferred retirement benefit. No withdrawal is assumed after a member is assumed to retire.

Retirement Rates:

Age	Rate (%) Miscellaneous Tier 1	Miscellaneous Tiers 2 & 3	Miscellaneous Tier 4	Miscellaneous Tier 5	Safety Tiers 1 & 2	Safety Tier 3	Safety Tier 4
45	0.00	0.00	0.00	0.00	2.00	1.50	0.00
46	0.00	0.00	0.00	0.00	2.00	1.50	0.00
47	0.00	0.00	0.00	0.00	2.00	1.50	0.00
48	0.00	0.00	0.00	0.00	2.00	1.50	0.00
49	0.00	0.00	0.00	0.00	5.00	4.00	0.00
50	6.00	2.00	2.00	0.00	25.00	10.00	15.00
51	4.00	2.00	2.00	0.00	18.00	12.00	10.50
52	4.00	2.00	2.00	4.00	18.00	14.00	12.00
53	4.00	3.00	2.00	1.50	22.00	16.00	14.00
54	7.00	4.00	3.00	2.50	22.00	18.00	15.50
55	10.00	6.00	4.00	3.50	22.00	50.00	40.00
56	15.00	6.00	5.00	4.50	25.00	25.00	25.00
57	16.00	8.00	6.00	5.50	25.00	25.00	25.00
58	18.00	12.00	7.00	6.50	25.00	25.00	25.00
59	22.00	14.00	8.00	7.50	30.00	30.00	25.00
60	28.00	14.00	9.00	8.50	45.00	45.00	45.00
61	30.00	14.00	10.00	9.50	55.00	55.00	55.00
62	35.00	25.00	18.00	17.00	70.00	70.00	70.00
63	35.00	30.00	16.00	15.00	70.00	70.00	70.00
64	40.00	35.00	20.00	19.00	70.00	70.00	70.00
65	50.00	40.00	25.00	24.00	100.00	100.00	100.00
66	45.00	45.00	20.00	20.00	100.00	100.00	100.00
67	45.00	45.00	20.00	20.00	100.00	100.00	100.00
68	50.00	50.00	30.00	30.00	100.00	100.00	100.00
69	60.00	60.00	40.00	40.00	100.00	100.00	100.00
70	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Retirement Age and Benefit for Deferred Vested Members: For deferred vested members, we make the following retirement assumption:

Miscellaneous Age:	59
Safety Age:	53

We assume that 40% of future Miscellaneous and 50% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocals, we assume 4.50% and 5.25% compensation increases per annum, respectively.

Future Benefit Accruals: 1.0 year of service per year for the full-time employees. Continuation of current partial service accrual for part-time employees.

Unknown Data for Members: Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.

Percent Married: 80% of male members; 55% of female members.

Age of Spouse: Female (or male) spouses are 3 years younger (or older) than their spouses.

Service from Unused Sick Leave Conversion: The following assumptions for service converted from unused sick leave as a percentage of service at retirement are used:

Service Retirements:

Miscellaneous:	1.50%
Safety:	2.25%

Disability Retirements:

Miscellaneous:	0.00%
Safety:	0.25%

Pursuant to Section 31641.01, the cost of this benefit will be charged only to employers and will not affect member contribution rates.

Salary Increases:

Annual Rate of Compensation Increase (%)

Inflation: 3.25%, plus "across the board" salary increases of 0.25% per year; plus the following merit and promotional increases.

Years of Service	Miscellaneous	Safety
0-1	5.00	8.00
1-2	4.50	7.00
2-3	3.75	6.00
3-4	3.50	5.00
4-5	3.00	4.00
5-6	2.50	3.50
6-7	2.25	3.25
7-8	2.00	3.00
8-9	1.75	2.75
9-10	1.00	2.00
10 or more	1.00	1.75

Increase in Section 7522.10 Compensation Limit

Increase of 3.25% per year from the valuation date.

Actuarial Methods

Actuarial Value of Assets: The market value of assets less unrecognized returns from the last few years starting July 1, 2008. 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.

Valuation Value of Assets: Actuarial value of assets reduced by the value of the non-valuation reserves and designations.

Actuarial Cost Method: Entry Age Actuarial Cost Method. Entry Age is the age at the member's hire date. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are based on costs allocated as a level percentage of compensation.

Amortization Policy: 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. The balance of the UAAL as of June 30, 2012 shall be amortized separately from any future changes in UAAL over a period of 23 years from June 30, 2012.

Any new UAAL as a result of actuarial gains or losses identified in the annual valuation as of June 30 will be amortized over a period of 20 years.

Any new UAAL as a result of change in actuarial assumptions or methods will be amortized over a period of 20 years.

The change in UAAL as a result of any plan amendments will be amortized over a period of 15 years and the change in UAAL resulting from retirement incentive programs will be amortized over a period of up to 5 years.

Changes in Actuarial Methods: Based on our letter dated August 11, 2016 titled "Options for Allocation of Normal Cost and Adjustment of Board Provided Member Future COLA Contribution Offset for Members in Non-PEPRA Tiers," we have allocated the Normal Cost to the Employers and applied the credit to 30-year members based on action taken by the Board.

EXHIBIT IV

Summary of Plan Provisions

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

Membership Eligibility:	Membership with SCERS usually begins with the employment by the County or member District as a permanent full-time or part-time employee as provided in the County Salary Resolution or the District's Salary Resolution.
Miscellaneous Tier 1	All Miscellaneous members hired prior to September 27, 1981.
Miscellaneous Tier 2 and Tier 3	All Miscellaneous members hired on or after September 27, 1981. Membership into Tier 2 or Tier 3 is determined by date of hire and by bargaining unit.
Miscellaneous Tier 4	All Miscellaneous members hired on or after January 1, 2012 as adopted by the County. Membership into Tier 4 is determined by date of hire.
Miscellaneous Tier 5	All Miscellaneous members hired on or after January 1, 2013.
Safety Tier 1 and Tier 2	Membership into Tier 1 or Tier 2 for Safety employee is determined by date of hire and by bargaining unit.
Safety Tier 3	All Safety members hired on or after January 1, 2012 as adopted by the County. Membership into Tier 3 is determined by date of hire.
Safety Tier 4	All Safety members hired on or after January 1, 2013.
Final Compensation for Benefit Determination:	
Miscellaneous and Safety Tier 1	Highest consecutive 1 year (12 months) of compensation earnable (§31462.1) (FAS1)
Miscellaneous Tier 2, Tier 3, and Tier 4 and Safety Tier 2 and Tier 3	Highest consecutive 3 years (36 months) of compensation earnable. (§31462) (FAS3)
Miscellaneous Tier 5 and Safety Tier 4	Highest consecutive 3 years (36 months) of pensionable compensation. (§7522.10(c), §7522.32 and §7522.34) (FAS3)

Service:	Years of service. (Yrs)
Service Retirement Eligibility:	
Miscellaneous	
Tiers 1, 2, 3 and 4	Age 50 with 10 years of service, or age 70 regardless of service, or after 30 years of service, regardless of age (§31672).
Tier 5	Age 52 with 5 years of service (§7522.20(a)).
Safety	
Tiers 1, 2 and 3	Age 50 with 10 years of service, or after 20 years of Safety service, regardless of age (§31663.25).
Tier 4	Age 50 with 5 years of service (§7522.25(d)).

Benefit Formula:

Miscellaneous Plans	Retirement Age	Benefit Formula
Miscellaneous Tier 1 (§31676.14)	50	(1.48%xFAS1 – 1/3x1.48%x$350x12)xYrs
	55	(1.95%xFAS1 – 1/3x1.95%x$350x12)xYrs
	60	(2.44%xFAS1 – 1/3x2.44%x$350x12)xYrs
	62	(2.61%xFAS1 – 1/3x2.61%x$350x12)xYrs
	65 or later	(2.61%xFAS1 – 1/3x2.61%x$350x12)xYrs
Miscellaneous Tier 2 and Tier 3	50	(1.48%xFAS3 – 1/3x1.48%x$350x12)xYrs
(§31676.14)	55	(1.95%xFAS3 – 1/3x1.95%x$350x12)xYrs
	60	(2.44%xFAS3 – 1/3x2.44%x$350x12)xYrs
	62	(2.61%xFAS3 – 1/3x2.61%x$350x12)xYrs
	65 or later	(2.61%xFAS3 – 1/3x2.61%x$350x12)xYrs

	Retirement Age	Benefit Formula
Miscellaneous Tier 4 (§31676.1)	50	(1.18%xFAS3 – 1/3x1.18%x$350x12)xYrs
	55	(1.49%xFAS3 – 1/3x1.49%x$350x12)xYrs
	60	(1.92%xFAS3 – 1/3x1.92%x$350x12)xYrs
	62	(2.09%xFAS3 – 1/3x2.09%x$350x12)xYrs
	65 or later	(2.43%xFAS3 – 1/3x2.43%x$350x12)xYrs
Miscellaneous Tier 5 (§7522.20(a))	52	1.00%xFAS3xYrs
	55	1.30%xFAS3xYrs
	60	1.80%xFAS3xYrs
	62	2.00%xFAS3xYrs
	65	2.30%xFAS3xYrs
	67 or later	2.50%xFAS3xYrs

Safety Plans	**Retirement Age**	**Benefit Formula**
Safety Tier 1 (§31664.1)	50	(3.00%xFAS1 – 1/3x3.00%x$350x12)xYrs
	55	(3.00%xFAS1 – 1/3x3.00%.x$350x12)xYrs
	60 or later	(3.00%xFAS1 – 1/3x3.00%x.$350x12)xYrs
Safety Tier 2 (§31664.1)	50	(3.00%xFAS3 – 1/3x3.00%x$350x12)xYrs
	55	(3.00%xFAS3 – 1/3x3.00%x$350x12)xYrs
	60 or later	(3.00%xFAS3 – 1/3x3.00%x$350x12)xYrs
Safety Tier 3 (§31664.2)	50	(2.29%xFAS3 – 1/3x2.29%x$350x12)xYrs
	55	(3.00%xFAS3 – 1/3x3.00%x$350x12)xYrs
	60 or later	(3.00%xFAS3 – 1/3x3.00%x$350x12)xYrs

	Retirement Age	Benefit Formula
Safety Tier 4 (§7522.25(d))	50	2.00%xFAS3xYrs
	55	2.50%xFAS3xYrs
	57 or later	2.70%xFAS3xYrs

Maximum Benefit:

Miscellaneous Tier 1, Tier 2, Tier 3 and Tier 4 and Safety Tier 1, Tier 2 and Tier 3	100% of Highest Average Compensation (§31676.14, §31676.1, §31664.1, §31664.2)
Miscellaneous Tier 5 and Safety Tier 4	None

Additional Benefit Information:

- For Miscellaneous members of the following Districts, benefits accrued before June 29, 2003 will continue to be calculated using §31676.1.
  1. Fair Oaks Cemetery District
  2. Galt Arno Cemetery District

Non-duty Disability:	
Miscellaneous and Safety Tier 1	
Eligibility	Five years of service (§31720).
Benefit Formula	1.5% per year of service for Miscellaneous Tier 1 and 1.8% per year of service for Safety Tier 1. If the benefit does not exceed one-third of Final Compensation, the service is projected to 65 for Miscellaneous Tier 1 and 55 for Safety Tier 1, but the total benefit cannot be more than one-third of Final Compensation (§31727 and §31727.2). The Service Retirement benefit is payable, if greater.
Miscellaneous Tier 2, Tier 3, Tier 4, and Tier 5 and Safety Tier 2, Tier 3 and Tier 4	
Eligibility	Five years of service (§31720).
Benefit Formula	20% of Final Compensation for the first five years of service plus 2% for each year of additional service for a maximum of 40% of Final Compensation (§31727.7). The Service Retirement benefit is payable, if greater.
Line-of-Duty Disability:	
All Members	
Eligibility	No age or service requirements (§31720).
Benefit Formula	50% of the Final Compensation or 100% of Service Retirement benefit, if greater (§31727.4).

Pre-Retirement Death:	
<u>All Members</u>	
Eligibility	No age or service requirements.
Benefit	Refund of employee contributions with interest plus one month's compensation for each year of service to a maximum of six month's compensation (§31781).
Death in Line-of-Duty	50% of Final Compensation or 100% of Service Retirement benefit, if greater, payable to spouse or minor children (§31787).
	OR
Vested Members	
Eligibility	Five years of service.
Benefit	60% of the greater of Service or Non-Duty Disability Retirement benefit payable to surviving eligible spouse (§31765.1, §31781.1), in lieu of above.
Death in Line-of-Duty	50% of Final compensation or 100% of Service Retirement benefit, if greater, payable to spouse or minor children (§31787).
Death After Retirement:	
<u>All Members</u>	
Service Retirement or Non-Duty Disability	60% of member's unmodified allowance continued to eligible spouse (§31760.1). An additional $4,000 lump sum benefit is payable to member's beneficiary (§31789.3). An eligible spouse is a surviving spouse who was married to the member at least one year prior to the date of retirement (§31760.1).
Line-of-Duty Disability	100% of member's allowance continued to eligible spouse (§31786). An additional $4,000 lump sum benefit is payable to member's beneficiary (§31789.3). An eligible spouse is a surviving spouse who was married to the member at least one year prior to the date of retirement (§31760.1).

Withdrawal Benefits:	
Less than Five Years of Service	Refund of accumulated employee contributions with interest, or earned benefit at age 70 (§31628). Effective January 1, 2003, a member may also elect to leave their contributions on deposit in the retirement fund (§31629.5).
Five or More Years of Service	If contributions left on deposit, entitled to earned benefits commencing at any time after eligible to retire (§31700).
Post-retirement Cost-of-Living Benefits:	
Miscellaneous and Safety Tier 1	Future changes based on Consumer Price Index to a maximum of 4% per year, excess "banked." (§31870.3)
Miscellaneous Tier 3, Tier 4 and Tier 5 and Safety Tier 2, Tier 3 and Tier 4	Future changes based on Consumer Price Index to a maximum of 2% per year, excess "banked." (§31870)

Note: There is no cost-of-living benefit for Miscellaneous Tier 2.

Member Contributions:	Please refer to Appendix A for the specific rates.
Miscellaneous Tier 1	
Basic	Provide for an average annuity at age 55 equal to 1/240 of FAS1. (§31621.3)
Cost-of-Living	Provide for one-half of future Cost-of-Living costs.
Miscellaneous Tier 2	
Basic	Provide for an average annuity at age 55 equal to 1/240 of FAS3. (§31621.3)
Cost-of-Living	None.
Miscellaneous Tier 3	
Basic	Provide for an average annuity at age 55 equal to 1/240 of FAS3. (§31621.3)
Cost-of-Living	Provide for one-half of future Cost-of-Living costs.
Miscellaneous Tier 4	
Basic	Provide for an average annuity at age 60 equal to 1/120 of FAS3. (§31621)
Cost-of-Living	Provide for one-half of future Cost-of-Living costs.
Miscellaneous Tier 5	50% of the total Normal Cost rate.
Safety Tier 1, Tier 2 and Tier 3	
Basic	Provide for an average annuity at age 50 equal to 1/100 of FAS1 (FAS3 for Tier 2 and Tier 3). (§31639.25)
Cost-of-Living	Provide for one-half of future Cost-of-Living costs.
Safety Tier 4	50% of the total Normal Cost rate.

Notes: The above rates are known as full rates. For members paying half rates prior to the June 30, 2015 valuation, their rates should be one-half of the rates provided in this report. Note that effective with the June 30, 2015 valuation, all members are reported as paying at least full-rate. In addition, for members entering the plan on or after January 1, 1975, they pay a rate based on a single entry age (§31621.11 and §31639.26).

After we completed the June 30, 2013 valuation, we were informed by SCERS that starting in 2014/2015, most County members in the legacy tiers have agreed to pick up either 1/3, 1/4, or 1/5 of the difference between the employee's then current Normal Cost and 50% of the total Normal Cost rate. The adjustments required for the employer and employee rates were subsequently provided to the System.

As those members have agreed to pick up an additional 1/3, 1/4, or 1/5 of the difference in the Normal Cost rate in 2015/2016, 2016/2017 and 2017/2018, we have reflected these adjustments in preparing the recommended rates for the June 30, 2014, June 30, 2015 and June 30, 2016 valuations, respectively.

For Rep Unit 26 Miscellaneous members, the member rates they have started to pay in 2015/2016 are 1% of payroll higher than the rates they paid in 2014/2015. In developing their rates for 2016/2017, we have added an additional 2% of payroll to the rates for 2015/2016.

For 2017/2018, all of the above members who have previously agreed to pay a higher Normal Cost rate are paying 50% of the total Normal Cost rate.

Other Information: Safety Tier 1, Tier 2 and Tier 3 members with 30 or more years of service are exempt from paying member contributions. The same applies for Miscellaneous members hired on or before March 7, 1973.

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

Appendix A
Member Contribution Rates

Comparison of Member Rate[1] from June 30, 2015 and June 30, 2016 Valuation

Note: Contribution rates for most Miscellaneous County members and all Safety County members in the legacy tiers who have agreed to pick up an additional Normal Cost before and after the gross-up for the integration with Social Security can be found in Appendix C in Subsections B and C, respectively.

	June 30, 2016			June 30, 2015			
Miscellaneous	Basic	COLA	Total	Basic	COLA	Total	Increase/(Decrease) in Rate
Tier 1	3.70%	1.25%	4.95%	3.70%	1.05%	4.75%	0.20%
Tier 2	3.54%	0.00%	3.54%	3.54%	0.00%	3.54%	0.00%
Tier 3	3.54%	1.24%	4.78%	3.54%	1.22%	4.76%	0.02%
Tier 4	6.12%	1.12%	7.24%	6.12%	1.07%	7.19%	0.05%
Tier 5	6.68%	1.25%	7.93%	6.75%	1.27%	8.02%	-0.09%
Safety	Basic	COLA	Total	Basic	COLA	Total	Increase/(Decrease) in Rate
Tier 1	9.92%	6.17%	16.09%	9.92%	5.47%	15.39%	0.70%
Tier 2	9.43%	2.99%	12.42%	9.43%	2.94%	12.37%	0.05%
Tier 3	9.43%	2.67%	12.10%	9.43%	2.63%	12.06%	0.04%
Tier 4	10.61%	2.53%	13.14%	10.59%	2.52%	13.11%	0.03%

(1) *Members who enter on or after 1/1/1975 contribute as indicated above and all others contribute the rate at their respective entry ages.*

Appendix A
Member Contribution Rates (Continued)

Miscellaneous Members' Contribution Rates from the June 30, 2016 Actuarial Valuation

	Basic Only						COLA Only						Total					
	First $350 of Monthly Salary			Salary in Excess of $350			First $350 of Monthly Salary			Salary in Excess of $350			First $350 of Monthly Salary			Salary in Excess of $350		
Entry Age	Tier 1	Tier 2 & Tier 3	Tier 4	Tier 1	Tier 2 & Tier 3	Tier 4	Tier 1	Tier 3	Tier 4	Tier 1	Tier 3	Tier 4	Tier 1	Tier 3	Tier 4	Tier 1	Tier 3	Tier 4
16	1.79%			2.68%			0.61%			0.91%			2.40%			3.59%		
17	1.82%			2.73%			0.62%			0.93%			2.44%			3.66%		
18	1.85%			2.78%			0.63%			0.94%			2.48%			3.72%		
19	1.89%			2.83%			0.64%			0.96%			2.53%			3.79%		
20	1.91%			2.87%			0.65%			0.97%			2.56%			3.84%		
21	1.95%			2.92%			0.66%			0.99%			2.61%			3.91%		
22	1.98%			2.97%			0.67%			1.01%			2.65%			3.98%		
23	2.01%			3.02%			0.68%			1.02%			2.69%			4.04%		
24	2.05%			3.07%			0.69%			1.04%			2.74%			4.11%		
25	2.09%			3.13%			0.71%			1.06%			2.80%			4.19%		
26	2.12%			3.18%			0.72%			1.08%			2.84%			4.26%		
27	2.15%			3.23%			0.73%			1.09%			2.88%			4.32%		
28	2.19%			3.29%			0.75%			1.12%			2.94%			4.41%		
29	2.23%			3.34%			0.75%			1.13%			2.98%			4.47%		
30	2.27%			3.40%			0.77%			1.15%			3.04%			4.55%		
31	2.31%			3.46%			0.78%			1.17%			3.09%			4.63%		
32	2.34%			3.51%			0.79%			1.19%			3.13%			4.70%		
33	2.38%			3.57%			0.81%			1.21%			3.19%			4.78%		
34	2.43%			3.64%			0.82%			1.23%			3.25%			4.87%		
35	2.47%	2.36%	4.08%	3.70%	3.54%	6.12%	0.83%	0.82%	0.74%	1.25%	1.24%	1.12%	3.30%	3.18%	4.82%	4.95%	4.78%	7.24%
36	2.51%			3.76%			0.85%			1.27%			3.36%			5.03%		
37	2.55%			3.83%			0.87%			1.30%			3.42%			5.13%		
38	2.59%			3.89%			0.88%			1.32%			3.47%			5.21%		
39	2.64%			3.96%			0.89%			1.34%			3.53%			5.30%		
40	2.69%			4.03%			0.91%			1.37%			3.60%			5.40%		
41	2.74%			4.11%			0.93%			1.39%			3.67%			5.50%		
42	2.79%			4.18%			0.95%			1.42%			3.74%			5.60%		
43	2.84%			4.26%			0.96%			1.44%			3.80%			5.70%		
44	2.90%			4.35%			0.98%			1.47%			3.88%			5.82%		
45	2.96%			4.44%			1.01%			1.51%			3.97%			5.95%		
46	3.00%			4.50%			1.02%			1.53%			4.02%			6.03%		
47	3.04%			4.56%			1.03%			1.55%			4.07%			6.11%		
48	3.08%			4.62%			0.00%			0.00%			3.08%			4.62%		
49	3.11%			4.67%			1.05%			1.58%			4.16%			6.25%		
50	3.13%			4.70%			1.06%			1.59%			4.19%			6.29%		
51	3.15%			4.73%			1.07%			1.60%			4.22%			6.33%		

Appendix A

Member Contribution Rates (Continued)

Miscellaneous Members' Contribution Rates from the June 30, 2016 Actuarial Valuation

	Basic Only						COLA Only						Total					
	First $350 of Monthly Salary			Salary in Excess of $350			First $350 of Monthly Salary			Salary in Excess of $350			First $350 of Monthly Salary			Salary in Excess of $350		
Entry Age	Tier 1	Tier 2 & Tier 3	Tier 4	Tier 1	Tier 2 & Tier 3	Tier 4	Tier 1	Tier 3	Tier 4	Tier 1	Tier 3	Tier 4	Tier 1	Tier 3	Tier 4	Tier 1	Tier 3	Tier 4
52	3.16%			4.74%			1.07%			1.61%			4.23%			6.35%		
53	3.15%			4.73%			1.07%			1.60%			4.22%			6.33%		
54	3.14%			4.71%			1.07%			1.60%			4.21%			6.31%		
55	3.14%			4.71%			1.07%			1.60%			4.21%			6.31%		
56	3.14%			4.71%			1.07%			1.60%			4.21%			6.31%		
57	3.14%			4.71%			1.07%			1.60%			4.21%			6.31%		
58	3.14%			4.71%			1.07%			1.60%			4.21%			6.31%		
59 & Over	3.14%			4.71%			1.07%			1.60%			4.21%			6.31%		

Members who enter prior to 1/1/1975 contribute on the basis of their actual entry age and all others contribute on the basis of a single entry age of 35.

	Tier 5		
	All Eligible Pay[(1)]		
	Basic Only	COLA Only	Total
All members	6.68%	1.25%	7.93%

[(1)] *It is our understanding that in the determination of pension benefits under the CalPEPRA formulas, the compensation that can be taken into account for 2016 is equal to $117,020 (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2016 (reference: Section 7522.10(d)).*

Appendix A

Member Contribution Rates (Continued)

Miscellaneous Members' Contribution Rates from the June 30, 2016 Actuarial Valuation

Interest:	7.50% per annum	
COLA:	Tier 1:	3.25%
	Tier 2:	0.00%
	Tier 3:	2.00%
	Tier 4:	2.00%
	Tier 5:	2.00%
Mortality:	RP-2000 Combined Healthy Mortality Table projected with scale BB to 2022 weighted 40% male and 60% female	
Salary increase:	Inflation (3.25%) + Across-the-Board Increase (0.25%) + Merit (See Exhibit III).	
COLA Loading Factor:	Tier 1[2]:	33.90%
	Tier 3[2]:	34.93%
	Tier 4[2]:	18.22%
	Tier 5:	18.71%

[2] Factors have been adjusted to reflect a reserve carried by the Board to reduce part of the COLA contributions.

Non-Refundability factor:

Tier 1:	100.00%
Tier 2:	100.00%
Tier 3:	98.03%
Tier 4:	94.95%
Tier 5:	91.58%

Appendix A
Member Contribution Rates (Continued)

Safety Members' Contribution Rates from the June 30, 2016 Actuarial Valuation

	Basic Only				COLA Only						Total					
	First $350 of Monthly Salary		Salary in Excess of $350		First $350 of Monthly Salary			Salary in Excess of $350			First $350 of Monthly Salary			Salary in Excess of $350		
Entry Age	Tier 1	Tier 2 & Tier 3	Tier 1	Tier 2 & Tier 3	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3
18	5.75%		8.62%		3.57%			5.36%			9.32%			13.98%		
19	5.82%		8.73%		3.62%			5.43%			9.44%			14.16%		
20	5.89%		8.84%		3.67%			5.50%			9.56%			14.34%		
21	5.97%		8.95%		3.71%			5.57%			9.68%			14.52%		
22	6.04%		9.06%		3.75%			5.63%			9.79%			14.69%		
23	6.12%		9.18%		3.81%			5.71%			9.93%			14.89%		
24	6.20%		9.30%		3.85%			5.78%			10.05%			15.08%		
25	6.27%		9.41%		3.90%			5.85%			10.17%			15.26%		
26	6.36%		9.54%		3.95%			5.93%			10.31%			15.47%		
27	6.44%		9.66%		4.01%			6.01%			10.45%			15.67%		
28	6.53%		9.79%		4.06%			6.09%			10.59%			15.88%		
29	6.61%	6.29%	9.92%	9.43%	4.11%	1.99%	1.78%	6.17%	2.99%	2.67%	10.72%	8.28%	8.07%	16.09%	12.42%	12.10%
30	6.70%		10.05%		4.17%			6.25%			10.87%			16.30%		
31	6.79%		10.18%		4.22%			6.33%			11.01%			16.51%		
32	6.88%		10.32%		4.28%			6.42%			11.16%			16.74%		
33	6.98%		10.47%		4.34%			6.51%			11.32%			16.98%		
34	7.08%		10.62%		4.40%			6.60%			11.48%			17.22%		
35	7.19%		10.78%		4.47%			6.70%			11.66%			17.48%		
36	7.29%		10.94%		4.53%			6.80%			11.82%			17.74%		
37	7.41%		11.11%		4.61%			6.91%			12.02%			18.02%		
38	7.53%		11.30%		4.69%			7.03%			12.22%			18.33%		
39	7.67%		11.50%		4.77%			7.15%			12.44%			18.65%		
40	7.79%		11.69%		4.85%			7.27%			12.64%			18.96%		
41	7.87%		11.81%		4.89%			7.34%			12.76%			19.15%		
42	7.95%		11.93%		4.95%			7.42%			12.90%			19.35%		
43	8.03%		12.04%		4.99%			7.49%			13.02%			19.53%		
44	8.09%		12.14%		5.03%			7.55%			13.12%			19.69%		
45	8.14%		12.21%		5.06%			7.59%			13.20%			19.80%		
46	8.14%		12.21%		5.06%			7.59%			13.20%			19.80%		
47	8.09%		12.14%		5.03%			7.55%			13.12%			19.69%		
48	7.99%		11.99%		4.97%			7.46%			12.96%			19.45%		
49 & Over	7.85%		11.78%		4.89%			7.33%			12.74%			19.11%		

Members who enter prior to 1/1/1975 contribute on the basis of their actual entry age and all others contribute on the basis of a single entry age of 29.

Appendix A
Member Contribution Rates (Continued)

Safety Members' Contribution Rates from the June 30, 2016 Actuarial Valuation

	Tier 4		
	All Eligible Pay[1]		
	Basic Only	COLA Only	Total
All members	10.61%	2.53%	13.14%

[1] *It is our understanding that in the determination of pension benefits under the CalPEPRA formulas, the compensation that can be taken into account for 2016 is equal to $117,020 (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2016 (reference: Section 7522.10(d)).*

Interest:	7.50% per annum	
COLA:	Tier 1:	3.25%
	Tier 2:	2.00%
	Tier 3:	2.00%
	Tier 4:	2.00%
Mortality:	RP-2000 Combined Healthy Mortality Table projected with scale BB to 2022 set back one year for males and set forward two years for females weighted 70% male and 30% female	
Salary increase:	Inflation (3.25%) + Across-the-Board Increase (0.25%) + Merit (See Exhibit III).	
COLA Loading Factor:	Tier 1[2]:	62.19%
	Tier 2[2]:	31.73%
	Tier 3[2]:	28.34%
	Tier 4:	23.85%

[2] Factors have been adjusted to reflect a reserve carried by the Board to reduce part of the COLA contributions.

Non-Refundability factor:

Tier 1:	99.99%
Tier 2:	99.42%
Tier 3:	98.42%
Tier 4:	97.10%

Appendix B

UAAL Amortization Schedule as of June 30, 2016 (Dollar Amounts in Thousands)

	Date Established	Source	Initial Amount	Outstanding Balance	Years Remaining	Annual Payment
Miscellaneous	June 30, 2012	Restart amortization	$814,400	$824,586	19	$62,138
	June 30, 2013	Actuarial loss	34,060	33,754	17	2,749
	June 30, 2014	Actuarial gain	(125,182)	(124,788)	18	(9,761)
	June 30, 2014	Assumption changes	(46,607)	(46,460)	18	(3,634)
	June 30, 2015	Actuarial gain	(73,919)	(73,901)	19	(5,569)
	June 30, 2015	Withdrawn employers	2,989	2,988	19	225
	June 30, 2016	Actuarial loss	12,986	12,986	20	945
Subtotal				$629,165		$47,093
Safety	June 30, 2010	LEMA	$4,047	$2,229	4	$613
	June 30, 2012	Restart amortization	493,928	500,105	19	37,686
	June 30, 2013	Actuarial loss	53,174	52,696	17	4,291
	June 30, 2013	DSA Retirement Incentive	6,134	2,876	2	1,524
	June 30, 2014	Actuarial gain	(40,247)	(40,120)	18	(3,138)
	June 30, 2014	Assumption changes	62,388	62,192	18	4,865
	June 30, 2015	Actuarial gain	(8,318)	(8,316)	19	(627)
	June 30, 2016	Actuarial gain	(1,139)	(1,139)	20	(83)
Subtotal				$570,523		$45,131
Grand Total				$1,199,688		$92,224

Appendix C
Normal Cost Rates with Additional Member Pick-ups

The Normal Cost rates adjusted for the additional member pick-ups are developed in the following steps:

Step A: Calculate the Normal Cost rates for the employer and the member assuming that no members pick up an additional portion of the Normal Cost.

Step B: Calculate the Normal Cost rates for the employer and the member assuming that members pay exactly one-half of the total Normal Cost rate. In this step, we have adjusted the employer rate to account for the cost associated with the cessation of member contributions for Miscellaneous members hired on or before March 7, 1973 and after 30 years of service and for Safety Tier 1, Tier 2 and Tier 3 members after 30 years of service

Step C: Gross up the member Normal Cost rates developed in Step B for the integration with Social Security

These steps are outlined in the following pages.

Appendix C
Normal Cost Rates with Additional Member Pick-ups (continued)

Total Normal Cost Contribution Rates
(For the County and Elected Officials Only)
Employer and Member Normal Cost Rates

(A) Normal Cost (Prior to any Pick Up of Additional Normal Cost by the Member)

Miscellaneous

	Percent of Payroll Member Paying Full Rate			
	Tier 1[1]	Tier 2	Tier 3	Tier 4
Employer	12.01%	10.72%	13.69%	9.98%
Member	4.95%	3.54%	4.78%	7.24%
Member COLA Buydown	1.19%	0.00%	0.31%	0.31%
Total	18.15%	14.26%	18.78%	17.53%

Safety

	Percent of Payroll Member Paying Full Rate		
	Tier 1[1]	Tier 2	Tier 3
Employer	21.84%	20.08%	18.61%
Member	16.09%	12.42%	12.10%
Member COLA Buydown	1.49%	0.32%	0.32%
Total	39.42%	32.82%	31.03%

Note: Member rates shown are for annual salary in excess of $4,200 (or monthly salary of $350). For annual salary less than $4,200 (or monthly salary of $350), the rates are equal to 2/3 of the rates shown. Also, the member COLA buydown is a non-cash contribution item.

[1] These are the single entry age rates at age 35 and 29 for Miscellaneous and Safety, respectively.

Appendix C
Normal Cost Rates with Additional Member Pick-ups (continued)

Total Normal Cost Contribution Rates
(For the County and Elected Officials Only)
Employer and Member Normal Cost Rates

(B) Normal Cost (Assuming Exactly 50:50 Payment by the Employer and the Member) – Before Gross-up for the Integration with Social Security

Miscellaneous

	Percent of Payroll Member Paying Full Rate			
	Tier 1	Tier 2	Tier 3	Tier 4
Employer	9.44%(1)	7.13%	9.44%	8.81%
Member(4)	7.89%	7.13%	9.13%	8.50%
Member COLA Buydown	1.19%	0.00%	0.31%	0.31%
Total	18.52%	14.26%	18.88%	17.62%

Safety

	Percent of Payroll Member Paying Full Rate		
	Tier 1	Tier 2	Tier 3
Employer	20.33%(2)	16.47%(3)	15.54%
Member(4)	18.22%	16.10%	15.22%
Member COLA Buydown	1.49%	0.32%	0.32%
Total	40.04%	32.89%	31.08%

Note: Member rates shown are for annual salary in excess of $4,200 (or monthly salary of $350). For annual salary less than $4,200 (or monthly salary of $350), the rates are equal to 2/3 of the rates shown. Also, the member COLA buydown is a non-cash contribution item.

(1) The employer rate has been adjusted by 0.36% of payroll to account for the cost associated with the cessation of member contributions for those members hired on or before March 7, 1973 and after 30 years of service.

(2) The employer rate has been adjusted by 0.62% of payroll to account for the cost associated with the cessation of member contributions after 30 years of service.

(3) The employer rate has been adjusted by 0.05% of payroll to account for the cost associated with the cessation of member contributions after 30 years of service.

(4) The member rates have not been grossed up for the rate on the first $4,200 in annual salary being less (by one-third) when compared to the 50:50 total Normal Cost rate. Please see the following page for the rates after the gross-up.

Appendix C
Normal Cost Rates with Additional Member Pick-ups (continued)

Total Normal Cost Contribution Rates
(For the County and Elected Officials Only)
Employer and Member Normal Cost Rates

(C) Normal Cost (Assuming Exactly 50:50 Payment by the Employer and the Member) – After Gross-up for the Integration with Social Security

Miscellaneous

Percent of Payroll
Member Paying Full Rate

	Tier 1	Tier 2	Tier 3	Tier 4
Employer	9.44%[1]	7.13%	9.44%	8.81%
Member[4]	8.03%	7.27%	9.30%	8.67%
Member COLA Buydown	1.19%	0.00%	0.31%	0.31%
Total	18.66%	14.40%	19.05%	17.79%

Safety

Percent of Payroll
Member Paying Full Rate

	Tier 1	Tier 2	Tier 3
Employer	20.33%[2]	16.47%[3]	15.54%
Member[4]	18.42%	16.30%	15.45%
Member COLA Buydown	1.49%	0.32%	0.32%
Total	40.24%	33.09%	31.31%

Note: Member rates shown are for annual salary in excess of $4,200 (or monthly salary of $350). For annual salary less than $4,200 (or monthly salary of $350), the rates are equal to 2/3 of the rates shown. Also, the member COLA buydown is a non-cash contribution item.

(1) The employer rate has been adjusted by 0.36% of payroll to account for the cost associated with the cessation of member contributions for those members hired on or before March 7, 1973 and after 30 years of service.

(2) The employer rate has been adjusted by 0.62% of payroll to account for the cost associated with the cessation of member contributions after 30 years of service.

(3) The employer rate has been adjusted by 0.05% of payroll to account for the cost associated with the cessation of member contributions after 30 years of service.

(4) The member rates have been grossed up for the rate on the first $4,200 in annual salary being less (by one-third) when compared to the 50:50 total Normal Cost rate.

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