

Alameda County Employees' Retirement Association

Actuarial Valuation and Review
as of December 31, 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 this actuarial valuation may not be applicable for other purposes.

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May 3, 2017

*Board of Retirement
Alameda County Employees' Retirement Association
475 14th Street, Suite 1000
Oakland, CA 94612*

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of December 31, 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 Plan. The census and financial information on which our calculations were based were prepared by ACERA. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in plan provisions or applicable law.


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

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

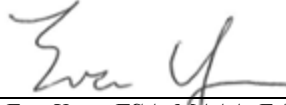
Sincerely,

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

By:



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



Eva Yum, FSA, MAAA, EA
Associate Actuary

JB/hy

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SECTION 1: Valuation Summary for the Alameda County Employees' Retirement Association

Purpose

This report has been prepared by Segal Consulting to present a valuation of the Alameda County Employees' Retirement Association as of December 31, 2016. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of the Retirement Association, as administered by the Board of Retirement;
- The characteristics of covered active members¹, inactive vested members, retired members and beneficiaries as of November 30, 2016, provided by the Retirement Association;
- The assets of the Plan as of December 31, 2016, provided by the Retirement Association;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. that the Board has adopted for the December 31, 2016 valuation.

One of the general goals of an actuarial valuation is to establish contributions that fully fund the Association's liabilities, and that, 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 Association's assets, liabilities and future contribution requirements. Our calculations are based upon member data and financial information provided to us by the Association'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.

The contribution requirements are determined as a percentage of payroll. The Association's employer rates provide for both normal cost and a payment or credit to amortize any unfunded or overfunded actuarial accrued liabilities. In this valuation, we have reflected the Board's funding policy to amortize the Association's unfunded actuarial accrued liability using a layered approach. The aggregate employer contribution rate calculated on this basis is 25.00% of payroll. In this valuation, we have applied the 7.60% net investment earnings, 3.25% inflation, and 0.50% across-the-board salary increase assumptions adopted by the Board from the December 1, 2010 – November 30, 2013 experience study. The 7.60% investment return assumption has been developed without taking into consideration the impact of the "excess earnings" sharing mechanism between the SRBR and the Retirement Plan.² 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.

¹ ACERA's pension administration system did not pick up the first pay period in determining the service credit earned by continuing active members during 2015/2016 (i.e., from December 1, 2015 through November 30, 2016). Accordingly, we have been directed by ACERA to add service for one additional pay period for those members in this year's valuation.

² For informational purposes only, we have provided on page iii the estimated impact future excess earnings allocations may have on the Retirement Plan.

SECTION 1: Valuation Summary for the Alameda County Employees' Retirement Association

Significant Issues in Valuation Year

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

- Ref: Pg. 28*
- In the December 31, 2015 valuation, the ratio of the valuation value of assets to actuarial accrued liabilities was 77.3%. In this December 31, 2016 valuation, the funded ratio has increased to 78.1%. The funded ratio if measured on a market value of assets basis increased from 73.9% as of December 31, 2015 to 74.5% as of December 31, 2016. The change in the above ratios was primarily the result of contributions made toward the unfunded liability, offset somewhat by investment and other losses.
- Ref: Pg. 8 and Pg. 54*
- The Association's unfunded actuarial accrued liability (UAAL) as of December 31, 2015 was \$1,791.5 million. In this year's valuation, the UAAL has increased to \$1,801.6 million. The increase in the UAAL was primarily due to (a) lower than expected return on investments (after smoothing), and (b) other actuarial losses, offset somewhat by (c) lower than expected salary increases for active members, and (d) the gain due to actual contributions higher than expected.³ A reconciliation of the Association's UAAL is provided in Section 3, Exhibit H.
- Ref: Pg. 25 and Pg. 101*
- The aggregate employer rate calculated in this valuation has increased from 24.90% of payroll to 25.00% of payroll. This change was primarily due to (a) lower than expected return on investments (after smoothing) and (b) amortizing the prior year's UAAL over a smaller than expected projected total payroll, offset somewhat by (c) lower than expected salary increases for active members and (d) other actuarial gains⁴. A reconciliation of the Association's aggregate employer rate is provided in Section 2, Subsection D (see Chart 15). A schedule of the projected contributions by each participating employer is provided in Appendix B.

Employer rates for AHS/Court/First 5 are higher than the County's rates to reflect that only the County has received a reimbursement of \$8.9 million for the implicit retiree health benefit subsidy paid by the County for 2016 (note that this is an estimated amount provided by ACERA). The \$8.9 million and the unused credit from prior years' transfers (the balance of prior transfers was about \$53.1 million as of December 31, 2016) have been recognized over separate 20-year periods (i.e., 16 years is the remaining period as of December 31, 2016 for the unused credit for transfers prior to 2013, 17 years is the remaining period as of December 31, 2016 for the unused credit for transfer for 2013, 18 years is the remaining period as of December 31, 2016 for the unused credit for 2014, etc.).

³ Including scheduled delay in implementing contribution rates after date of valuation.

⁴ Including changes in membership demographics, higher contributions than expected and scheduled delay in implementing contribution rates after date of valuation.

SECTION 1: Valuation Summary for the Alameda County Employees' Retirement Association

Ref: Pg. 26 and Pg. 81

- The aggregate member rate calculated in this valuation increased from 8.77% of payroll to 8.80% of payroll. This change is due to a change in membership demographics. A reconciliation of the Association's aggregate member rate is provided in Section 2, Subsection D (see Chart 16).

The individual member rates have been updated to reflect the valuation as of December 31, 2016. The detailed member rates are provided in Appendix A of this report.

Ref: Pg. 6

- As indicated in Section 2, Subsection B (see Chart 7) of this report, the total unrecognized net investment loss as of December 31, 2016 is \$343.9 million (in the previous valuation, this amount was a \$346.4 million net loss). This net investment loss will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, and will offset any investment gains that may occur after December 31, 2016. This implies that if the Association earns the assumed net rate of investment return of 7.60% per year on a **market value** basis, it will result in investment losses on the actuarial value of assets in the next few years. So, if the actual market return is equal to the assumed 7.60% rate and all other actuarial assumptions are met, the contribution requirements would generally increase in the next few years.

The net deferred loss of \$343.9 million represents 4.9% of the market value of assets as of December 31, 2016. Unless offset by future investment gains or other favorable experience, the recognition of the \$343.9 million deferred market loss is expected to have a significant impact on the Association's future funded percentage and contribution rate requirements. The recognition of the deferred loss (after netting out the Contingency Reserve, if available) will result in crediting the valuation reserves with interest at a rate of less than 7.6%. Under a simplified approach, which takes into account the size of the valuation and the SRBR reserves, this potential impact may be illustrated as follows:

- If a proportion of the net deferred loss that is commensurate with the size of the valuation reserves were recognized immediately in the valuation value of assets, the funded percentage would decrease from 78.1% to 74.5%.
 - If a proportion of the net deferred loss that is commensurate with the size of the valuation reserves were recognized immediately in the valuation value of assets, the aggregate employer rate would increase from 25.00% to about 27.2% of payroll.
- As we disclosed in our December 31, 2015 valuation report, the 7.60% investment return assumption that the Board previously approved for determining the liabilities for funding purposes and used for establishing the employer and employee contribution rates in this report has continued to be developed without considering the impact of any future 50/50 excess earnings allocation. This is based on our understanding that Article 5.5 of the Statute, which authorizes the allocation of 50% of excess earnings to the SRBR, does not allow for the use of a different investment return for funding than is used for interest crediting. This would appear in effect to preclude the prefunding of the SRBR through the use of an assumption lower than the market earnings assumption of 7.60%.

SECTION 1: Valuation Summary for the Alameda County Employees' Retirement Association

As required by the Actuarial Standard of Practice (ASOP) No. 4 (“Measuring Pension Obligations and Determining Pension Plan Costs or Contributions”), we performed a stochastic model in 2013 to estimate the impact of the 50% allocation of future excess earnings to the SRBR. The results of our model indicated that the 50/50 allocation of future excess earnings would have about the same impact as an “outflow” (i.e., assets not available to fund the benefits included in this valuation) that would average approximately 0.75% of assets over time. **For informational purposes only**, when we applied the results of our stochastic model to this valuation, we have estimated that such an annual outflow would increase the AAL measured in this valuation using a 7.60% investment return assumption from \$8.24 billion to \$8.97 billion (for a difference of \$0.73 billion) and would increase the employer’s contribution rate by about 5% - 6% of payroll.

- The actuarial valuation report as of December 31, 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.

Impact of Future Experience on Contribution Rates

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

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

SECTION 1: Valuation Summary for the Alameda County Employees' Retirement Association

Summary of Key Valuation Results (Dollar amounts in thousands)

	December 31, 2016		December 31, 2015	
Employer Contribution Rates:				
<u>County Only</u>	Total Rate	Estimated Annual Amount ⁽¹⁾	Total Rate	Estimated Annual Amount ⁽¹⁾
General Tier 1	20.10%	\$2,663	20.22%	\$2,678
General Tier 2	19.37	80,221	19.39	80,302
General Tier 4	18.63	20,936	18.54	20,835
Safety Tier 1 ⁽³⁾	68.31	792	70.87	821
Safety Tier 2	53.25	66,320	52.73	65,672
Safety Tier 2C	54.64	1,654	54.05	1,635
Safety Tier 2D	51.11	6,470	50.10	6,342
Safety Tier 4	50.90	11,762	50.89	11,760
County Combined	27.09	190,818	26.97	190,045
<u>AHS, Court & First 5 Only</u>				
General Tier 1	20.81	901	20.84	901
General Tier 2	20.08	43,356	20.01	43,206
General Tier 4	19.34	13,514	19.16	13,388
<u>Other Districts</u>				
General Tier 1	26.21	1,203	26.22	1,203
General Tier 2	25.48	86	25.39	85
General Tier 3	26.39	777	26.17	771
General Tier 4 (Housing Authority, Office of Education)	24.74	97	24.54	95
General Tier 4 (LARP Only)	19.76	199	19.29	194
All Categories Combined	25.00	250,951	24.90	249,888
Average Member Contribution Rates:				
	Total Rate	Estimated Annual Amount ⁽¹⁾	Total Rate ⁽²⁾	Estimated Annual Amount ⁽¹⁾
General Tier 1	9.19%	\$2,036	9.16%	\$2,030
General Tier 2	7.36	46,398	7.33	46,208
General Tier 3	13.15	387	13.12	386
General Tier 4	8.10	14,876	8.06	14,802
Safety Tier 1 ⁽³⁾	12.22	142	12.19	141
Safety Tier 2	15.04	18,731	14.98	18,657
Safety Tier 2C	12.53	379	12.42	376
Safety Tier 2D	16.32	2,066	16.19	2,049
Safety Tier 4	14.20	3,281	14.65	3,385
All Categories Combined	8.80	88,296	8.77	88,034

⁽¹⁾ Based on December 31, 2016 projected annual compensation.

⁽²⁾ Average rates have been recalculated by applying the individual entry age based member rates determined in the December 31, 2015 valuation to the Association membership as of December 31, 2016.

⁽³⁾ In the December 31, 2015 valuation report, the average Safety Tier 1 member contribution rate was shown to be 10.71%. This rate increased to 12.19% in this report (using the member contribution rates determined in the December 31, 2015 report, but applied to the December 31, 2016 membership) mainly because in 2016 one active Safety Tier 1 member with over 30 years of service, and therefore exempt from employee contributions, retired. The increase in the average member contribution rate resulted in a decrease in the employer contribution rate for that group.

SECTION 1: Valuation Summary for the Alameda County Employees' Retirement Association

Summary of Key Valuation Results - continued (Dollar amounts in thousands)

	December 31, 2016	December 31, 2015
Funded Status:		
Actuarial Accrued Liability (AAL) ⁽³⁾	\$8,237,715	\$7,875,020
Valuation Value of Assets (VVA) ⁽⁴⁾	6,436,138	6,083,536
Market Value of Assets (MVA)	6,133,324 ⁽⁵⁾	5,819,772 ⁽⁶⁾
Funded Percentage on VVA Basis	78.1%	77.3%
Funded Percentage on MVA Basis	74.5%	73.9%
Unfunded Actuarial Accrued Liability (UAAL) on VVA Basis	\$1,801,577	\$1,791,484
Unfunded Actuarial Accrued Liability (UAAL) on MVA Basis	2,104,391	2,055,248
Key Economic Assumptions:		
Interest Rate	7.60%	7.60%
Inflation Rate	3.25%	3.25%
Across-the-Board Salary Increase	0.50%	0.50%

⁽³⁾ Excludes liabilities held for SRBR and other non-valuation reserves.

⁽⁴⁾ Excludes Reserve for Interest Fluctuations (Contingency Reserve) if positive, Supplemental Retirees Benefit Reserve, and 401(h) Reserve.

⁽⁵⁾ Equals Valuation Value of Assets plus a proportion of the deferred market losses that is commensurate with the size of the valuation reserves. The recognition of the net deferred losses will result in crediting the valuation reserves with interest at a rate of less than 7.6%.

⁽⁶⁾ Equals Valuation Value of Assets plus a proportion of the deferred market losses after netting out the Contingency Reserve that is commensurate with the size of the valuation reserves. The recognition of the net deferred losses will result in crediting the valuation reserves with interest at a rate of less than 7.6%.

SECTION 1: Valuation Summary for the Alameda County Employees' Retirement Association

Summary of Key Valuation Demographic and Financial Data

	December 31, 2016	December 31, 2015	Percentage Change
Active Members:			
Number of members	11,111	11,071	0.4%
Average age	47.3	47.3	N/A
Average service	11.6	11.6	N/A
Projected total compensation	\$1,003,651,000	\$969,534,000	3.5%
Average projected compensation	\$90,329	\$87,574	3.1%
Retired Member and Beneficiaries:			
Number of members:			
Service retired	7,134	6,948	2.7%
Disability retired	887	854	3.9%
Beneficiaries	1,221	1,188	2.8%
Total	9,242	8,990	2.8%
Average age	71.3	71.1	N/A
Average monthly benefit ⁽¹⁾	\$3,757	\$3,648	3.0%
Vested Terminated Members:			
Number of vested terminated members ⁽²⁾	2,263	2,027	11.6%
Average age	48.1	48.8	N/A
Summary of Financial Data (dollar amounts in thousands):			
Market value of assets	\$6,965,580	\$6,640,625	4.9%
Return on market value of assets	6.91%	-0.30%	N/A
Actuarial value of assets	\$7,309,485	\$6,987,026	4.6%
Return on actuarial value of assets	6.53%	8.78%	N/A
Valuation value of assets	\$6,436,138	\$6,083,536	5.8%
Return on valuation value of assets	7.24%	8.68%	N/A

⁽¹⁾ Excludes monthly benefits payable from the SRBR.

⁽²⁾ Includes members who left their contributions on deposit even though they have less than five years of service.

SECTION 1: Valuation Summary for the Alameda County Employees' Retirement Association

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 the Association. 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 the Association.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, termination, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan’s assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal’s actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of 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.

SECTION 1: Valuation Summary for the Alameda County Employees' Retirement Association

- If the Association 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 the Retirement Association, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Retirement Association.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

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 December 31	Active Members	Vested Terminated Members*	Retired Members and Beneficiaries	Ratio of Non-Actives to Actives
2007	10,912	1,730	7,183	0.82
2008	11,173	1,773	7,246	0.81
2009	10,927	1,816	7,333	0.84
2010	10,879	1,785	7,558	0.86
2011	10,724	1,796	7,906	0.90
2012	10,800	1,835	8,175	0.93
2013	10,877	1,902	8,566	0.96
2014	11,025	1,995	8,813	0.98
2015	11,071	2,027	8,990	1.00
2016	11,111	2,263	9,242	1.04

* Includes terminated members due a refund of member contributions

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

Active Members

Plan costs are affected by the age, years of service and salaries of active members. In this year's valuation, there were 11,111 active members with an average age of 47.3, average years of service of 11.6 and average compensation of \$90,330. The 11,071 active members in the prior valuation had an average age of 47.3, average service of 11.6 and average compensation of \$87,574.

Inactive Members

In this year's valuation, there were 2,263 members with a vested right to a deferred or immediate vested benefit or entitled to a refund of their member contributions, versus 2,027 members in the prior valuation.

These graphs show a distribution of active members by age and by years of service. Age and years of service have been projected to December 31, 2016 based on census data collected as of November 30, 2016.

CHART 2
Distribution of Active Members by Age as of December 31, 2016

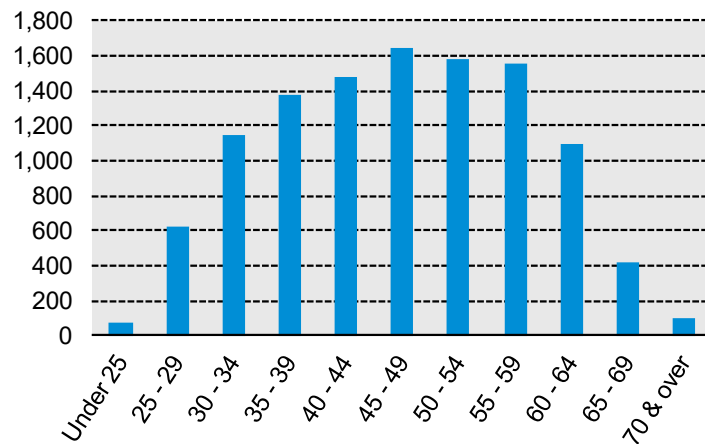
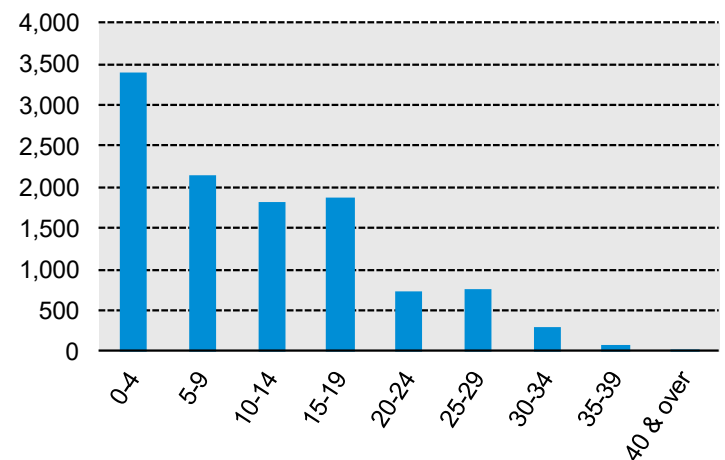


CHART 3
Distribution of Active Members by Years of Service as of December 31, 2016



SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

Retired Members and Beneficiaries

As of December 31, 2016, 8,021 retired members and 1,221 beneficiaries were receiving total monthly benefits of \$34,724,913. For comparison, in the previous valuation there were 7,802 retired members and 1,188 beneficiaries receiving monthly benefits of \$32,796,217. These monthly benefits exclude supplemental COLA benefits payable from the Supplemental Retirees Benefit Reserve (SRBR).

These graphs show a distribution of the current retired members based on their monthly amount and age, by type of pension. Age has been projected to December 31, 2016 based on census data collected as of November 30, 2016.

CHART 4
Distribution of Retired Members (Excl. Beneficiaries) by Type and by Monthly Amount as of December 31, 2016

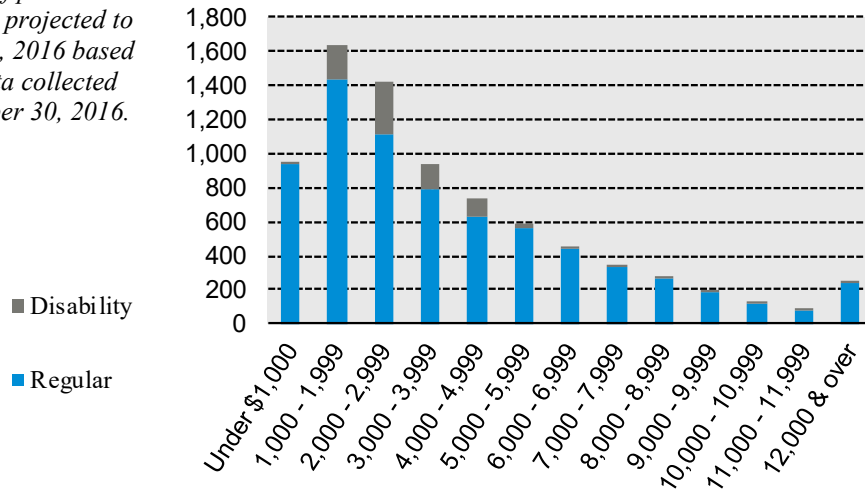
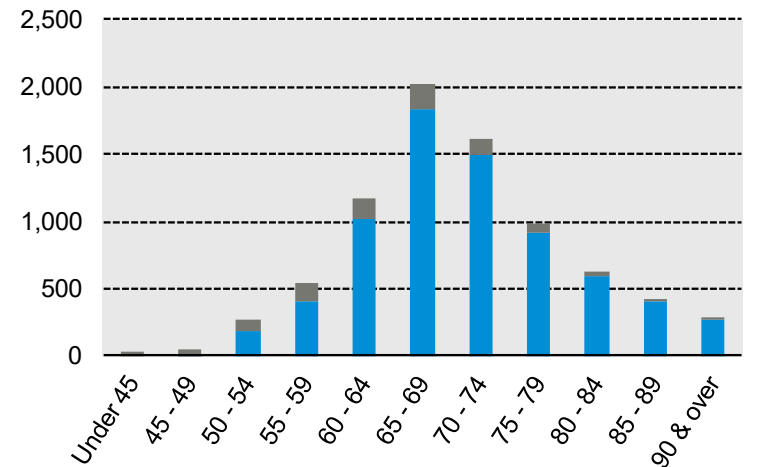


CHART 5
Distribution of Retired Members (Excl. Beneficiaries) by Type and by Age as of December 31, 2016



SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

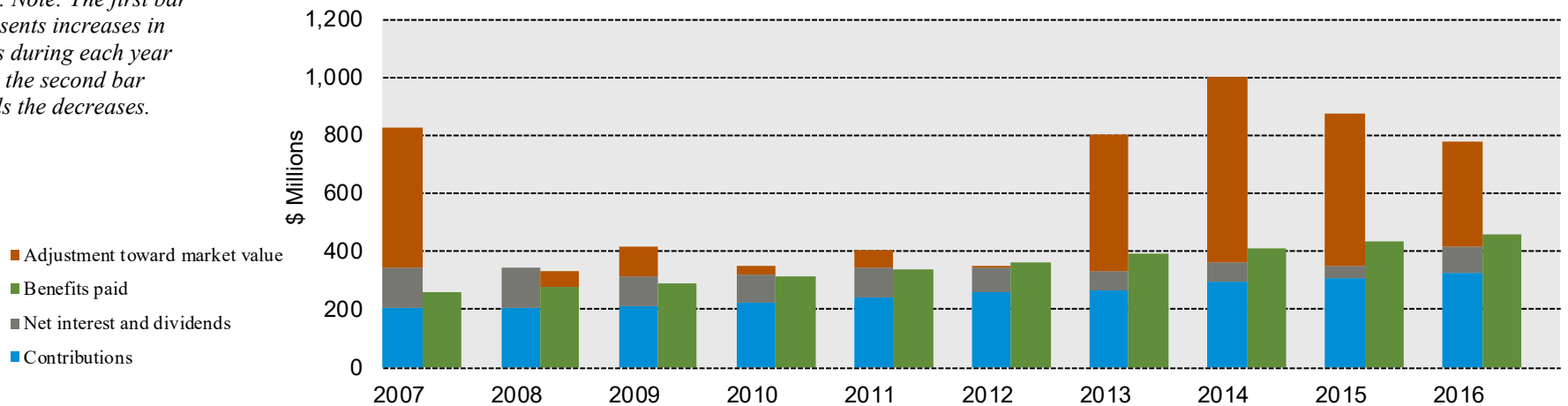
B. FINANCIAL INFORMATION

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 December 31, 2007 through 2016



SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

It is 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 has no immediate effect on the actuarial value of assets.

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

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

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

CHART 7

Determination of Actuarial Value of Assets for Year Ended December 31, 2016

Six Month Period		Total Actual Market Return (net)	Expected Market Return (net)	Investment Gain (Loss)	Deferred Factor	Deferred Return
From	To					
01/01/2012	06/30/2012	\$295,998,792	\$199,451,466	\$96,547,326	0.0	\$0
07/01/2012	12/31/2012	402,683,765	206,354,148	196,329,617	0.1	19,632,962
01/01/2013	06/30/2013	379,463,693	219,754,365	159,709,329	0.2	31,941,866
07/01/2013	12/31/2013	715,724,522	232,095,516	483,629,006	0.3	145,088,702
01/01/2014	06/30/2014	337,783,821	257,878,773	79,905,048	0.4	31,962,019
07/01/2014	12/31/2014	-71,755,579	268,735,880	-340,491,459	0.5	-170,245,730
01/01/2015	06/30/2015	210,088,252	263,436,620	-53,348,368	0.6	-32,009,021
07/01/2015	12/31/2015	-230,048,258	262,185,431	-492,233,689	0.7	-344,563,582
01/01/2016	06/30/2016	75,639,795	251,178,961	-175,539,165	0.8	-140,431,332
07/01/2016	12/31/2016	379,000,419	251,534,721	127,465,699	0.9	114,719,129
1.	Total Deferred Return*					-\$343,904,987
2.	Net Market Value					\$6,965,580,182
3.	Actuarial Value of Assets (Item 2 – Item 1)					\$7,309,485,170
4.	Actuarial Value as a Percentage of Market Value (Before Corridor; Item 3 / Item 2)					104.9%
5.	Actuarial Value of Assets – Corridor Limits:					
a.	Lower Limit – 60% of Net Market Value					\$4,179,348,109
b.	Upper Limit – 140% of Net Market Value					\$9,751,812,255
6.	Actuarial Value of Assets (within corridor)					\$7,309,485,170
7.	Non-valuation reserves and designations:					
a.	Reserve for Interest Fluctuations (Contingency Reserve), but no less than \$0					\$0
b.	Supplemental Retirees Benefit Reserve (SRBR)					874,385,246
c.	Other Non-Valuation Reserve (401(h) Reserve)					7,826,594
d.	SRBR Transfer to Employer Advance Reserve**					-8,865,275
e.	Subtotal					\$873,346,565
8.	Valuation Value of Assets (Item 6 – Item 7e)					\$6,436,138,605

Note: Results may not add due to rounding.

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

12/31/17: -\$22,547,758 12/31/18: -\$122,485,486 12/31/19: -\$152,780,251 12/31/20: -\$58,838,062 12/31/21: \$12,746,570

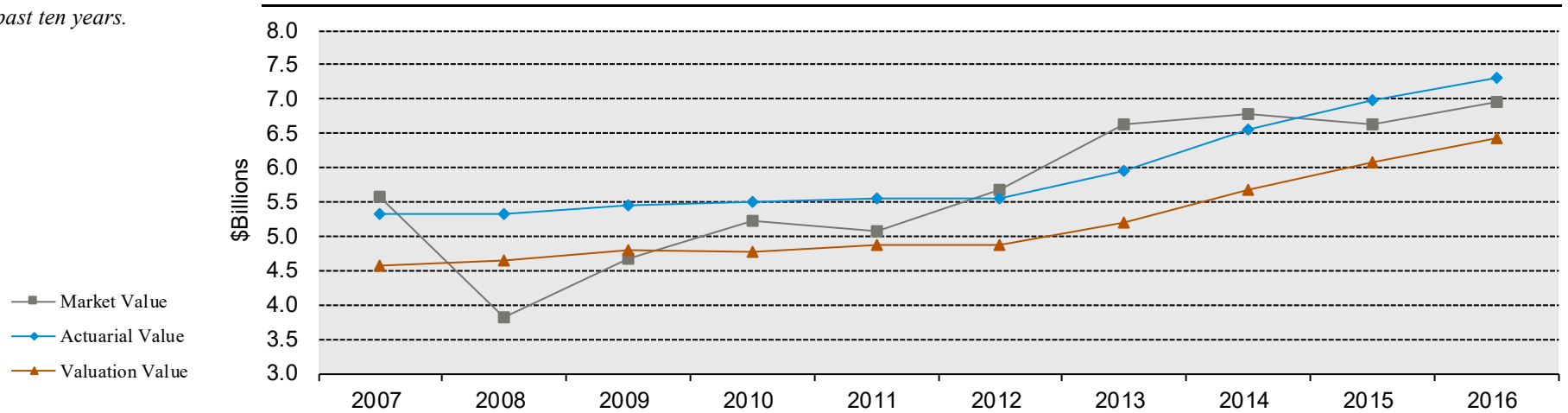
** Estimate provided by ACERA.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

The market value, actuarial value, and valuation value of assets are representations of ACERA's 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 ACERA's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

This chart shows the change in 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 December 31, 2007 – 2016



SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

C. ACTUARIAL EXPERIENCE

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

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

requirements to remain stable, assumptions should approximate experience.

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

The total experience loss was \$22.9 million, a net loss of \$21.8 million from investments and a loss of \$1.1 million from all other sources. The net experience variation from individual sources other than investments was 0.01% of the actuarial accrued liability. 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 December 31, 2016

1. Net loss from investments ⁽¹⁾	\$21,848,000
2. Net loss from other experience ⁽²⁾	<u>1,129,000</u>
3. Net experience loss: (1) + (2)	\$22,977,000

⁽¹⁾ Details in Chart 10.

⁽²⁾ See Section 3, Exhibit H.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

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 ACERA's investment policy. For valuation purposes, the assumed rate of return on the valuation value of assets was 7.60% for the December 31, 2015 valuation. The actual rate of return on a valuation value of assets basis for the 2016 plan year was 7.24%.

Since the actual return for the year was less than the assumed return, ACERA experienced an actuarial loss during the year ended December 31, 2016 with regard to its investments.

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

**CHART 10
Investment Experience for Year Ended December 31, 2016 –
Valuation Value, Actuarial Value and Market Value of Assets**

	Valuation Value	Actuarial Value	Market Value
1. Actual return	\$436,958,056	\$452,144,779	\$454,641,033
2. Average value of assets	\$6,036,925,420	\$6,922,183,203	\$6,575,781,961
3. Actual rate of return: (1) ÷ (2)	7.24%	6.53%	6.91%
4. Assumed rate of return	7.60%	7.60%	7.60%
5. Expected return: (2) x (4)	\$458,806,332	\$526,085,923	\$499,759,429
6. Actuarial gain/(loss): (1) - (5)	<u>\$(21,848,276)</u>	<u>\$(73,941,144)</u>	<u>\$(45,118,396)</u>

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

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, including five-year and ten-year averages.

CHART 11
Investment Return – Valuation Value, Actuarial Value and Market Value: 2007 – 2016

Year Ended December 31	Valuation Value Investment Return		Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent	Amount	Percent
2007	\$454,105,997	11.03%	\$621,715,716	13.16%	\$419,578,805	8.10%
2008	118,705,974	2.61%	81,465,408	1.54%	-1,698,059,095	-30.65%
2009	190,184,291	4.12%	208,175,576	3.94%	953,666,087	25.33%
2010	36,890,575	0.77%	122,091,092	2.26%	635,617,239	13.72%
2011	149,447,325	3.15%	164,671,046	3.03%	-53,810,165	-1.04%
2012	76,720,113	1.59%	91,936,980	1.67%	698,682,557	13.91%
2013	410,409,663	8.48%	533,248,385	9.73%	1,095,188,215	19.53%
2014	548,585,891	10.61%	710,015,277	12.05%	266,028,241	4.04%
2015	489,086,474	8.68%	569,295,018	8.78%	-19,960,005	-0.30%
2016	436,958,056	7.24%	452,144,779	6.53%	454,641,033	6.91%
Five-Year Average Return		7.28%		7.69%		8.59%
Ten-Year Average Return		5.77%		6.19%		4.79%

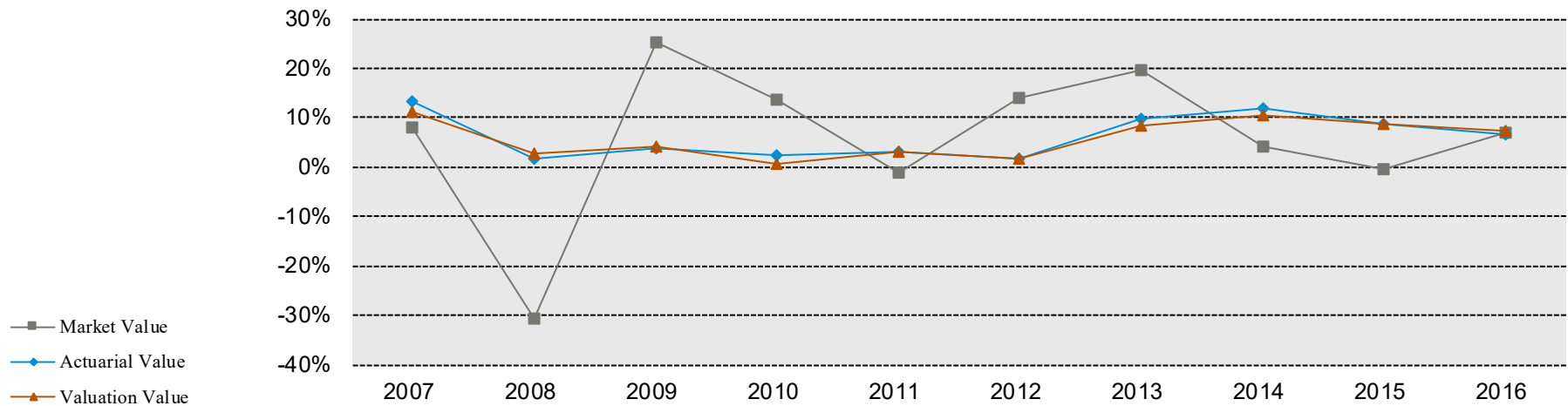
SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

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 Value Rates of Return for Years Ended December 31, 2007 - 2016



SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

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 loss from this other experience for the year ended December 31, 2016 amounted to \$1.1 million which is 0.01% of the actuarial accrued liability. See Exhibit H for a detailed development of the Unfunded Actuarial Accrued Liability.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

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 UAAL) is calculated to remain as a level percentage of future active member payroll (including payroll for new members as they enter the Association) 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 rate of 3.75% (i.e., 3.25% inflation plus 0.50% across-the-board salary increase).

Prior to January 1, 2012, the total UAAL was amortized on a 30-year decreasing period, with 21 years remaining as of December 31, 2011 (and 16 years remaining as of December 31, 2016). On or after January 1, 2012, any new UAAL resulting from plan amendments are amortized over separate decreasing 15-year periods; early retirement incentive programs (ERIPs) are amortized over separate decreasing 5-year periods; assumption and method changes are amortized over separate decreasing 20-year periods; and experience gains/losses are also amortized over separate decreasing 20-year periods.

The recommended employer contributions are provided on Chart 13.

Member Contributions

Non-Tier 4 Members

Articles 6 and 6.8 of the 1937 Act define the methodology to be used in the calculation of member basic contribution rates for non-Tier 4 General and Safety members, respectively. The basic contribution rate is determined so that the accumulation of a member's basic contributions made in a given year until a certain age will be sufficient

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

to fund an annuity at that age that is equal to 1/100 of Final Average Salary for General Tier 1, General Tier 3, and all Safety non-Tier 4 members and 1/120 of Final Average Salary for General Tier 2 members. That age is 60 for General Tier 1 and Tier 2, 55 for General Tier 3, and 50 for all Safety non-Tier 4 members. It is assumed that contributions are made annually at the same rate, starting at entry age. In addition to the basic contributions, members pay one-half of the total normal cost necessary to fund cost-of-living benefits. As instructed by ACERA, we have also included a 3% cost-sharing contribution that we understand will be paid by Safety Tier 1 and Tier 2 members. For Safety Tier 2C members, there are no cost-sharing contributions. For Safety Tier 2D members, the cost-sharing contribution rate is 5% of salary for the first 5 years of vesting service and 3% of salary for each subsequent year of vesting service (even after the member attains 30 years of service).

Accumulation includes semi-annual crediting of interest at the assumed investment earnings rate. Following the procedure established by the Board, basic member rates have been adjusted to anticipate conversion of terminal pay at retirement.

Tier 4 Members

Pursuant to Section 7522.30(a) of the Government Code, Tier 4 members are required to contribute at least 50% of the Normal Cost rate.

When previously calculating member rates, there were certain additional requirements that had to be met such as requiring the employee rates be rounded to the nearest one quarter of one percent and requiring the new employees to pay the contribution rate of “similarly situated employees”, if it is greater. (reference: Section 7522.30(c)). Furthermore, Section 7522.30(d) indicated that “once established, the employee contribution rate described in subdivision (c) shall not be adjusted on account of a change to the normal cost rate unless the normal cost rate increases or decreases by more than 1 percent of payroll above or below the normal cost rate in effect at the time the employee contribution rate is first established or, if later, the normal cost rate in effect at the time of the last adjustment to the employee contribution rate under this section.”

However, as we referenced in our letter dated February 26, 2014, Assembly Bill 1380 (AB 1380) was approved by the Governor on September 6, 2013. In particular, Section 31620.5(a) was added to the Government Code to provide the Board with the discretion

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

to not apply the rounding previously required under Section 7522.30(c). We understand that our recommendation in that letter to no longer apply the rounding rule effective with the December 31, 2013 valuation was adopted by the Board, and the results in this valuation reflect that action taken by the Board.

Section 31620.5(b) of AB 1380 also stipulates that the “one percent rule” under Section 7522.30(d) “shall not apply to the contribution rates of members of retirement systems established pursuant to this chapter.”

Therefore, in preparing the Normal Cost rates in this report, we have assumed that exactly 50% of the Normal Cost would be paid by the Tier 4 members.

The member contribution rates for all members are provided in Appendix A.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

CHART 13

Recommended Employer Contribution Rates (Estimated - Dollar Amounts in Thousands)

County Only	December 31, 2016						December 31, 2015	
	BASIC		COLA		TOTAL		BASIC AND COLA COMBINED	
	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>
General Tier 1 Members								
Normal Cost	7.15%	\$947	2.42%	\$321	9.57%	\$1,268	9.74%	\$1,290
UAAL (Before POB Credit)	12.81%	1,697	3.83%	507	16.64%	2,204	16.48%	2,183
Pension Obligation Bond Credit	-3.75%	-497	-1.65%	-218	-5.40%	-715	-5.38%	-713
Implicit Retiree Health Benefit Subsidy	<u>-0.71%</u>	<u>-94</u>	<u>0.00%</u>	<u>0</u>	<u>-0.71%</u>	<u>-94</u>	<u>-0.62%</u>	<u>-82</u>
Total Contribution	15.50%	\$2,053	4.60%	\$610	20.10%	\$2,663	20.22%	\$2,678
General Tier 2 Members								
Normal Cost	7.39%	\$30,605	1.45%	\$6,006	8.84%	\$36,611	8.91%	\$36,900
UAAL (Before POB Credit)	12.81%	53,052	3.83%	15,862	16.64%	68,914	16.48%	68,251
Pension Obligation Bond Credit	-3.75%	-15,530	-1.65%	-6,834	-5.40%	-22,364	-5.38%	-22,281
Implicit Retiree Health Benefit Subsidy	<u>-0.71%</u>	<u>-2,940</u>	<u>0.00%</u>	<u>0</u>	<u>-0.71%</u>	<u>-2,940</u>	<u>-0.62%</u>	<u>-2,568</u>
Total Contribution	15.74%	\$65,187	3.63%	\$15,034	19.37%	\$80,221	19.39%	\$80,302
General Tier 4 Members								
Normal Cost	6.71%	\$7,541	1.39%	\$1,562	8.10%	\$9,103	8.06%	\$9,058
UAAL (Before POB Credit)	12.81%	14,396	3.83%	4,304	16.64%	18,700	16.48%	18,520
Pension Obligation Bond Credit	-3.75%	-4,214	-1.65%	-1,855	-5.40%	-6,069	-5.38%	-6,046
Implicit Retiree Health Benefit Subsidy	<u>-0.71%</u>	<u>-798</u>	<u>0.00%</u>	<u>0</u>	<u>-0.71%</u>	<u>-798</u>	<u>-0.62%</u>	<u>-697</u>
Total Contribution	15.06%	\$16,925	3.57%	\$4,011	18.63%	\$20,936	18.54%	\$20,835

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

CHART 13 (continued)

Recommended Employer Contribution Rates (Estimated - Dollar Amounts in Thousands)

County Only	December 31, 2016						December 31, 2015	
	BASIC		COLA		TOTAL		BASIC AND COLA COMBINED	
	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>
Safety Tier 1 Members								
Normal Cost	25.11%	\$291	9.50%	\$110	34.61%	\$401	37.63%	\$436
Member Cost Sharing Contributions (Adjusted for Refunds)	-3.00%	-35	0.00%	0	-3.00%	-35	-3.00%	-35
UAAL (Before POB Credit)	33.80%	392	8.70%	101	42.50%	493	42.01%	487
Pension Obligation Bond Credit	-3.11%	-36	-1.98%	-23	-5.09%	-59	-5.15%	-60
Implicit Retiree Health Benefit Subsidy	<u>-0.71%</u>	<u>-8</u>	<u>0.00%</u>	<u>0</u>	<u>-0.71%</u>	<u>-8</u>	<u>-0.62%</u>	<u>-7</u>
Total Contribution	52.09%	\$604	16.22%	\$188	68.31% ⁽¹⁾	\$792	70.87% ⁽¹⁾	\$821
Safety Tier 2 Members								
Normal Cost	16.25%	\$20,238	3.21%	\$3,998	19.46%	\$24,236	19.45%	\$24,224
Member Cost Sharing Contributions (Adjusted for Refunds)	-2.91%	-3,624	0.00%	0	-2.91%	-3,624	-2.96%	-3,687
UAAL (Before POB Credit)	33.80%	42,096	8.70%	10,835	42.50%	52,931	42.01%	52,321
Pension Obligation Bond Credit	-3.11%	-3,873	-1.98%	-2,466	-5.09%	-6,339	-5.15%	-6,414
Implicit Retiree Health Benefit Subsidy	<u>-0.71%</u>	<u>-884</u>	<u>0.00%</u>	<u>0</u>	<u>-0.71%</u>	<u>-884</u>	<u>-0.62%</u>	<u>-772</u>
Total Contribution	43.32%	\$53,953	9.93%	\$12,367	53.25%	\$66,320	52.73%	\$65,672

⁽¹⁾ In 2016, one active Safety Tier 1 member with over 30 years of service, and therefore exempt from employee contributions, retired. This was the main reason the average Safety Tier 1 member contribution rate increased as of December 31, 2016. The increase in the average member contribution rate resulted in a decrease in the employer normal cost contribution rate for that group.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

CHART 13 (continued)

Recommended Employer Contribution Rates (Estimated - Dollar Amounts in Thousands)

County Only	December 31, 2016						December 31, 2015	
	BASIC		COLA		TOTAL		BASIC AND COLA COMBINED	
	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>
Safety Tier 2C Members								
Normal Cost	14.87%	\$450	3.07%	\$93	17.94%	\$543	17.81%	\$539
Member Cost Sharing Contributions (Adjusted for Refunds)	0.00%	0	0.00%	0	0.00%	0	0.00%	0
UAAL (Before POB Credit)	33.80%	1,023	8.70%	263	42.50%	1,286	42.01%	1,271
Pension Obligation Bond Credit	-3.11%	-94	-1.98%	-60	-5.09%	-154	-5.15%	-156
Implicit Retiree Health Benefit Subsidy	<u>-0.71%</u>	<u>-21</u>	<u>0.00%</u>	<u>0</u>	<u>-0.71%</u>	<u>-21</u>	<u>-0.62%</u>	<u>-19</u>
Total Contribution	44.85%	\$1,358	9.79%	\$296	54.64%	\$1,654	54.05%	\$1,635
Safety Tier 2D Members								
Normal Cost	15.15%	\$1,918	3.14%	\$397	18.29%	\$2,315	18.14%	\$2,296
Member Cost Sharing Contributions (Adjusted for Refunds)	-3.88%	-491	0.00%	0	-3.88%	-491	-4.28%	-542
UAAL (Before POB Credit)	33.80%	4,278	8.70%	1,102	42.50%	5,380	42.01%	5,318
Pension Obligation Bond Credit	-3.11%	-394	-1.98%	-250	-5.09%	-644	-5.15%	-652
Implicit Retiree Health Benefit Subsidy	<u>-0.71%</u>	<u>-90</u>	<u>0.00%</u>	<u>0</u>	<u>-0.71%</u>	<u>-90</u>	<u>-0.62%</u>	<u>-78</u>
Total Contribution	41.25%	\$5,221	9.86%	\$1,249	51.11%	\$6,470	50.10%	\$6,342

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

CHART 13 (continued)

Recommended Employer Contribution Rates (Estimated - Dollar Amounts in Thousands)

County Only	December 31, 2016						December 31, 2015	
	BASIC		COLA		TOTAL		BASIC AND COLA COMBINED	
	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>
Safety Tier 4 Members								
Normal Cost	11.43%	\$2,641	2.77%	\$640	14.20%	\$3,281	14.65%	\$3,385
Member Cost Sharing Contributions (Adjusted for Refunds)	0.00%	0	0.00%	0	0.00%	0	0.00%	0
UAAL (Before POB Credit)	33.80%	7,811	8.70%	2,010	42.50%	9,821	42.01%	9,708
Pension Obligation Bond Credit	-3.11%	-719	-1.98%	-457	-5.09%	-1,176	-5.15%	-1,190
Implicit Retiree Health Benefit Subsidy	<u>-0.71%</u>	<u>-164</u>	<u>0.00%</u>	<u>0</u>	<u>-0.71%</u>	<u>-164</u>	<u>-0.62%</u>	<u>-143</u>
Total Contribution	41.41%	\$9,569	9.49%	\$2,193	50.90%	\$11,762	50.89%	\$11,760
All County Categories Combined								
Normal Cost	9.18%	\$64,631	1.86%	\$13,127	11.04%	\$77,758	11.09%	\$78,128
Member Cost Sharing Contributions (Adjusted for Refunds)	-0.59%	-4,150	0.00%	0	-0.59%	-4,150	-0.61%	-4,264
UAAL (Before POB Credit)	17.71%	124,745	4.97%	34,984	22.68%	159,729	22.44%	158,059
Pension Obligation Bond Credit	-3.60%	-25,357	-1.73%	-12,163	-5.33%	-37,520	-5.33%	-37,512
Implicit Retiree Health Benefit Subsidy	<u>-0.71%</u>	<u>-4,999</u>	<u>0.00%</u>	<u>0</u>	<u>-0.71%</u>	<u>-4,999</u>	<u>-0.62%</u>	<u>-4,366</u>
Total Contribution	21.99%	\$154,870	5.10%	\$35,948	27.09%	\$190,818	26.97%	\$190,045

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

CHART 13 (continued)

Recommended Employer Contribution Rates (Estimated - Dollar Amounts in Thousands)

AHS, Court & First 5 Only	December 31, 2016						December 31, 2015	
	BASIC		COLA		TOTAL		BASIC AND COLA COMBINED	
	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>
General Tier 1 Members								
Normal Cost	7.15%	\$309	2.42%	\$105	9.57%	\$414	9.74%	\$421
UAAL (Before POB Credit)	12.81%	554	3.83%	166	16.64%	720	16.48%	713
Pension Obligation Bond Credit	<u>-3.75%</u>	<u>-162</u>	<u>-1.65%</u>	<u>-71</u>	<u>-5.40%</u>	<u>-233</u>	<u>-5.38%</u>	<u>-233</u>
Total Contribution	16.21%	\$701	4.60%	\$200	20.81%	\$901	20.84%	\$901
General Tier 2 Members								
Normal Cost	7.39%	\$15,956	1.45%	\$3,131	8.84%	\$19,087	8.91%	\$19,238
UAAL (Before POB Credit)	12.81%	27,659	3.83%	8,270	16.64%	35,929	16.48%	35,584
Pension Obligation Bond Credit	<u>-3.75%</u>	<u>-8,097</u>	<u>-1.65%</u>	<u>-3,563</u>	<u>-5.40%</u>	<u>-11,660</u>	<u>-5.38%</u>	<u>-11,616</u>
Total Contribution	16.45%	\$35,518	3.63%	\$7,838	20.08%	\$43,356	20.01%	\$43,206
General Tier 4 Members								
Normal Cost	6.71%	\$4,689	1.39%	\$971	8.10%	\$5,660	8.06%	\$5,632
UAAL (Before POB Credit)	12.81%	8,951	3.83%	2,676	16.64%	11,627	16.48%	11,515
Pension Obligation Bond Credit	<u>-3.75%</u>	<u>-2,620</u>	<u>-1.65%</u>	<u>-1,153</u>	<u>-5.40%</u>	<u>-3,773</u>	<u>-5.38%</u>	<u>-3,759</u>
Total Contribution	15.77%	\$11,020	3.57%	\$2,494	19.34%	\$13,514	19.16%	\$13,388

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

CHART 13 (continued)

Recommended Employer Contribution Rates (Estimated - Dollar Amounts in Thousands)

Other Districts	December 31, 2016						December 31, 2015	
	BASIC		COLA		TOTAL		BASIC AND COLA COMBINED	
	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>
General Tier 1 Members								
Normal Cost	7.15%	\$328	2.42%	\$111	9.57%	\$439	9.74%	\$447
UAAL	<u>12.81%</u>	<u>588</u>	<u>3.83%</u>	<u>176</u>	<u>16.64%</u>	<u>764</u>	<u>16.48%</u>	<u>756</u>
Total Contribution	19.96%	\$916	6.25%	\$287	26.21%	\$1,203	26.22%	\$1,203
General Tier 2 Members								
Normal Cost	7.39%	\$25	1.45%	\$5	8.84%	\$30	8.91%	\$30
UAAL	<u>12.81%</u>	<u>43</u>	<u>3.83%</u>	<u>13</u>	<u>16.64%</u>	<u>56</u>	<u>16.48%</u>	<u>55</u>
Total Contribution	20.20%	\$68	5.28%	\$18	25.48%	\$86	25.39%	\$85
General Tier 3 Members								
Normal Cost	10.97%	\$323	3.76%	\$111	14.73%	\$434	14.94%	\$440
UAAL	<u>9.06%</u>	<u>267</u>	<u>2.60%</u>	<u>76</u>	<u>11.66%</u>	<u>343</u>	<u>11.23%</u>	<u>331</u>
Total Contribution	20.03%	\$590	6.36%	\$187	26.39%	\$777	26.17%	\$771
General Tier 4 Members (Housing Authority, Office of Education)								
Normal Cost	6.71%	\$26	1.39%	\$6	8.10%	\$32	8.06%	\$31
UAAL	<u>12.81%</u>	<u>50</u>	<u>3.83%</u>	<u>15</u>	<u>16.64%</u>	<u>65</u>	<u>16.48%</u>	<u>64</u>
Total Contribution	19.52%	\$76	5.22%	\$21	24.74%	\$97	24.54%	\$95

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

CHART 13 (continued)

Recommended Employer Contribution Rates (Estimated - Dollar Amounts in Thousands)

Other Districts	December 31, 2016						December 31, 2015	
	BASIC		COLA		TOTAL		BASIC AND COLA COMBINED	
	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>	<u>Rate</u>	<u>Estimated Annual Amount*</u>
General Tier 4 Members (LARPD Only)								
Normal Cost	6.71%	\$68	1.39%	\$14	8.10%	\$82	8.06%	\$81
UAAL	<u>9.06%</u>	<u>91</u>	<u>2.60%</u>	<u>26</u>	<u>11.66%</u>	<u>117</u>	<u>11.23%</u>	<u>113</u>
Total Contribution	15.77%	\$159	3.99%	\$40	19.76%	\$199	19.29%	\$194
All Categories Combined								
All Categories Combined								
Normal Cost (Net)	8.19%	\$82,205	1.75%	\$17,581	9.94%	\$99,786	9.98%	\$100,184
UAAL (Net)	<u>12.13%</u>	<u>121,713</u>	<u>2.93%</u>	<u>29,452</u>	<u>15.06%</u>	<u>151,165</u>	<u>14.92%</u>	<u>149,704</u>
Total Contribution	20.32%	\$203,918	4.68%	\$47,033	25.00%	\$250,951	24.90%	\$249,888

* Amounts are in thousands and are based on the December 31, 2016 annual payroll (also in thousands) shown on the following page.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

CHART 13 (continued)

Recommended Employer Contribution Rates (Estimated - Dollar Amounts in Thousands)

Payroll Breakdown

	<u>County Only</u>	<u>AHS, Court & First 5</u>	<u>Other Districts</u>	<u>Total</u>
General Tier 1	\$13,246	\$4,324	\$4,589	\$22,159
General Tier 2	414,146	215,920	335	630,401
General Tier 3			2,945	2,945
General Tier 4 (non-LARPD)	112,380	69,874	390	182,644
General Tier 4 (LARPD Only)			1,007	1,007
Safety Tier 1	1,159			1,159
Safety Tier 2	124,544			124,544
Safety Tier 2C	3,026			3,026
Safety Tier 2D	12,658			12,658
Safety Tier 4	23,108			23,108
Total	\$704,267	\$290,118	\$9,266	\$1,003,651

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

CHART 14

Breakdown of Employer Contribution Rate by Types of Benefit (For information purposes only)

A breakdown of the approximate portion of the employer contribution rate by the various types of benefit is as follows:

	General	Safety
Service and non-service connected disability benefits	9%	20%
Service retirement and other benefits	<u>91%</u>	<u>80%</u>
	100%	100%

Note: In developing these percentages, we made the simplifying assumption that the liability for active and inactive members (including members who have already retired) can be approximated by the proportion of the normal cost required to fund disability and non-disability benefits.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

The employer contribution rates as of December 31, 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 Employer Contribution

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

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

CHART 15

Reconciliation of Recommended Employer Contribution from December 31, 2015 to December 31, 2016 (Dollars in Thousands)

	Contribution Rate	Estimated Amount*
Recommended Contribution Rate as of December 31, 2015	24.90%	\$249,888
Effect of actuarial experience during 2016		
1. Effect of investment loss	0.15%	\$1,505
2. Effect of lower than expected salary increases for actives	-0.06%	-602
3. Effect of amortizing prior year's UAAL over a smaller than expected projected total payroll	0.03%	301
4. Net effect of other experience **	-0.02%	-141
Subtotal	0.10%	\$1,063
Recommended Contribution Rate as of December 31, 2016	25.00%	\$250,951

* Based on December 31, 2016 projected compensation.

** Including changes in membership demographics, higher contributions than expected and scheduled delay in implementing contribution rates after date of valuation.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

The member contribution rates as of December 31, 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 Member Contribution Rate

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

CHART 16
Reconciliation of Recommended Member Contribution from December 31, 2015 to December 31, 2016
(Dollar Amounts in Thousands)

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

	Contribution Rate	Estimated Amount*
Average Contribution Rate as of December 31, 2015	8.77%	\$88,034
1. Effect of change in membership demographics	0.03%	\$262
Average Contribution Rate as of December 31, 2016	8.80%	\$88,296

* Based on December 31, 2016 projected compensation.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

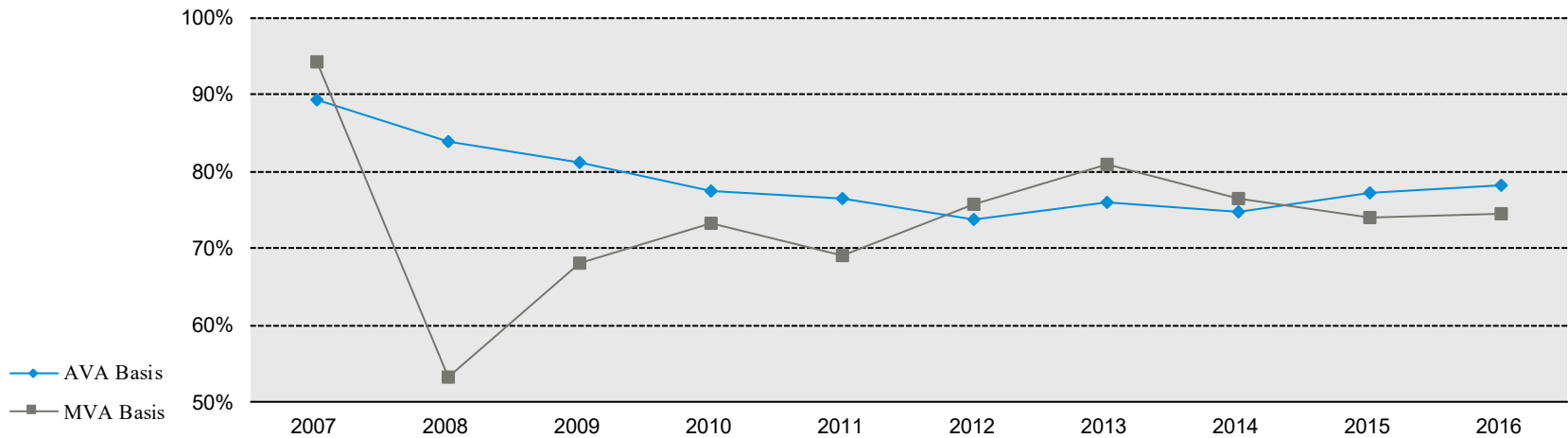
E. FUNDED RATIO

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

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

CHART 17

Funded Ratio for Plan Years Ending December 31, 2007 – 2016⁽¹⁾



⁽¹⁾ Prior to the December 31, 2013 valuation, the Funded Ratio on a Market Value basis was calculated using the end-of-year Valuation Value of Assets plus any deferred market gains. Beginning with the December 31, 2013 valuation, the Market Value of Assets for this purpose includes either one-half of any deferred market gains or a proportion of any deferred investment losses after netting out the Contingency Reserve that is commensurate with the size of the valuation reserves. The recognition of the net deferred losses will result in crediting the valuation reserves with interest at a rate of less than 7.6%.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

CHART 18

Schedule of Funding Progress (Dollar Amounts in Thousands)

Actuarial Valuation Date	Valuation Value of Assets⁽¹⁾ (a)	Actuarial Accrued Liability (AAL)⁽²⁾ (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (%) (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (%) [(b) - (a)] / (c)
12/31/2007	\$4,560,213	\$5,112,403	\$552,190	89.2%	\$793,558	69.6%
12/31/2008	4,644,010	5,537,919	893,909	83.9	864,260	103.4
12/31/2009	4,789,000	5,899,331	1,110,331	81.2	882,606	125.8
12/31/2010	4,776,128	6,162,740	1,386,612	77.5	898,342	154.4
12/31/2011	4,868,689	6,359,483	1,490,794	76.6	892,489	167.0
12/31/2012	4,883,872	6,612,929	1,729,057	73.9	906,500	190.7
12/31/2013	5,210,944	6,861,687	1,650,743	75.9	916,803	180.1
12/31/2014	5,681,097	7,592,072	1,910,975	74.8	948,848	201.4
12/31/2015	6,083,536	7,875,020	1,791,484	77.3	969,534	184.8
12/31/2016	6,436,138	8,237,715	1,801,577	78.1	1,003,651	179.5

⁽¹⁾ Excludes assets for SRBR and other non-valuation reserves, and includes the following reimbursement amounts of implicit retiree health benefit subsidy paid by the County (amounts beginning with the 12/31/2010 valuation date are estimates provided by ACERA):

<u>Valuation Date</u>	<u>Reimbursement Amount</u>	<u>For Year</u>
12/31/2007	\$3,091,493	2007
12/31/2008	\$4,149,463	2008
12/31/2009	\$5,287,767	2009
12/31/2010	\$4,500,000	2010
12/31/2011	\$4,411,206	2011
12/31/2012	\$7,370,466	2012
12/31/2013	\$6,993,032	2013
12/31/2014	\$5,215,355	2014
12/31/2015	\$5,324,502	2015
12/31/2016	\$8,865,275	2016

⁽²⁾ Excludes liabilities for SRBR and other non-valuation reserves.

SECTION 2: Valuation Results for the Alameda County Employees' Retirement Association

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 ACERA, the current AVR is about 6.1. This means that a 1% asset gain/(loss) (relative to the assumed investment return) translates to about 6.1% of one-year's payroll. Since ACERA amortizes actuarial gains and losses over a 20-year period, there would be a 0.4% 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 ACERA, the current LVR is about 8.2. This is about 34% higher than the AVR. Therefore, we would expect that contribution volatility will increase over the long-term.

CHART 19
Volatility Ratios for Years Ended December 31, 2009 – 2016

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

Year Ended December 31	Asset Volatility Ratios ⁽¹⁾				Liability Volatility Ratios			
	General (non-LARPD Tiers 3 & 4)	General (LARPD Tiers 3 & 4)	Safety	Total	General (non-LARPD Tiers 3 & 4)	General (LARPD Tiers 3 & 4)	Safety	Total
2009	4.2	3.0	6.1	4.5	5.9	5.0	10.6	6.7
2010	4.6	3.9	7.0	5.0	6.0	5.6	11.2	6.9
2011	4.5	4.2	7.0	4.9	6.2	6.8	11.9	7.1
2012	5.0	4.9	8.2	5.5	6.3	7.0	12.7	7.3
2013	5.5	5.7	9.1	6.1	6.4	7.4	13.1	7.5
2014	5.5	5.9	9.3	6.1	6.9	7.7	13.9	8.0
2015	5.5	5.7	8.8	6.0	7.0	7.3	13.7	8.1
2016	5.6	6.1	8.9	6.1	7.1	7.7	13.8	8.2

⁽¹⁾ Prior to the December 31, 2013 valuation, the Asset Volatility Ratio was calculated using the end-of-year Valuation Value of Assets plus any deferred market gains. Beginning with the December 31, 2013 valuation, the adjusted Valuation Value of Assets for this purpose includes either one-half of any deferred market gains or a proportion of any deferred investment losses after netting out the Contingency Reserve that is commensurate with the size of the valuation reserves. The recognition of the net deferred losses will result in crediting the valuation reserves with interest at a rate of less than 7.6%.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT A

Table of Plan Coverage

i. General Tier 1

Category	Year Ended December 31		Change From Prior Year
	2016	2015	
Active members in valuation			
Number	244	292	-16.4%
Average age	59.4	58.9	N/A
Average service	29.1	28.5	N/A
Projected total compensation	\$22,159,196	\$25,735,327	-13.9%
Projected average compensation	\$90,816	\$88,135	3.0%
Member account balances	\$89,711,598	\$100,066,133	-10.3%
Total active vested members	244	289	-15.6%
Vested terminated members			
Number	71	83	-14.5%
Average age	61.0	60.3	N/A
Retired members			
Number in pay status	3,334	3,413	-2.3%
Average age	75.6	75.2	N/A
Average monthly benefit ⁽¹⁾	\$4,485	\$4,281	4.8%
Disabled members			
Number in pay status	164	172	-4.7%
Average age	72.5	71.8	N/A
Average monthly benefit ⁽¹⁾	\$2,958	\$2,835	4.3%
Beneficiaries			
Number in pay status	752	752	0.0%
Average age	79.3	79.0	N/A
Average monthly benefit ⁽¹⁾	\$2,034	\$1,944	4.6%

⁽¹⁾ Excludes supplemental benefits paid from SRBR.

Note: Based on the data provided for the December 31, 2016 actuarial valuation, the average age at retirement for the General Tier 1 service and disabled retirees was 59.2 and 51.9, respectively.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT A

Table of Plan Coverage

ii. General Tier 2

Category	Year Ended December 31		Change From Prior Year
	2016	2015	
Active members in valuation			
Number	6,936	7,389	-6.1%
Average age	50.5	49.8	N/A
Average service	14.4	13.5	N/A
Projected total compensation	\$630,401,481	\$647,445,398	-2.6%
Projected average compensation	\$90,888	\$87,623	3.7%
Member account balances	\$722,922,079	\$690,454,888	4.7%
Total active vested members	6,302	6,406	-1.6%
Vested terminated members			
Number	1,756	1,647	6.6%
Average age	49.1	49.2	N/A
Retired members			
Number in pay status	2,678	2,440	9.8%
Average age	68.7	68.3	N/A
Average monthly benefit ⁽¹⁾	\$2,479	\$2,376	4.3%
Disabled members			
Number in pay status	447	424	5.4%
Average age	63.2	62.7	N/A
Average monthly benefit ⁽¹⁾	\$2,429	\$2,315	4.9%
Beneficiaries			
Number in pay status	219	201	9.0%
Average age	65.4	64.9	N/A
Average monthly benefit ⁽¹⁾	\$1,260	\$1,245	1.2%

⁽¹⁾ Excludes supplemental benefits paid from SRBR.

Note: Based on the data provided for the December 31, 2016 actuarial valuation, the average age at retirement for the General Tier 2 service and disabled retirees was 62.2 and 50.6, respectively.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT A

Table of Plan Coverage

iii. General Tier 3

Category	Year Ended December 31		Change From Prior Year
	2016	2015	
Active members in valuation			
Number	37	41	-9.8%
Average age	53.7	53.4	N/A
Average service	14.7	14.0	N/A
Projected total compensation	\$2,945,476	\$3,060,505	-3.8%
Projected average compensation	\$79,607	\$74,646	6.6%
Member account balances	\$5,993,262	\$6,106,138	-1.8%
Total active vested members	31	34	-8.8%
Vested terminated members			
Number	10	10	0.0%
Average age	48.9	47.7	N/A
Retired members			
Number in pay status	17	13	30.8%
Average age	63.3	64.1	N/A
Average monthly benefit ⁽¹⁾	\$4,622	\$4,984	-7.3%
Disabled members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽¹⁾	N/A	N/A	N/A
Beneficiaries			
Number in pay status	2	2	0.0%
Average age	57.8	56.8	N/A
Average monthly benefit ⁽¹⁾	\$1,154	\$1,120	3.0%

⁽¹⁾ Excludes supplemental benefits paid from SRBR.

Note: Based on the data provided for the December 31, 2016 actuarial valuation, the average age at retirement for the General Tier 3 service retirees was 58.6.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT A

Table of Plan Coverage

iv. General Tier 4

Category	Year Ended December 31		Change From Prior Year
	2016	2015	
Active members in valuation			
Number	2,456	1,912	28.5%
Average age	39.6	39.0	N/A
Average service	1.9	1.5	N/A
Projected total compensation	\$183,650,901 ⁽¹⁾	\$136,394,884	34.6%
Projected average compensation	\$74,776	\$71,336	4.8%
Member account balances	\$26,475,733	\$15,365,501	72.3%
Total active vested members	40	25	60.0%
Vested terminated members			
Number	265	129	105.4%
Average age	39.9	39.9	N/A
Retired members			
Number in pay status	1	1	0.0%
Average age	65.9	64.9	N/A
Average monthly benefit ⁽²⁾	\$5,935	\$5,816	2.0%
Disabled members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽²⁾	N/A	N/A	N/A
Beneficiaries			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽²⁾	N/A	N/A	N/A

⁽¹⁾ Projected compensation for 2017 has been limited. It is our understanding that in the determination of pension benefits under the CalPEPRA formulas, the compensation that can be taken into account for 2017 is equal to \$118,775. (For an employer that is not enrolled in Social Security, the maximum amount is 120% of \$118,775, or \$142,530). (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2017. (reference: Section 7522.10(d)).

⁽²⁾ Excludes supplemental benefits paid from SRBR.

Note: Based on the data provided for the December 31, 2016 actuarial valuation, the average age at retirement for the General Tier 4 service retirees was 63.4. For all the General Tiers combined, the average age at retirement for the service retirees and disabled retirees was 60.5 and 50.9, respectively.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT A

Table of Plan Coverage

v. Safety Tier 1

Category	Year Ended December 31		Change From Prior Year
	2016	2015	
Active members in valuation			
Number	6	7	-14.3%
Average age	59.9	59.0	N/A
Average service	24.4	20.5	N/A
Projected total compensation	\$1,159,133	\$1,320,827	-12.2%
Projected average compensation	\$193,189	\$188,690	2.4%
Member account balances	\$4,345,319	\$3,940,137	10.3%
Total active vested members	6	6	0.0%
Vested terminated members			
Number	11	11	0.0%
Average age	57.5	55.7	N/A
Retired members			
Number in pay status	630	648	-2.8%
Average age	70.6	69.9	N/A
Average monthly benefit ⁽¹⁾	\$7,803	\$7,489	4.2%
Disabled members			
Number in pay status	105	105	0.0%
Average age	67.8	67.1	N/A
Average monthly benefit ⁽¹⁾	\$5,324	\$5,327	-0.1%
Beneficiaries			
Number in pay status	185	176	5.1%
Average age	73.5	72.9	N/A
Average monthly benefit ⁽¹⁾	\$3,148	\$3,041	3.5%

⁽¹⁾ Excludes supplemental benefits paid from SRBR.

Note: Based on the data provided for the December 31, 2016 actuarial valuation, the average age at retirement for the Safety Tier 1 service and disabled retirees was 54.9 and 49.0, respectively.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT A

Table of Plan Coverage

vi. Safety Tier 2

Category	Year Ended December 31		Change From Prior Year
	2016	2015	
Active members in valuation			
Number	1,041	1,103	-5.6%
Average age	45.3	44.6	N/A
Average service	14.7	14.0	N/A
Projected total compensation	\$124,544,061	\$125,265,055	-0.6%
Projected average compensation	\$119,639	\$113,568	5.3%
Member account balances	\$256,633,277	\$243,325,587	5.5%
Total active vested members	1,040	1,101	-5.5%
Vested terminated members			
Number	131	134	-2.2%
Average age	46.0	46.1	N/A
Retired members			
Number in pay status	474	433	9.5%
Average age	61.8	61.4	N/A
Average monthly benefit ⁽¹⁾	\$5,716	\$5,569	2.6%
Disabled members			
Number in pay status	171	153	11.8%
Average age	56.5	56.3	N/A
Average monthly benefit ⁽¹⁾	\$4,394	\$4,268	3.0%
Beneficiaries			
Number in pay status	63	57	10.5%
Average age	56.9	55.7	N/A
Average monthly benefit ⁽¹⁾	\$2,386	\$2,160	10.5%

⁽¹⁾ Excludes supplemental benefits paid from SRBR.

Note: Based on the data provided for the December 31, 2016 actuarial valuation, the average age at retirement for the Safety Tier 2 service and disabled retirees was 55.6 and 46.9, respectively.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT A

Table of Plan Coverage

vii. Safety Tier 2C

Category	Year Ended December 31		Change From Prior Year
	2016	2015	
Active members in valuation			
Number	27	29	-6.9%
Average age	41.0	40.1	N/A
Average service	5.3	4.4	N/A
Projected total compensation	\$3,025,638	\$3,066,642	-1.3%
Projected average compensation	\$112,061	\$105,746	6.0%
Member account balances	\$1,607,020	\$1,318,832	21.9%
Total active vested members	15	8	87.5%
Vested terminated members			
Number	6	3	100.0%
Average age	40.7	38.1	N/A
Retired members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽¹⁾	N/A	N/A	N/A
Disabled members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽¹⁾	N/A	N/A	N/A
Beneficiaries			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽¹⁾	N/A	N/A	N/A

⁽¹⁾ Excludes supplemental benefits paid from SRBR.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT A

Table of Plan Coverage

viii. Safety Tier 2D

Category	Year Ended December 31		Change From Prior Year
	2016	2015	
Active members in valuation			
Number	119	114	4.4%
Average age	38.1	36.9	N/A
Average service	6.3	5.4	N/A
Projected total compensation	\$12,658,242	\$11,082,095	14.2%
Projected average compensation	\$106,372	\$97,211	9.4%
Member account balances	\$8,705,509	\$6,382,558	36.4%
Total active vested members	53	36	47.2%
Vested terminated members			
Number	9	7	28.6%
Average age	38.4	34.8	N/A
Retired members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽¹⁾	N/A	N/A	N/A
Disabled members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽¹⁾	N/A	N/A	N/A
Beneficiaries			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽¹⁾	N/A	N/A	N/A

⁽¹⁾ Excludes supplemental benefits paid from SRBR.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT A

Table of Plan Coverage

ix. Safety Tier 4

Category	Year Ended December 31		Change From Prior Year
	2016	2015	
Active members in valuation			
Number	245	184	33.2%
Average age	34.9	34.9	N/A
Average service	2.2	1.6	N/A
Projected total compensation	\$23,107,700 ⁽¹⁾	\$16,162,861	43.0%
Projected average compensation	\$94,317	\$87,842	7.4%
Member account balances	\$6,277,240	\$3,196,998	96.3%
Total active vested members	0	0	N/A
Vested terminated members			
Number	4	3	33.3%
Average age	32.3	33.0	N/A
Retired members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽²⁾	N/A	N/A	N/A
Disabled members			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽²⁾	N/A	N/A	N/A
Beneficiaries			
Number in pay status	0	0	N/A
Average age	N/A	N/A	N/A
Average monthly benefit ⁽²⁾	N/A	N/A	N/A

⁽¹⁾ *Projected compensation for 2017 has been limited. It is our understanding that in the determination of pension benefits under the CalPEPRA formulas, the compensation that can be taken into account for 2017 is equal to \$118,775. (For an employer that is not enrolled in Social Security, the maximum amount is 120% of \$118,775, or \$142,530). (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2017. (reference: Section 7522.10(d)).*

⁽²⁾ *Excludes supplemental benefits paid from SRBR.*

Notes: For all the Safety Tiers combined, the average age at retirement for the service retirees and disabled retirees was 55.2 and 47.7, respectively.

For all the General and Safety Tiers combined, the average age at retirement for the service retirees and disabled retirees was 59.7 and 49.9, respectively.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT B

**Members in Active Service and Projected Average Compensation
By Age, Years of Service as of December 31, 2016**

i. General Tier 1

Age	Total	Years of Service								
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
25 - 29	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
30 - 34	3	--	3	--	--	--	--	--	--	--
	\$63,887	--	\$63,887	--	--	--	--	--	--	--
35 - 39	4	--	3	1	--	--	--	--	--	--
	75,421	--	65,846	\$104,147	--	--	--	--	--	--
40 - 44	4	--	4	--	--	--	--	--	--	--
	71,591	--	71,591	--	--	--	--	--	--	--
45 - 49	8	--	1	7	--	--	--	--	--	--
	75,149	--	56,055	77,876	--	--	--	--	--	--
50 - 54	21	--	2	4	2	2	1	6	4	--
	74,588	--	63,980	70,374	\$70,153	\$63,454	\$63,615	\$68,605	\$103,608	--
55 - 59	71	--	4	3	2	5	10	25	22	--
	88,803	--	78,550	85,523	101,864	68,905	86,673	98,517	84,379	--
60 - 64	101	--	2	4	2	7	10	31	39	6
	94,588	--	77,843	75,917	65,584	92,782	95,312	101,544	95,093	\$83,956
65 - 69	25	--	2	3	2	1	3	4	7	3
	105,354	--	104,172	131,156	113,088	55,575	67,097	63,608	87,656	226,990
70 & over	7	--	--	--	--	--	--	1	1	5
	102,816	--	--	--	--	--	--	89,001	52,626	115,617
Total	244	--	21	22	8	15	24	67	73	14
	\$90,816	--	\$73,229	\$85,658	\$87,672	\$78,432	\$86,865	\$95,013	\$91,036	\$125,914

Note: Age and years of service were projected from November 30, 2016 to December 31, 2016.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT B

**Members in Active Service and Projected Average Compensation
By Age, Years of Service as of December 31, 2016**

ii. General Tier 2

Age	Years of Service							
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30 & over
Under 25	1	1	--	--	--	--	--	--
	\$59,537	\$59,537	--	--	--	--	--	--
25 - 29	59	37	22	--	--	--	--	--
	69,511	70,894	\$67,184	--	--	--	--	--
30 - 34	421	124	260	37	--	--	--	--
	80,368	83,410	81,265	\$63,868	--	--	--	--
35 - 39	740	130	358	191	60	1	--	--
	87,831	93,796	89,869	85,037	\$72,030	\$64,332	--	--
40 - 44	872	95	273	279	209	16	--	--
	90,130	95,232	89,212	93,419	85,316	81,027	--	--
45 - 49	1,136	92	238	280	344	130	51	1
	93,793	110,014	89,627	95,172	92,137	97,238	\$78,750	\$96,011
50 - 54	1,194	62	228	214	303	153	183	51
	91,619	103,358	92,941	88,980	88,412	93,451	94,379	86,171
55 - 59	1,212	54	200	215	291	138	240	74
	94,069	110,368	95,456	86,499	90,194	94,642	98,279	100,932
60 - 64	855	26	131	153	209	121	153	62
	92,271	110,199	95,045	83,348	87,099	93,931	94,885	108,656
65 - 69	358	14	72	70	85	54	44	19
	90,498	93,927	86,117	88,047	86,536	91,191	92,261	125,270
70 & over	88	3	16	27	16	10	15	1
	86,070	113,489	119,259	73,824	77,308	74,282	81,752	126,296
Total	6,936	638	1,798	1,466	1,517	623	686	208
	\$90,888	\$96,044	\$89,715	\$88,585	\$88,121	\$93,729	\$94,282	\$101,937

Note: Age and years of service were projected from November 30, 2016 to December 31, 2016.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT B

**Members in Active Service and Projected Average Compensation
By Age, Years of Service as of December 31, 2016**

iii. General Tier 3

Age	Total	Years of Service						
		0-4	5-9	10-14	15-19	20-24	25-29	30 & Over
Under 25	--	--	--	--	--	--	--	--
25 - 29	--	--	--	--	--	--	--	--
30 - 34	--	--	--	--	--	--	--	--
35 - 39	4	1	--	2	1	--	--	--
	\$74,125	\$110,643	--	\$62,156	\$61,544	--	--	--
40 - 44	1	1	--	--	--	--	--	--
	53,544	53,544	--	--	--	--	--	--
45 - 49	5	2	--	2	1	--	--	--
	65,149	63,025	--	67,211	65,274	--	--	--
50 - 54	12	2	1	3	3	1	2	--
	73,738	90,771	\$71,889	65,458	70,667	\$66,030	\$78,510	--
55 - 59	5	--	2	1	--	--	2	--
	79,262	--	92,790	60,776	--	--	74,977	--
60 - 64	8	--	2	2	2	--	1	1
	107,156	--	114,204	149,290	82,324	--	87,687	\$77,930
65 - 69	2	--	--	--	1	--	--	1
	65,634	--	--	--	70,485	--	--	60,783
70 & over	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
Total	37	6	5	10	8	1	5	2
	\$79,607	\$78,630	\$97,175	\$81,447	\$71,744	\$66,030	\$78,932	\$69,357

Note: Age and years of service were projected from November 30, 2016 to December 31, 2016.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT B

**Members in Active Service and Projected Average Compensation
By Age, Years of Service as of December 31, 2016**

iv. General Tier 4

Age	Total	Years of Service						
		0-4	5-9	10-14	15-19	20-24	25-29	30 & Over
Under 25	62	62	--	--	--	--	--	--
	\$54,254	\$54,254	--	--	--	--	--	--
25 - 29	454	454	--	--	--	--	--	--
	65,411	65,411	--	--	--	--	--	--
30 - 34	530	529	1	--	--	--	--	--
	73,342	73,348	\$70,604	--	--	--	--	--
35 - 39	397	394	2	1	--	--	--	--
	74,617	74,658	68,914	\$70,015	--	--	--	--
40 - 44	303	299	3	1	--	--	--	--
	80,661	80,627	91,133	59,443	--	--	--	--
45 - 49	232	228	2	1	1	--	--	--
	81,590	81,451	98,280	42,716	\$118,775	--	--	--
50 - 54	178	174	4	--	--	--	--	--
	81,679	81,946	70,036	--	--	--	--	--
55 - 59	170	162	4	2	1	1	--	--
	78,874	79,056	61,606	88,300	118,775	\$59,753	--	--
60 - 64	95	88	6	1	--	--	--	--
	80,506	80,622	79,598	75,771	--	--	--	--
65 - 69	29	29	--	--	--	--	--	--
	88,384	88,384	--	--	--	--	--	--
70 & over	6	5	1	--	--	--	--	--
	94,744	101,358	61,675	--	--	--	--	--
Total	2,456	2,424	23	6	2	1	--	--
	\$74,776	\$74,746	\$75,836	\$70,757	\$118,775	\$59,753	--	--

Note: Age and years of service were projected from November 30, 2016 to December 31, 2016.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT B

**Members in Active Service and Projected Average Compensation
By Age, Years of Service as of December 31, 2016**

v. Safety Tier 1

Age	Total	Years of Service						
		0-4	5-9	10-14	15-19	20-24	25-29	30 & Over
Under 25	--	--	--	--	--	--	--	--
25 - 29	--	--	--	--	--	--	--	--
30 - 34	--	--	--	--	--	--	--	--
35 - 39	--	--	--	--	--	--	--	--
40 - 44	--	--	--	--	--	--	--	--
45 - 49	--	--	--	--	--	--	--	--
50 - 54	--	--	--	--	--	--	--	--
55 - 59	3	--	--	--	--	1	1	1
	\$224,241	--	--	--	--	\$122,591	\$223,296	\$326,836
60 - 64	3	--	--	2	--	--	1	--
	162,137	--	--	\$187,613	--	--	111,183	--
65 - 69	--	--	--	--	--	--	--	--
70 & over	--	--	--	--	--	--	--	--
Total	6	--	--	2	--	1	2	1
	\$193,189	--	--	\$187,613	--	\$122,591	\$167,240	\$326,836

Note: Age and years of service were projected from November 30, 2016 to December 31, 2016.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT B

**Members in Active Service and Projected Average Compensation
By Age, Years of Service as of December 31, 2016**

vi. Safety Tier 2

Age	Years of Service							
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30 & Over
Under 25	--	--	--	--	--	--	--	--
25 - 29	3	--	3	--	--	--	--	--
30 - 34	\$117,567	--	\$117,567	--	--	--	--	--
35 - 39	95	--	60	34	1	--	--	--
40 - 44	114,840	--	112,478	\$118,593	\$128,986	--	--	--
45 - 49	174	--	65	88	21	--	--	--
50 - 54	121,356	--	109,994	123,030	149,511	--	--	--
55 - 59	261	1	54	73	119	14	--	--
60 - 64	118,126	\$75,994	104,922	115,445	123,453	\$140,770	--	--
65 - 69	243	--	27	62	109	39	6	--
70 & over	119,295	--	107,354	116,752	117,816	134,448	\$127,680	--
Total	150	--	15	28	57	22	24	4
	122,492	--	104,734	119,499	118,989	125,888	130,188	\$195,098
	73	--	14	11	28	10	7	3
	122,059	--	133,115	117,151	121,869	126,369	104,563	116,692
	29	--	13	5	3	3	3	2
	117,525	--	122,495	138,153	89,851	90,920	139,521	82,077
	10	--	1	2	4	2	1	--
	112,431	--	82,309	139,852	111,429	116,059	84,465	--
	3	--	--	2	1	--	--	--
	176,422	--	--	148,664	231,938	--	--	--
Total	1,041	1	252	305	343	90	41	9
	\$119,639	\$75,994	\$110,812	\$119,434	\$122,284	\$130,582	\$125,014	\$143,847

Note: Age and years of service were projected from November 30, 2016 to December 31, 2016.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT B

**Members in Active Service and Projected Average Compensation
By Age, Years of Service as of December 31, 2016**

vii. Safety Tier 2C

Age	Years of Service							
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30 & Over
Under 25	--	--	--	--	--	--	--	--
25 - 29	3	2	1	--	--	--	--	--
30 - 34	\$102,519	\$97,815	\$111,928	--	--	--	--	--
35 - 39	4	2	2	--	--	--	--	--
40 - 44	106,710	110,476	102,943	--	--	--	--	--
45 - 49	7	2	4	1	--	--	--	--
50 - 54	101,582	83,799	117,332	\$74,148	--	--	--	--
55 - 59	5	2	3	--	--	--	--	--
60 - 64	102,781	103,123	102,553	--	--	--	--	--
65 - 69	3	1	2	--	--	--	--	--
70 & over	115,896	144,137	101,776	--	--	--	--	--
	2	2	--	--	--	--	--	--
	143,422	143,422	--	--	--	--	--	--
	2	1	1	--	--	--	--	--
	144,712	143,333	146,091	--	--	--	--	--
	1	--	1	--	--	--	--	--
	142,305	--	142,305	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
Total	27	12	14	1	--	--	--	--
	\$112,061	\$113,728	\$113,339	\$74,148	--	--	--	--

Note: Age and years of service were projected from November 30, 2016 to December 31, 2016.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT B

**Members in Active Service and Projected Average Compensation
By Age, Years of Service as of December 31, 2016**

viii. Safety Tier 2D

Age	Years of Service							
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30 & Over
Under 25	--	--	--	--	--	--	--	--
25 - 29	16	13	3	--	--	--	--	--
30 - 34	38	22	12	4	--	--	--	--
35 - 39	19	10	4	3	2	--	--	--
40 - 44	26	14	6	4	2	--	--	--
45 - 49	8	4	3	1	--	--	--	--
50 - 54	5	2	1	1	--	1	--	--
55 - 59	7	1	4	1	1	--	--	--
60 - 64	--	--	--	--	--	--	--	--
65 - 69	--	--	--	--	--	--	--	--
70 & over	--	--	--	--	--	--	--	--
Total	119	66	33	14	5	1	--	--
	\$106,372	\$107,410	\$113,224	\$90,589	\$90,581	\$111,629	--	--

Note: Age and years of service were projected from November 30, 2016 to December 31, 2016.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT B

**Members in Active Service and Projected Average Compensation
By Age, Years of Service as of December 31, 2016**

ix. Safety Tier 4

Age	Total	Years of Service						
		0-4	5-9	10-14	15-19	20-24	25-29	30 & Over
Under 25	15	15	--	--	--	--	--	--
	\$83,268	\$83,268	--	--	--	--	--	--
25 - 29	83	83	--	--	--	--	--	--
	86,941	86,941	--	--	--	--	--	--
30 - 34	63	63	--	--	--	--	--	--
	88,557	88,557	--	--	--	--	--	--
35 - 39	30	30	--	--	--	--	--	--
	95,161	95,161	--	--	--	--	--	--
40 - 44	10	10	--	--	--	--	--	--
	94,669	94,669	--	--	--	--	--	--
45 - 49	7	7	--	--	--	--	--	--
	86,342	86,342	--	--	--	--	--	--
50 - 54	23	23	--	--	--	--	--	--
	127,364	127,364	--	--	--	--	--	--
55 - 59	13	13	--	--	--	--	--	--
	127,126	127,126	--	--	--	--	--	--
60 - 64	1	1	--	--	--	--	--	--
	75,576	75,576	--	--	--	--	--	--
65 - 69	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
70 & over	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
Total	245	245	--	--	--	--	--	--
	\$94,317	\$94,317	--	--	--	--	--	--

Note: Age and years of service were projected from November 30, 2016 to December 31, 2016.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT C

Reconciliation of Member Data – December 31, 2015 to December 31, 2016

	Active Members	Vested Terminated Members	Pensioners	Disableds	Beneficiaries	Total
Number as of December 31, 2015	11,071	2,027	6,948	854	1,188	22,088
New members	845	0	0	0	95	940
Terminations – with vested rights	-317	317	0	0	0	0
Contributions refunds	-157	-45	0	0	0	-202
Retirements	-315	-78	393	0	0	0
New disabilities	-21	-9	-17	47	0	0
Return to work	24	-24	0	0	0	0
Died with or without beneficiary	-19	-4	-192	-15	-56	-286
Data adjustments	0	79*	2	1	-6**	76
Number as of December 31, 2016	11,111	2,263	7,134	887	1,221	22,616

* Out of the net 79 data adjustments, 19 were for members who were hired and terminated employment after November 30, 2015 (i.e., the census data collection date for last year's valuation). In addition, 57 members were classified as contribution refunds in the December 31, 2015 valuation data, and terminated vested in the December 31, 2016 data.

** Net count (includes 2 non-members from terminated vested status last year, less 8 suspended beneficiary records since last year).

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT D

Summary Statement of Income and Expenses on an Actuarial Value Basis

	Year Ended December 31,	
	2016	2015
Contribution income:		
Employer contributions	\$241,728,451	\$224,607,104
Employee contributions	<u>85,736,229</u>	<u>82,948,934</u>
Contribution income	\$327,464,680	\$307,556,038
Investment income:		
Interest, dividends and other income	\$150,821,742	\$110,609,986
Adjustment toward market value	364,486,818	527,627,773
Less investment and administrative fees	<u>-63,163,781</u>	<u>-68,942,741</u>
Net investment income	<u>\$452,144,779</u>	<u>\$569,295,018</u>
Total income available for benefits	\$779,609,459	\$876,851,056
Less benefit payments:		
Service retirement	-\$409,692,997	-\$388,197,727
Death payments	-2,708,323	-2,553,356
Supplemental cost of living	-1,350,784	-1,555,924
Members refunds	-8,470,733	-8,991,409
Health insurance subsidies	<u>-34,927,467</u>	<u>-33,685,850</u>
Benefit payments	-\$457,150,304	-\$434,984,266
Change in reserve for future benefits	\$322,459,155	\$441,866,790

Note: Results may not total properly due to rounding.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT E

Summary Statement of Assets

ASSETS	Year Ended December 31,	
	2016	2015
Cash	\$1,265,311	\$539,879
Securities Lending Collateral	322,843,693	404,498,078
Accounts Receivable:		
Contributions	\$12,752,670	\$10,841,676
Investment Receivables	16,611,469	15,709,597
Investments Sold	8,464,718	7,145,379
Foreign Exchange Contracts	23,750	3,612,362
Others	<u>189,493</u>	<u>374,945</u>
Total Accounts Receivable	\$38,042,099	\$37,683,960
Prepaid Expenses	823,217	706,049
Investments:		
Short-Term Investments	\$209,671,001	\$161,194,246
Equities	4,168,597,795	3,951,872,573
Fixed Income Investments	1,049,038,552	1,005,396,098
Real Estate	491,822,710	483,925,245
Capital Assets	1,755,805	2,334,536
Private Equity and Alternative Investments	<u>1,044,408,423</u>	<u>1,030,301,739</u>
Total Investments at Market Value	<u>\$6,965,294,285</u>	<u>\$6,635,024,436</u>
Total Assets	\$7,328,268,605	\$7,078,452,402

Note: Results may not total properly due to rounding.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

**EXHIBIT E (Continued)
Summary Statement of Assets**

LIABILITIES	Year Ended December 31,	
	2016	2015
Less Accounts Payable:		
Securities Lending & Investments Purchased	-\$341,346,892	-\$421,953,600
Investment-Related Payables	-12,660,204	-9,299,121
Futures Contracts & Equity Swaps	-225,735	-1,103,974
Foreign Exchange Contracts	-2,956,982	-1,429,367
Accrued Administration Expense	-2,055,379	-1,546,720
Members Benefits & Refunds, and Retirement Payroll Deductions Payable	<u>-3,443,232</u>	<u>-2,494,847</u>
Total Accounts Payable	-\$362,688,423	-\$437,827,629
NET ASSETS		
Net Assets at Market Value	<u>\$6,965,580,182</u>	<u>\$6,640,624,773</u>
Net Assets at Actuarial Value	<u>\$7,309,485,170</u>	<u>\$6,987,026,015</u>
Net Assets at Valuation Value	<u>\$6,436,138,605</u>	<u>\$6,083,535,566</u>

Note: Results may not total properly due to rounding.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

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	<u>Basic</u>	<u>COLA</u>	<u>Total</u>
1. Total valuation assets	\$4,351,063	\$2,085,075	\$6,436,138
2. Present value of future contributions by members	586,761	136,135	722,896
3. Present value of future employer contributions for:			
a. entry age normal cost	586,547	119,903	706,450
b. unfunded actuarial accrued liability	1,445,243	356,334	1,801,577
4. Total current and future assets	\$6,969,614	\$2,697,447	\$9,667,061
Liabilities			
5. Present value of benefits already granted	\$3,152,166	\$1,849,007	\$5,001,173
6. Present value of benefits to be granted to present non-retired members	3,817,448	848,440	4,665,888
7. Total liabilities	\$6,969,614	\$2,697,447	\$9,667,061

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT G

Summary of Reported Asset Information as of December 31, 2016

	Reserves
Used in Development of Valuation Value of Assets	
Members deposit-basic	\$1,136,189,230
Members cost-of-living	252,695,107
Employer advance (before transfer from SRBR to employer advance)	791,647,086
Pension reserve-current	1,522,476,786
Pension reserve-prior	4,477,737
Annuity reserve	884,853,910
Cost-of-living reserve	1,832,380,063
Survivor death benefit	2,553,409
SRBR transfer to employer advance	8,865,275*
Reserve for interest fluctuations (contingency reserve), if negative	0
Subtotal	<u>\$6,436,138,605</u>
Not Used in Development of Valuation Value of Assets	
401(h) account	\$7,826,594
Supplemental retirees benefit reserve (before transfer from SRBR to employer advance)	874,385,246
Reserve for interest fluctuations (contingency reserve), if positive	0
Market stabilization reserve	-343,904,987
SRBR transfer to employer advance	-8,865,275*
Subtotal	<u>\$529,441,578</u>
Total	<u>\$6,965,580,182</u>

* Estimate provided by ACERA.

Note: Results may not total properly due to rounding.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT H

Development of Unfunded Actuarial Accrued Liability as of December 31, 2016

	(Dollar Amounts in Thousands)
1. Unfunded actuarial accrued liability at beginning of year	\$1,791,484
2. Total Normal Cost at middle of year	182,194
3. Expected employer and member contributions	-326,313
4. Interest (whole year on (1) plus partial year on (2) + (3))	<u>131,235</u>
5. Expected unfunded actuarial accrued liability at end of year	\$1,778,600
6. Actuarial (gain)/loss due to all changes*:	
a. Loss from investments	\$21,848
b. Gain from lower than expected salary increases for actives	-8,122
c. Gain due to actual contributions greater than expected** (with interest to end of year)	-1,197
d. Other experience losses	<u>10,448</u>
e. Subtotal	\$22,977
7. Actual unfunded actuarial accrued liability at end of year (5) + (6e)	\$1,801,577

* The "net loss from other experience" of \$1,129 from Chart 9 is equal to the sum of items 6b through 6d.

** Including scheduled delay in implementing contribution rates after date of valuation.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT I

Table of Amortization Bases (Dollar Amounts in Thousands)

Type	Date Established	Initial Years	Initial Amount	Outstanding Balance	Years Remaining	Annual Payment*
General (All, Excluding LARPD Tier 3 and Tier 4)						
Combined Bases	12/31/2011	21	\$885,036	\$884,733	16	\$74,559
Experience Loss	12/31/2012	20	165,501	164,422	16	13,856
Experience Gain	12/31/2013	20	-75,003	-74,903	17	-6,039
Experience Gain	12/31/2014	20	-156,281	-156,364	18	-12,102
Change in Assumptions	12/31/2014	20	350,827	351,013	18	27,168
Experience Gain	12/31/2015	20	-98,619	-98,777	19	-7,361
Experience Loss	12/31/2016	20	3,655	<u>3,655</u>	20	<u>263</u>
Total				\$1,073,779		\$90,344
General (LARPD Tier 3 and Tier 4 Only)**						
Combined Bases	12/31/2011	21	\$7,060	\$7,058	16	\$595
Experience Loss	12/31/2012	20	370	367	16	31
Experience Gain	12/31/2013	20	-534	-533	17	-43
Experience Gain	12/31/2014	20	-1,562	-1,563	18	-121
Change in Assumptions	12/31/2014	20	1,303	1,304	18	101
Experience Gain***	12/31/2015	20	-1,506	-1,509	19	-112
Experience Loss	12/31/2016	20	139	<u>139</u>	20	<u>10</u>
Total				\$5,263		\$461
General (All General Members Combined)						
Combined Bases	12/31/2011	21	\$892,096	\$891,791	16	\$75,154
Experience Loss	12/31/2012	20	165,871	164,789	16	13,887
Experience Gain	12/31/2013	20	-75,537	-75,436	17	-6,082
Experience Gain	12/31/2014	20	-157,843	-157,927	18	-12,223
Change in Assumptions	12/31/2014	20	352,130	352,317	18	27,269
Experience Gain	12/31/2015	20	-100,125	-100,286	19	-7,473
Experience Loss	12/31/2016	20	3,794	<u>3,794</u>	20	<u>273</u>
Total				\$1,079,042		\$90,805

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT I

Table of Amortization Bases (Continued)

Type	Date Established	Initial Years	Initial Amount	Outstanding Balance	Years Remaining	Annual Payment*
Safety						
Combined Bases	12/31/2011	21	\$598,698	\$598,494	16	\$50,436
Experience Loss	12/31/2012	20	63,130	62,719	16	5,285
Experience Gain	12/31/2013	20	-9,350	-9,338	17	-753
Experience Gain	12/31/2014	20	-43,238	-43,261	18	-3,348
Change in Assumptions	12/31/2014	20	107,552	107,609	18	8,329
Experience Gain	12/31/2015	20	-12,850	-12,871	19	-959
Experience Loss	12/31/2016	20	19,183	<u>19,183</u>	20	<u>1,380</u>
Total				\$722,535		\$60,370
Total						
Combined Bases	12/31/2011	21	\$1,490,794	\$1,490,285	16	\$125,590
Experience Loss	12/31/2012	20	229,001	227,508	16	19,172
Experience Gain	12/31/2013	20	-84,887	-84,774	17	-6,835
Experience Gain	12/31/2014	20	-201,081	-201,188	18	-15,571
Change in Assumptions	12/31/2014	20	459,682	459,926	18	35,598
Experience Gain	12/31/2015	20	-112,975	-113,157	19	-8,432
Experience Loss	12/31/2016	20	22,996	<u>22,977</u>	20	<u>1,653</u>
Total				\$1,801,577		\$151,175

Note: The equivalent single amortization period is 16 years.

* Level percentage of payroll.

** When LARPD General Tier 3 was established in 2008, they were classified as a stand-alone group since they were the only employer with the higher 2.5% at 55 benefit (i.e., Section 31676.18), and the cost to upgrade the past service under that formula was only to be paid by LARPD. (reference: Segal's letter dated October 7, 2008). The initial UAAL rate for that group was based on an allocation of assets needed to maintain the total employer rate from the December 31, 2007 valuation before any benefit improvements for General Tier 3. The UAAL rate for LARPD General Tier 3 was then increased to reflect the benefit improvement. When LARPD General Tier 4 was later established in 2013, that tier was combined with LARPD General Tier 3 for purpose of determining their UAAL rate only (as normal cost for LARPD General Tier 4 has continued to be developed on a pooled basis with other General employers offering General Tier 4 benefits), in order to continue with the open-group level percentage of payroll approach for paying off the UAAL amount for General Tier 3 (that is now closed to new entrants because of CalPEPRA).

*** There is a liability gain from the death of one of LARPD's Tier 3 retirees and the withdrawal of one of LARPD's Tier 3 actives.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT J

Section 415 Limitations

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

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

In particular, Section 415(b) of the IRC limits the maximum annual benefit payable at the Normal Retirement Age to a dollar limit of \$160,000 indexed for inflation. That limit is \$210,000 for 2016 and \$215,000 for 2017. Normal Retirement Age (NRA) for these purposes is age 62, except for "qualified public safety employees" whose NRA is 50. These are the limits in simplified terms. They must generally be adjusted based on each participant's circumstances, for such things as age at retirement, form of benefits chosen and after tax contributions.

Non-Tier 4 benefits in excess of the limits may be paid through a qualified governmental excess plan that meets the requirements of Section 415(m).

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

Non-Tier 4 contributions rates determined in this valuation have not been reduced for the Section 415 limitations. Actual limitations will result in gains as they occur.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

EXHIBIT K Definitions of Pension Terms

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

Assumptions or Actuarial Assumptions:

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

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future net, in this case, of investment and administrative expenses.
- (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 (Overfunded) 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 are many approaches to paying off the unfunded or overfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

SECTION 3: Supplemental Information for the Alameda County Employees' Retirement Association

**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 capital gains and losses to avoid significant swings in the value of assets from one year to the next.

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

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 1,221 beneficiaries in pay status)	9,242
2. Members inactive during year ended December 31, 2016 with vested rights	2,263
3. Members active during the year ended December 31, 2016	11,111

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

1. Normal cost		\$188,082
2. Present value of future benefits		9,667,061
3. Present value of future normal costs		1,429,346
4. Actuarial accrued liability*		8,237,715
Retired members and beneficiaries	\$5,001,173	
Inactive members with vested rights	209,398	
Active members	3,027,144	
5. Valuation value of assets** (\$6,965,580 at market value as reported by Retirement Association)		6,436,138
6. Unfunded actuarial accrued liability		\$1,801,577

* Excludes liabilities held for SRBR and other non-valuation reserves.

** Excludes Reserve for Interest Fluctuations (Contingency Reserve) if positive, Supplemental Retirees Benefit Reserve, and 401(h) Reserve.

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

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	\$188,082	18.74%
2. Expected employee contributions	<u>-88,296</u>	<u>-8.80%</u>
3. Employer normal cost: (1) + (2)	\$99,786	9.94%
4. Amortization of unfunded actuarial accrued liability	<u>\$151,165</u>	<u>15.06%</u>
5. Total recommended average employer contribution: (3) + (4)	\$250,951	25.00%
6. Projected compensation	\$1,003,651	

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

**EXHIBIT II
Actuarial Assumptions and Actuarial Cost Method**

Rationale for Assumptions: The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the December 1, 2010 through November 30, 2013 Actuarial Experience Study report dated September 9, 2014. In addition, the Board adopted a 7.60% investment return assumption for this valuation. Unless otherwise noted, all actuarial assumptions and methods shown below apply to all tiers. These assumptions were adopted by the Board.

Economic Assumptions:

Net Investment Return: 7.60%, net of administration and investment expenses

Employee Contribution Crediting Rate: 7.60%, compounded semi-annually.

Consumer Price Index: Increase of 3.25% per year, retiree COLA increases due to CPI subject to a 3% maximum change per year for General Tier 1, General Tier 3, and Safety Tier 1, and 2% maximum change per year for General Tier 2, General Tier 4, Safety Tier 2, Safety Tier 2C, Safety Tier 2D, and Safety Tier 4.

Salary Increases:

Annual Rate of Compensation Increase (%)					
Inflation: 3.25%; plus an additional 0.50% “across the board” salary increases (other than inflation); plus the following Merit and Promotional increases based on service.					
Service	General	Safety	Service	General	Safety
0-1	3.70%	6.70%	6-7	1.30%	1.40%
1-2	3.70	6.70	7-8	1.10	0.90
2-3	3.20	5.90	8-9	0.70	0.80
3-4	2.10	3.80	9-10	0.60	0.80
4-5	1.70	3.30	10-11	0.50	0.70
5-6	1.40	2.50	11+	0.40	0.70

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Terminal Pay Assumptions:

Additional pay elements are expected to be received during a member's final average earnings period. The percentages, added to the final year salary, used in this valuation are:

	<u>Service Retirement</u>	<u>Disability Retirement</u>
General Tier 1	8.0%	6.5%
General Tier 2	3.0%	1.4%
General Tier 3	8.0%	6.5%
General Tier 4	N/A	N/A
Safety Tier 1	8.5%	6.4%
Safety Tier 2	4.0%	2.1%
Safety Tier 2C	4.0%	2.1%
Safety Tier 2D	4.0%	2.1%
Safety Tier 4	N/A	N/A

Demographic Assumptions:

Post-Retirement Mortality Rates

Healthy:

For General members and all beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and females.

For Safety members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, with no setback for males and set back two years for females.

Disabled:

For General members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward four years for females.

For Safety members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward six years for males and set forward three years for females.

The above mortality tables contain a margin of about 10% for General and Safety members and beneficiaries combined, based on actual to expected deaths, as a provision to reflect future mortality improvement, based on a review of mortality experience as of the measurement date.

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Post-Retirement Mortality Rates (continued)

Employee Contribution Rates: For General members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and females, weighted 30% male and 70% female.

For Safety members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, with no setback for males and set back two years for females, weighted 75% male and 25% female.

Optional Forms of Benefit:

Service Retirement and All Beneficiaries

General members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and females, weighted 30% male and 70% female.

General beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and females, weighted 70% male and 30% female.

Safety members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, with no setback for males and set back two years for females, weighted 75% male and 25% female.

Safety beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and females, weighted 25% male and 75% female.

Disability Retirement

General members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward four years for females, weighted 30% male and 70% female.

Safety members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward six years for males and set forward three years for females, weighted 75% male and 25% female.

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Termination Rates Before Retirement:

Age	Rate (%)			
	Mortality			
	General		Safety	
	Male	Female	Male	Female
25	0.04	0.02	0.04	0.02
30	0.04	0.02	0.04	0.02
35	0.07	0.04	0.07	0.04
40	0.10	0.06	0.10	0.06
45	0.13	0.10	0.14	0.09
50	0.19	0.15	0.20	0.14
55	0.30	0.22	0.34	0.21
60	0.53	0.37	0.59	0.33
65	0.90	0.68	1.00	0.60

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

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Termination Rates Before Retirement (continued):

Age	Rate (%)	
	Disability	
	General⁽¹⁾	Safety⁽²⁾
20	0.00	0.00
25	0.01	0.03
30	0.03	0.23
35	0.08	0.41
40	0.13	0.48
45	0.21	0.65
50	0.31	1.35
55	0.38	1.90
60	0.43	2.15

⁽¹⁾ 60% of General disabilities are assumed to be service connected disabilities. The other 40% are assumed to be non-service connected disabilities.

⁽²⁾ 100% of Safety disabilities are assumed to be service connected disabilities.

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Termination Rates Before Retirement (continued):

Years of Service	Rate (%)	
	Termination (< 5 Years of Service)⁽¹⁾	
	General	Safety
0	10.00	5.00
1	9.00	4.00
2	7.00	3.00
3	6.00	2.00
4	5.00	1.00

Age	Termination (5+ Years of Service)⁽²⁾	
	General	Safety
20	5.00	2.00
25	5.00	2.00
30	5.00	1.70
35	4.40	1.20
40	3.40	1.00
45	2.70	1.00
50	2.50	1.00
55	2.50	1.00
60	2.50	0.40

⁽¹⁾ 60% of all terminated members will choose a refund of contributions and 40% will choose a deferred vested benefit.

⁽²⁾ 40% of all terminated members will choose a refund of contributions and 60% will choose a deferred vested benefit. No termination is assumed after a member is eligible for retirement.

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Retirement Rates:

Age	Rate (%)							
	General Tier 1	General Tier 2	General Tier 3	General Tier 4	Safety Tier 1 ⁽¹⁾	Safety Tier 2, 2D ⁽¹⁾	Safety Tier 2C ⁽¹⁾	Safety Tier 4
50	4.00	2.00	6.00	0.00	35.00	15.00	4.00	4.00
51	4.00	2.00	3.00	0.00	30.00	15.00	2.00	2.00
52	4.00	2.00	5.00	4.00	25.00	15.00	2.00	2.00
53	4.00	2.00	6.00	1.50	35.00	15.00	3.00	3.00
54	4.00	2.00	6.00	1.50	45.00	15.00	6.00	6.00
55	7.00	2.00	12.00	2.50	45.00	15.00	10.00	10.00
56	9.00	3.00	13.00	2.50	45.00	20.00	12.00	12.00
57	12.00	4.00	13.00	3.50	45.00	25.00	20.00	20.00
58	12.00	4.00	14.00	4.50	45.00	25.00	10.00	10.00
59	16.00	5.00	16.00	4.50	45.00	25.00	15.00	15.00
60	24.00	6.00	21.00	4.50	100.00	30.00	60.00	60.00
61	24.00	9.00	20.00	7.50	100.00	30.00	60.00	60.00
62	40.00	18.00	30.00	19.00	100.00	30.00	60.00	60.00
63	35.00	18.00	25.00	15.00	100.00	30.00	60.00	60.00
64	35.00	20.00	25.00	17.00	100.00	100.00	100.00	100.00
65	35.00	25.00	30.00	21.00	100.00	100.00	100.00	100.00
66	35.00	25.00	25.00	20.00	100.00	100.00	100.00	100.00
67	30.00	25.00	25.00	20.00	100.00	100.00	100.00	100.00
68	25.00	30.00	25.00	30.00	100.00	100.00	100.00	100.00
69	35.00	35.00	50.00	35.00	100.00	100.00	100.00	100.00
70	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

⁽¹⁾ Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Retirement Age and Benefit for Deferred Vested Members:

For deferred vested members, retirement age assumptions are as follows:

General Age:	60
Safety Age:	56

For future deferred vested members who terminate with less than five years of service and are not vested, we assume that they will retire at age 70 for both General and Safety if they decide to leave their contributions on deposit.

We assume that 30% of future General and 60% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocals, we assume 4.15% and 4.45% compensation increases per annum for General and Safety, respectively.

Future Benefit Accruals:

1.0 year of service per year of employment plus 0.005 year of additional service to anticipate conversion of unused sick leave for each year of employment.

Unknown Data for Members:

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

Inclusion of Deferred Vested Members:

All deferred vested members are included in the valuation.

Percent Married:

70% of male members; 50% of female members.

Age of Spouse:

Female (or male) spouses are 3 years younger (or older) than their spouses.

Actuarial Value of Assets:

The Actuarial Value of Assets is determined by phasing in any difference between actual and expected market return over 10 six-month interest crediting periods.

Valuation Value of Assets:

The Actuarial Value of Assets reduced by the value of the non-valuation reserves.

Actuarial Cost Method:

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

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Actuarial Cost Method: (continued) Prior to January 1, 2012, the total UAAL was amortized on a 30-year decreasing period, with 21 years remaining as of December 31, 2011 (and 16 years remaining as of December 31, 2016). On or after January 1, 2012, any new UAAL resulting from plan amendments are amortized over separate decreasing 15-year periods; early retirement incentive programs (ERIPs) are amortized over separate decreasing 5-year periods; assumption and method changes are amortized over separate decreasing 20-year periods; and experience gains/losses are also amortized over separate decreasing 20-year periods.

Changes in Actuarial Assumptions: None

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

EXHIBIT III
Summary of Plan Provisions

This exhibit summarizes the major provisions of ACERA 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 ACERA usually begins with the second pay period following appointment to a full time County or member District position ⁽¹⁾ . ACERA members who change from full time to part time will continue to participate at ACERA.
<i>General and Safety Tier 1</i>	All General and Safety members hired on or before June 30, 1983 ⁽²⁾ .
<i>General and Safety Tier 2</i>	All General and Safety members hired after June 30, 1983 ⁽³⁾ , and not in any of the other Tiers listed below.
<i>General Tier 3</i>	Only General LARPD members hired before October 1, 2008 who elected the 2.5% at 55 formula and all General LARPD members hired after that date.
<i>General and Safety Tier 4</i>	All General and Safety members with membership dates on or after January 1, 2013.
<i>Safety Tier 2C</i>	All Safety members in the Sheriff's Department (excluding Probation Officers) hired on or after October 17, 2010 who elected the 2% at 50 formula.
<i>Safety Tier 2D</i>	All Safety members in the Sheriff's Department (excluding Probation Officers) hired on or after October 17, 2010 who elected the 3% at 55 formula.

⁽¹⁾ For Housing Authority and LARPD, membership with ACERA begins on the first day of hire.

⁽²⁾ For Housing Authority General members, the hire date is on or before September 30, 2011 (instead of June 30, 1983). For LARPD General members, the hire date is on or before September 30, 2008 (instead of June 30, 1983).

⁽³⁾ For Housing Authority General members, the hire date is after September 30, 2011 (instead of June 30, 1983).

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Final Compensation for Benefit Determination:

General Tier 1, General Tier 3 and Safety Tier 1

Highest consecutive twelve months of compensation earnable (§31462.1) (FAS1).

General Tier 2, General Tier 4, Safety Tier 2, Safety Tier 2C, Safety Tier 2D, and Safety Tier 4

For non-Tier 4 members, highest consecutive thirty-six months of compensation earnable (§31462), and for Tier 4 members, highest consecutive thirty-six months of pensionable compensation (§7522.10(c), §7522.32 and §7522.34).

Service:

Years of service (Yrs).

Service Retirement Eligibility:

General

Non-Tier 4

Age 50 with 5 years of service and a total of 10 years of qualifying membership, or age 70 regardless of service, or after 30 years, regardless of age (§31672).

Tier 4

Age 52 with 5 years of service (§7522.20(a)) or age 70 regardless of service (§31672.3).

Safety

Non-Tier 4

Age 50 with 5 years of service and a total of 10 years of qualifying membership, or age 70 regardless of service, or after 20 years, regardless of age (§31663.25).

Tier 4

Age 50 with 5 years of service (§7522.25(d)) or age 70 regardless of service (§31672.3).

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Benefit Formula:

	Retirement Age	Benefit Formula
<i>General Tier 1 (§31676.12)</i>	50	$(1.34\% \times \text{FAS1} - 1/3 \times 1.34\% \times \$350 \times 12) \times \text{Yrs}$
	55	$(1.77\% \times \text{FAS1} - 1/3 \times 1.77\% \times \$350 \times 12) \times \text{Yrs}$
	60	$(2.34\% \times \text{FAS1} - 1/3 \times 2.34\% \times \$350 \times 12) \times \text{Yrs}$
	62 or later	$(2.62\% \times \text{FAS1} - 1/3 \times 2.62\% \times \$350 \times 12) \times \text{Yrs}$
<i>General Tier 2 (§31676.1)</i>	Retirement Age	Benefit Formula
	50	$(1.18\% \times \text{FAS3} - 1/3 \times 1.18\% \times \$350 \times 12) \times \text{Yrs}$
	55	$(1.49\% \times \text{FAS3} - 1/3 \times 1.49\% \times \$350 \times 12) \times \text{Yrs}$
	60	$(1.92\% \times \text{FAS3} - 1/3 \times 1.92\% \times \$350 \times 12) \times \text{Yrs}$
	62	$(2.09\% \times \text{FAS3} - 1/3 \times 2.09\% \times \$350 \times 12) \times \text{Yrs}$
<i>General Tier 3 (§31676.18)</i>	65	$(2.43\% \times \text{FAS3} - 1/3 \times 2.43\% \times \$350 \times 12) \times \text{Yrs}$
	Retirement Age	Benefit Formula
<i>General Tier 3 (§31676.18)</i>	50	$2.00\% \times \text{FAS1} \times \text{Yrs}$
	55 or later	$2.50\% \times \text{FAS1} \times \text{Yrs}$
<i>General Tier 4 (§7522.20(a))</i>	Retirement Age	Benefit Formula
	52	$1.00\% \times \text{FAS3} \times \text{Yrs}$
	55	$1.30\% \times \text{FAS3} \times \text{Yrs}$
	60	$1.80\% \times \text{FAS3} \times \text{Yrs}$
	62	$2.00\% \times \text{FAS3} \times \text{Yrs}$
	65	$2.30\% \times \text{FAS3} \times \text{Yrs}$
67 or later	$2.50\% \times \text{FAS3} \times \text{Yrs}$	

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Benefit Formula: (continued)

	Retirement Age	Benefit Formula
<i>Safety Tier 1 (Non-Integrated)</i> (§31664.1)	50	3.00% x FAS1 x Yrs
	55 or later	3.00% x FAS1 x Yrs
<i>Safety Tier 2 (Non-Integrated)</i> (§31664.1)	50	3.00% x FAS3 x Yrs
	55 or later	3.00% x FAS3 x Yrs
<i>Safety Tier 2C (Non-Integrated)</i> (§31664)	50	2.00% x FAS3 x Yrs
	55 or later	2.62% x FAS3 x Yrs
<i>Safety Tier 2D (Non-Integrated)</i> (§31664.2)	50	2.29% x FAS3 x Yrs
	55 or later	3.00% x FAS3 x Yrs
<i>Safety Tier 4 (Non-Integrated)</i> (§7522.25(d))	50	2.00% x FAS3 x Yrs
	55	2.50% x FAS3 x Yrs
	57 or later	2.70% x FAS3 x Yrs

Maximum Benefit:

<i>Non-Tier 4</i>	100% of Highest Average Compensation (§31676.1, §31676.12, §31676.18, §31664, §31664.1, and §31664.2).
<i>Tier 4</i>	None

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Ordinary Disability:

General Tier 1, Tier 2, Tier 3, and Tier 4

<i>Eligibility</i>	Five years of service (§31720).
<i>Benefit Formula</i>	1.8% per year of service for General Tier 1 and Tier 3 and 1.5% per year of service for General Tier 2 and Tier 4. If the benefit does not exceed one-third of Final Compensation, the service is projected to 62 for General Tier 1 and Tier 3, and to age 65 for General Tier 2 and Tier 4, but the total benefit cannot be more than one-third of Final Compensation (§31727.1 and §31727).

Safety Tier 1, Tier 2, Tier 2C, Tier 2D, and Tier 4

<i>Eligibility</i>	Five years of service (§31720).
<i>Benefit Formula</i>	1.8% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 55, but the total benefit cannot be more than one-third of Final Compensation (§31727.2).

Line-of-Duty Disability:

All Members

<i>Eligibility</i>	No age or service requirements (§31720).
<i>Benefit Formula</i>	50% of the Final Compensation or 100% of Service Retirement benefit, if greater (§31727.4).

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Pre-Retirement Death:

All Members

Eligibility

None.

Basic lump sum 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.

Basic benefit

60% of the greater of Service or Ordinary Disability Retirement benefit payable to surviving eligible spouse (§31765.1, §31781.1), in lieu of the basic lump sum benefit 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).

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Death After Retirement:

All Members

Service or

Ordinary Disability Retirement

60% of member's unmodified allowance continued to eligible spouse (§31760.1) and lump sum death burial benefit⁽¹⁾ 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).

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 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:

*General Tier 1, General Tier 3
and Safety Tier 1*

Future changes based on Consumer Price Index to a maximum of 3% per year; excess "banked" (§31870.1).

*General Tier 2, General Tier 4
Safety Tier 2, Safety Tier 2C,
Safety Tier 2D, and Safety Tier 4*

Future changes based on Consumer Price Index to a maximum of 2% per year; excess "banked" (§31870).

⁽¹⁾ Based on action taken by the Board in February 2014, we are continuing to exclude the death burial benefit from the pension valuation.

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

County Contributions:	Prior to January 1, 2012, the total UAAL was amortized on a 30-year decreasing period, with 21 years remaining as of December 31, 2011. On or after January 1, 2012, plan amendments are amortized over separate decreasing 15-year periods; early retirement incentive programs (ERIPs) are amortized over separate decreasing 5-year periods; assumption and method changes are amortized over separate decreasing 20-year periods; and experience gains/losses are also amortized over separate decreasing 20-year periods.
Supplemental Benefit:	Non-vested supplemental COLA and medical benefits are also paid from the Supplemental Retirees Benefit Reserve to eligible retirees and survivors. These benefits have been excluded from this valuation.
Member Contributions:	Please refer to Appendix A for specific rates.
<i>General Tier 1</i>	
<i>Basic</i>	Provide for an average annuity at age 60 equal to 1/100 of FAS1 (§31621.2).
<i>Cost-of-Living</i>	Provide for one-half of future Cost-of-Living costs.
<i>General Tier 2</i>	
<i>Basic</i>	Provide for an average annuity at age 60 equal to 1/120 of FAS3 (§31621).
<i>Cost-of-Living</i>	Provide for one-half of future Cost-of-Living costs.
<i>General Tier 3</i>	
<i>Basic</i>	Provide for an average annuity at age 55 equal to 1/100 of FAS1 (§31621.8).
<i>Cost-of-Living</i>	Provide for one-half of future Cost-of-Living costs.
<i>General Tier 4</i>	50% of the total Normal Cost rate.

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Member Contributions: (continued)

Safety Non-Tier 4

Basic

Provide for an average annuity at age 50 equal to 1/100 of FAS1 (FAS3 for Tier 2, Tier 2C, and Tier 2D) (\$31639.25). As instructed by ACERA, we have also included a 3% cost sharing contribution that we understand will be paid by Safety Tier 1 and Tier 2 members. For Safety Tier 2C members, there are no cost-sharing contributions. For Safety Tier 2D members, the cost-sharing contribution rate is 5% of salary for the first 5 years of employment and 3% of salary for each subsequent year of employment (even after the member attains 30 years of service).

Cost-of-Living

Provide for one-half of future Cost-of-Living costs.

Safety Tier 4

50% of the total Normal Cost rate.

Other Information:

Non-Tier 4 Safety members with 30 or more years of service are exempt from paying member contributions (however, Tier 2D Safety members are required to continue paying the 3% cost-sharing contribution after 30 years of service). This exemption also applies for General 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 Association should find the plan summary not in accordance with the actual provisions, the Association should alert the actuary so they can both be sure the proper provisions are valued.*

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

**Appendix A
Member Contribution Rates**

Comparison of Total Member Rate⁽¹⁾ from December 31, 2016 (New) and December 31, 2015 (Current) Valuations

General Tier 1				General Tier 2			
Entry Age	Current	New	Change	Entry Age	Current	New	Change
25	8.77%	8.80%	0.03%	25	5.98%	6.01%	0.03%
35	10.64%	10.67%	0.03%	35	7.27%	7.29%	0.02%
45	12.88%	12.92%	0.04%	45	8.78%	8.82%	0.04%
General Tier 3				General Tier 4			
Entry Age	Current	New	Change	Entry Age ⁽²⁾	Current	New	Change
25	10.27%	10.30%	0.03%	Any	8.06%	8.10%	0.04%
35	12.42%	12.45%	0.03%				
45	15.07%	15.10%	0.03%				
Safety Tier 1				Safety Tier 2			
Entry Age	Current	New	Change	Entry Age	Current	New	Change
25	16.82%	16.86%	0.04%	25	14.13%	14.19%	0.06%
30	18.09%	18.13%	0.04%	30	15.15%	15.21%	0.06%
35	19.51%	19.55%	0.04%	35	16.29%	16.36%	0.07%
Safety Tier 2C				Safety Tier 2D (with less than 5 years of vesting service)			
Entry Age	Current	New	Change	Entry Age	Current	New	Change
25	10.56%	10.66%	0.10%	25	15.89%	16.00%	0.11%
30	11.53%	11.64%	0.11%	30	16.89%	17.01%	0.12%
35	12.61%	12.73%	0.12%	35	18.00%	18.13%	0.13%
Safety Tier 2D (with 5 or more years of vesting service)				Safety Tier 4			
Entry Age	Current	New	Change	Entry Age ⁽²⁾	Current	New	Change
25	13.89%	14.00%	0.11%	Any	14.65%	14.20%	-0.45%
30	14.89%	15.01%	0.12%				
35	16.00%	16.13%	0.13%				

⁽¹⁾ For the non-CalPEPRA tiers, contributions for the first \$161 of biweekly payroll are based on 2/3 of the above rates for integrated members.

⁽²⁾ Tier 4 member rates are independent of entry age.

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Breakdown of member rate between basic and COLA calculated in the December 31, 2016 and December 31, 2015 valuations:

	December 31, 2016 Actuarial Valuation								December 31, 2015 Actuarial Valuation ⁽¹⁾							
	BASIC		COLA		COST SHARING CONTRIBUTIONS		TOTAL		BASIC		COLA		COST SHARING CONTRIBUTIONS		TOTAL	
	Rate	Estimated Annual Amount*	Rate	Estimated Annual Amount*	Rate	Estimated Annual Amount*	Rate	Estimated Annual Amount*	Rate	Estimated Annual Amount*	Rate	Estimated Annual Amount*	Rate	Estimated Annual Amount*	Rate	Estimated Annual Amount*
General Tier 1 Members	6.71%	\$1,487	2.48%	\$549			9.19%	\$2,036	6.71%	\$1,487	2.45%	\$543			9.16%	\$2,030
General Tier 2 Members	6.00%	37,824	1.36%	8,574			7.36%	46,398	6.00%	37,824	1.33%	8,384			7.33%	46,208
General Tier 3 Members	9.58%	282	3.57%	105			13.15%	387	9.58%	282	3.54%	104			13.12%	386
General Tier 4 Members	6.71%	12,323	1.39%	2,553			8.10%	14,876	6.73%	12,360	1.33%	2,442			8.06%	14,802
Safety Tier 1 Members	5.95%	69	3.27%	38	3.00%	\$35	12.22%	142	5.95%	69	3.24%	37	3.00%	\$35	12.19%	141
Safety Tier 2 Members	8.83%	10,997	3.21%	3,998	3.00%	3,736	15.04%	18,731	8.83%	10,997	3.15%	3,924	3.00%	3,736	14.98%	18,657
Safety Tier 2C Members	9.65%	292	2.88%	87	0.00%	0	12.53%	379	9.65%	292	2.77%	84	0.00%	0	12.42%	376
Safety Tier 2D Members	9.10%	1,152	3.10%	392	4.12%	522	16.32%	2,066	9.10%	1,152	2.97%	375	4.12%	522	16.19%	2,049
Safety Tier 4 Members	11.43%	2,641	2.77%	640	0.00%	0	14.20%	3,281	11.87%	2,743	2.78%	642	0.00%	0	14.65%	3,385
All Member Categories Combined	6.68%	\$67,067	1.69%	\$16,936	0.43%	\$4,293	8.80%	\$88,296	6.70%	\$67,206	1.64%	\$16,535	0.43%	\$4,293	8.77%	\$88,034

⁽¹⁾ These rates have been re-calculated by applying the individual entry age based member rates determined in December 31, 2015 valuation to the Association membership as of December 31, 2016.

⁽²⁾ Determined based on proportion of members contributing 5.00% (with less than 5 years of vesting service) and 3.00% (with 5 or more years of vesting service).

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

* Amounts are in thousands and are based on December 31, 2016 annual payroll (also in thousands):

	<u>County Only</u>	<u>AHS, Court & First 5</u>	<u>Other Districts</u>	<u>Total</u>
General Tier 1	\$13,246	\$4,324	\$4,589	\$22,159
General Tier 2	414,146	215,920	335	630,401
General Tier 3			2,945	2,945
General Tier 4	112,380	69,874	1,397	183,651
Safety Tier 1	1,159			1,159
Safety Tier 2	124,544			124,544
Safety Tier 2C	3,026			3,026
Safety Tier 2D	12,658			12,658
Safety Tier 4	23,108			23,108
Total	<u>\$704,267</u>	<u>\$290,118</u>	<u>\$9,266</u>	<u>\$1,003,651</u>

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

General Tier 1 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll)

<u>Entry Age</u>	<u>Basic Only</u>		<u>COLA Only</u>		<u>Total</u>	
	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>
15	3.58%	5.37%	1.33%	1.99%	4.91%	7.36%
16	3.58%	5.37%	1.33%	1.99%	4.91%	7.36%
17	3.65%	5.48%	1.35%	2.03%	5.00%	7.51%
18	3.73%	5.59%	1.38%	2.07%	5.11%	7.66%
19	3.80%	5.70%	1.41%	2.11%	5.21%	7.81%
20	3.88%	5.82%	1.43%	2.15%	5.31%	7.97%
21	3.96%	5.93%	1.47%	2.20%	5.43%	8.13%
22	4.04%	6.05%	1.49%	2.24%	5.53%	8.29%
23	4.12%	6.17%	1.52%	2.28%	5.64%	8.45%
24	4.20%	6.30%	1.55%	2.33%	5.75%	8.63%
25	4.28%	6.42%	1.59%	2.38%	5.87%	8.80%
26	4.37%	6.55%	1.61%	2.42%	5.98%	8.97%
27	4.45%	6.68%	1.65%	2.47%	6.10%	9.15%
28	4.54%	6.81%	1.68%	2.52%	6.22%	9.33%
29	4.63%	6.94%	1.71%	2.57%	6.34%	9.51%
30	4.72%	7.08%	1.75%	2.62%	6.47%	9.70%
31	4.81%	7.22%	1.78%	2.67%	6.59%	9.89%
32	4.90%	7.36%	1.81%	2.72%	6.71%	10.08%
33	5.00%	7.50%	1.85%	2.77%	6.85%	10.27%
34	5.10%	7.64%	1.89%	2.83%	6.99%	10.47%
35	5.19%	7.79%	1.92%	2.88%	7.11%	10.67%
36	5.29%	7.94%	1.96%	2.94%	7.25%	10.88%
37	5.40%	8.09%	1.99%	2.99%	7.39%	11.08%
38	5.50%	8.25%	2.03%	3.05%	7.53%	11.30%
39	5.60%	8.41%	2.07%	3.11%	7.67%	11.52%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

**Appendix A
Member Contribution Rates (Continued)**

General Tier 1 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll) - continued

<u>Entry Age</u>	<u>Basic Only</u>		<u>COLA Only</u>		<u>Total</u>	
	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>
40	5.71%	8.57%	2.11%	3.17%	7.82%	11.74%
41	5.82%	8.73%	2.15%	3.23%	7.97%	11.96%
42	5.93%	8.90%	2.19%	3.29%	8.12%	12.19%
43	6.05%	9.07%	2.24%	3.36%	8.29%	12.43%
44	6.16%	9.25%	2.28%	3.42%	8.44%	12.67%
45	6.28%	9.43%	2.33%	3.49%	8.61%	12.92%
46	6.41%	9.61%	2.37%	3.56%	8.78%	13.17%
47	6.54%	9.80%	2.42%	3.63%	8.96%	13.43%
48	6.67%	10.00%	2.47%	3.70%	9.14%	13.70%
49	6.80%	10.20%	2.51%	3.77%	9.31%	13.97%
50	6.93%	10.39%	2.56%	3.84%	9.49%	14.23%
51	7.05%	10.58%	2.61%	3.92%	9.66%	14.50%
52	7.16%	10.75%	2.65%	3.98%	9.81%	14.73%
53	7.26%	10.90%	2.69%	4.03%	9.95%	14.93%
54	7.36%	11.04%	2.73%	4.09%	10.09%	15.13%
55	7.44%	11.17%	2.75%	4.13%	10.19%	15.30%
56	7.50%	11.26%	2.77%	4.16%	10.27%	15.42%
57	7.49%	11.23%	2.77%	4.15%	10.26%	15.38%
58	7.40%	11.09%	2.73%	4.10%	10.13%	15.19%
59 & Over	7.13%	10.69%	2.64%	3.96%	9.77%	14.65%

* Use these rates for Non-Integrated Members

Interest: 7.60% per annum
 COLA: 3.00%
 Mortality: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and females, weighted 30% male and 70% female.
 Salary Increase: Inflation (3.25%) + Across-the-Board Increase (0.50%) + Merit (See Exhibit II)
 COLA Loading Factor: 37.00%
 Terminal Pay: 8.0%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll)

<u>Entry Age</u>	<u>Basic Only</u>		<u>COLA Only</u>		<u>Total</u>	
	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>
15	2.73%	4.10%	0.62%	0.93%	3.35%	5.03%
16	2.73%	4.10%	0.62%	0.93%	3.35%	5.03%
17	2.79%	4.18%	0.63%	0.95%	3.42%	5.13%
18	2.84%	4.27%	0.64%	0.96%	3.48%	5.23%
19	2.90%	4.35%	0.65%	0.98%	3.55%	5.33%
20	2.96%	4.44%	0.67%	1.00%	3.63%	5.44%
21	3.02%	4.53%	0.68%	1.02%	3.70%	5.55%
22	3.08%	4.62%	0.69%	1.04%	3.77%	5.66%
23	3.14%	4.71%	0.71%	1.07%	3.85%	5.78%
24	3.20%	4.81%	0.73%	1.09%	3.93%	5.90%
25	3.27%	4.90%	0.74%	1.11%	4.01%	6.01%
26	3.33%	5.00%	0.75%	1.13%	4.08%	6.13%
27	3.40%	5.10%	0.77%	1.15%	4.17%	6.25%
28	3.47%	5.20%	0.78%	1.17%	4.25%	6.37%
29	3.53%	5.30%	0.80%	1.20%	4.33%	6.50%
30	3.60%	5.40%	0.81%	1.22%	4.41%	6.62%
31	3.67%	5.51%	0.83%	1.24%	4.50%	6.75%
32	3.74%	5.61%	0.85%	1.27%	4.59%	6.88%
33	3.82%	5.72%	0.86%	1.29%	4.68%	7.01%
34	3.89%	5.83%	0.88%	1.32%	4.77%	7.15%
35	3.96%	5.95%	0.89%	1.34%	4.85%	7.29%
36	4.04%	6.06%	0.91%	1.37%	4.95%	7.43%
37	4.12%	6.18%	0.93%	1.40%	5.05%	7.58%
38	4.20%	6.30%	0.95%	1.42%	5.15%	7.72%
39	4.28%	6.42%	0.97%	1.45%	5.25%	7.87%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

General Tier 2 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll) - continued

<u>Entry Age</u>	<u>Basic Only</u>		<u>COLA Only</u>		<u>Total</u>	
	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>
40	4.36%	6.54%	0.99%	1.48%	5.35%	8.02%
41	4.44%	6.66%	1.01%	1.51%	5.45%	8.17%
42	4.53%	6.79%	1.02%	1.53%	5.55%	8.32%
43	4.61%	6.92%	1.04%	1.56%	5.65%	8.48%
44	4.70%	7.06%	1.06%	1.59%	5.76%	8.65%
45	4.80%	7.19%	1.09%	1.63%	5.89%	8.82%
46	4.89%	7.33%	1.11%	1.66%	6.00%	8.99%
47	4.98%	7.48%	1.13%	1.69%	6.11%	9.17%
48	5.08%	7.62%	1.15%	1.72%	6.23%	9.34%
49	5.17%	7.76%	1.17%	1.75%	6.34%	9.51%
50	5.26%	7.89%	1.19%	1.78%	6.45%	9.67%
51	5.34%	8.01%	1.21%	1.81%	6.55%	9.82%
52	5.41%	8.12%	1.23%	1.84%	6.64%	9.96%
53	5.48%	8.22%	1.24%	1.86%	6.72%	10.08%
54	5.54%	8.30%	1.25%	1.88%	6.79%	10.18%
55	5.57%	8.35%	1.26%	1.89%	6.83%	10.24%
56	5.56%	8.34%	1.26%	1.89%	6.82%	10.23%
57	5.53%	8.29%	1.25%	1.87%	6.78%	10.16%
58	5.73%	8.59%	1.29%	1.94%	7.02%	10.53%
59 & Over	5.94%	8.91%	1.34%	2.01%	7.28%	10.92%

* Use these rates for Non-Integrated Members

Interest: 7.60% per annum
 COLA: 2.00%
 Mortality: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and females, weighted 30% male and 70% female.
 Salary Increase: Inflation (3.25%) + Across-the-Board Increase (0.50%) + Merit (See Exhibit II)
 COLA Loading Factor: 22.60%
 Terminal Pay: 3.0%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

General Tier 3 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll)

<u>Entry Age</u>	<u>Basic Only</u>		<u>COLA Only</u>		<u>Total</u>	
	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>
15	4.19%	6.29%	1.56%	2.34%	5.75%	8.63%
16	4.19%	6.29%	1.56%	2.34%	5.75%	8.63%
17	4.27%	6.41%	1.59%	2.39%	5.86%	8.80%
18	4.36%	6.54%	1.63%	2.44%	5.99%	8.98%
19	4.45%	6.67%	1.66%	2.49%	6.11%	9.16%
20	4.53%	6.80%	1.69%	2.54%	6.22%	9.34%
21	4.62%	6.94%	1.73%	2.59%	6.35%	9.53%
22	4.72%	7.07%	1.76%	2.64%	6.48%	9.71%
23	4.81%	7.21%	1.79%	2.69%	6.60%	9.90%
24	4.90%	7.35%	1.83%	2.74%	6.73%	10.09%
25	5.00%	7.50%	1.87%	2.80%	6.87%	10.30%
26	5.10%	7.64%	1.90%	2.85%	7.00%	10.49%
27	5.19%	7.79%	1.94%	2.91%	7.13%	10.70%
28	5.29%	7.94%	1.97%	2.96%	7.26%	10.90%
29	5.40%	8.10%	2.01%	3.02%	7.41%	11.12%
30	5.50%	8.25%	2.05%	3.08%	7.55%	11.33%
31	5.61%	8.41%	2.09%	3.14%	7.70%	11.55%
32	5.71%	8.57%	2.13%	3.20%	7.84%	11.77%
33	5.82%	8.74%	2.17%	3.26%	7.99%	12.00%
34	5.94%	8.90%	2.21%	3.32%	8.15%	12.22%
35	6.05%	9.07%	2.25%	3.38%	8.30%	12.45%
36	6.17%	9.25%	2.30%	3.45%	8.47%	12.70%
37	6.28%	9.43%	2.35%	3.52%	8.63%	12.95%
38	6.41%	9.61%	2.39%	3.58%	8.80%	13.19%
39	6.53%	9.79%	2.43%	3.65%	8.96%	13.44%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

General Tier 3 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll) – continued

<u>Entry Age</u>	<u>Basic Only</u>		<u>COLA Only</u>		<u>Total</u>	
	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>
40	6.66%	9.98%	2.48%	3.72%	9.14%	13.70%
41	6.79%	10.18%	2.53%	3.80%	9.32%	13.98%
42	6.92%	10.38%	2.58%	3.87%	9.50%	14.25%
43	7.06%	10.59%	2.63%	3.95%	9.69%	14.54%
44	7.20%	10.80%	2.69%	4.03%	9.89%	14.83%
45	7.34%	11.00%	2.73%	4.10%	10.07%	15.10%
46	7.47%	11.21%	2.79%	4.18%	10.26%	15.39%
47	7.59%	11.38%	2.83%	4.24%	10.42%	15.62%
48	7.69%	11.54%	2.87%	4.30%	10.56%	15.84%
49	7.80%	11.70%	2.91%	4.36%	10.71%	16.06%
50	7.88%	11.83%	2.94%	4.41%	10.82%	16.24%
51	7.95%	11.92%	2.97%	4.45%	10.92%	16.37%
52	7.93%	11.89%	2.96%	4.44%	10.89%	16.33%
53	7.83%	11.75%	2.92%	4.38%	10.75%	16.13%
54 & over	7.55%	11.32%	2.81%	4.22%	10.36%	15.54%

* Use these rates for Non-Integrated Members

Interest:	7.60% per annum
COLA:	3.00%
Mortality:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and females, weighted 30% male and 70% female.
Salary Increase:	Inflation (3.25%) + Across-the-Board Increase (0.50%) + Merit (See Exhibit II)
COLA Loading Factor:	37.30%
Terminal Pay:	8.0%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

**Appendix A
Member Contribution Rates (Continued)**

General Tier 4 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of eligible payroll)*

	<u>Basic Only</u> <u>Eligible Pay</u>	<u>COLA Only</u> <u>Eligible Pay</u>	<u>Total</u> <u>Eligible Pay</u>
All General Tier 4 Members	6.71%	1.39%	8.10%

Interest:	7.60% per annum
COLA:	2.00%
Mortality:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and females, weighted 30% male and 70% female.
Salary Increase:	Inflation (3.25%) + Across-the-Board Increase (0.50%) + Merit (See Exhibit II)
COLA Loading Factor:	20.72%
Terminal Pay:	0.0%

* It is our understanding that in the determination of pension benefits under the CalPEPRA formulas, the compensation that can be taken into account for 2017 is equal to \$118,775. (For an employer that is not enrolled in Social Security, the maximum amount is 120% of \$118,775, or \$142,530). (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2017. (reference: Section 7522.10(d))

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

Safety Tier 1 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll)

Entry Age	Basic Only		Cost Sharing Contributions		COLA Only		Total	
	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*
15	5.09%	7.64%	3.00%	3.00%	2.79%	4.19%	10.88%	14.83%
16	5.09%	7.64%	3.00%	3.00%	2.79%	4.19%	10.88%	14.83%
17	5.18%	7.77%	3.00%	3.00%	2.84%	4.26%	11.02%	15.03%
18	5.27%	7.91%	3.00%	3.00%	2.89%	4.34%	11.16%	15.25%
19	5.37%	8.05%	3.00%	3.00%	2.95%	4.42%	11.32%	15.47%
20	5.46%	8.20%	3.00%	3.00%	2.99%	4.49%	11.45%	15.69%
21	5.56%	8.34%	3.00%	3.00%	3.05%	4.57%	11.61%	15.91%
22	5.66%	8.49%	3.00%	3.00%	3.11%	4.66%	11.77%	16.15%
23	5.76%	8.64%	3.00%	3.00%	3.16%	4.74%	11.92%	16.38%
24	5.86%	8.79%	3.00%	3.00%	3.21%	4.82%	12.07%	16.61%
25	5.97%	8.95%	3.00%	3.00%	3.27%	4.91%	12.24%	16.86%
26	6.07%	9.11%	3.00%	3.00%	3.33%	4.99%	12.40%	17.10%
27	6.18%	9.27%	3.00%	3.00%	3.39%	5.08%	12.57%	17.35%
28	6.29%	9.43%	3.00%	3.00%	3.45%	5.17%	12.74%	17.60%
29	6.40%	9.60%	3.00%	3.00%	3.51%	5.27%	12.91%	17.87%
30	6.51%	9.77%	3.00%	3.00%	3.57%	5.36%	13.08%	18.13%
31	6.63%	9.95%	3.00%	3.00%	3.63%	5.45%	13.26%	18.40%
32	6.75%	10.13%	3.00%	3.00%	3.70%	5.55%	13.45%	18.68%
33	6.87%	10.31%	3.00%	3.00%	3.77%	5.65%	13.64%	18.96%
34	7.00%	10.50%	3.00%	3.00%	3.84%	5.76%	13.84%	19.26%
35	7.13%	10.69%	3.00%	3.00%	3.91%	5.86%	14.04%	19.55%
36	7.26%	10.89%	3.00%	3.00%	3.98%	5.97%	14.24%	19.86%
37	7.40%	11.10%	3.00%	3.00%	4.06%	6.09%	14.46%	20.19%
38	7.55%	11.32%	3.00%	3.00%	4.14%	6.21%	14.69%	20.53%
39	7.70%	11.55%	3.00%	3.00%	4.23%	6.34%	14.93%	20.89%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

**Appendix A
Member Contribution Rates (Continued)**

Safety Tier 1 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll) - continued

Entry Age	Basic Only		Cost Sharing Contributions		COLA Only		Total	
	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*
40	7.86%	11.79%	3.00%	3.00%	4.31%	6.46%	15.17%	21.25%
41	8.02%	12.04%	3.00%	3.00%	4.40%	6.60%	15.42%	21.64%
42	8.20%	12.30%	3.00%	3.00%	4.50%	6.75%	15.70%	22.05%
43	8.36%	12.54%	3.00%	3.00%	4.58%	6.87%	15.94%	22.41%
44	8.45%	12.68%	3.00%	3.00%	4.63%	6.95%	16.08%	22.63%
45	8.50%	12.75%	3.00%	3.00%	4.66%	6.99%	16.16%	22.74%
46	8.52%	12.78%	3.00%	3.00%	4.67%	7.01%	16.19%	22.79%
47	8.40%	12.60%	3.00%	3.00%	4.61%	6.91%	16.01%	22.51%
48	8.18%	12.27%	3.00%	3.00%	4.49%	6.73%	15.67%	22.00%
49 & Over	7.76%	11.64%	3.00%	3.00%	4.26%	6.39%	15.02%	21.03%

* Use these rates for Non-Integrated Members

Interest:	7.60% per annum
COLA:	3.00%
Mortality:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, with no setback for males and set back two years for females, weighted 75% male and 25% female.
Salary Increase:	Inflation (3.25%) + Across-the-Board Increase (0.50%) + Merit (See Exhibit II)
COLA Loading Factor:	54.84%
Terminal Pay:	8.5%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

Safety Tier 2 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll)

Entry Age	Basic Only		Cost Sharing Contributions		COLA Only		Total	
	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*
15	4.67%	7.01%	3.00%	3.00%	1.69%	2.54%	9.36%	12.55%
16	4.67%	7.01%	3.00%	3.00%	1.69%	2.54%	9.36%	12.55%
17	4.75%	7.13%	3.00%	3.00%	1.73%	2.59%	9.48%	12.72%
18	4.84%	7.26%	3.00%	3.00%	1.76%	2.64%	9.60%	12.90%
19	4.93%	7.39%	3.00%	3.00%	1.79%	2.68%	9.72%	13.07%
20	5.01%	7.52%	3.00%	3.00%	1.82%	2.73%	9.83%	13.25%
21	5.10%	7.65%	3.00%	3.00%	1.85%	2.78%	9.95%	13.43%
22	5.19%	7.79%	3.00%	3.00%	1.89%	2.83%	10.08%	13.62%
23	5.28%	7.93%	3.00%	3.00%	1.92%	2.88%	10.20%	13.81%
24	5.38%	8.07%	3.00%	3.00%	1.95%	2.93%	10.33%	14.00%
25	5.47%	8.21%	3.00%	3.00%	1.99%	2.98%	10.46%	14.19%
26	5.57%	8.35%	3.00%	3.00%	2.02%	3.03%	10.59%	14.38%
27	5.67%	8.50%	3.00%	3.00%	2.06%	3.09%	10.73%	14.59%
28	5.77%	8.65%	3.00%	3.00%	2.09%	3.14%	10.86%	14.79%
29	5.87%	8.80%	3.00%	3.00%	2.13%	3.20%	11.00%	15.00%
30	5.97%	8.96%	3.00%	3.00%	2.17%	3.25%	11.14%	15.21%
31	6.08%	9.12%	3.00%	3.00%	2.21%	3.31%	11.29%	15.43%
32	6.19%	9.28%	3.00%	3.00%	2.25%	3.37%	11.44%	15.65%
33	6.30%	9.45%	3.00%	3.00%	2.29%	3.43%	11.59%	15.88%
34	6.41%	9.62%	3.00%	3.00%	2.33%	3.49%	11.74%	16.11%
35	6.53%	9.80%	3.00%	3.00%	2.37%	3.56%	11.90%	16.36%
36	6.65%	9.98%	3.00%	3.00%	2.41%	3.62%	12.06%	16.60%
37	6.78%	10.17%	3.00%	3.00%	2.46%	3.69%	12.24%	16.86%
38	6.91%	10.36%	3.00%	3.00%	2.51%	3.76%	12.42%	17.12%
39	7.04%	10.56%	3.00%	3.00%	2.55%	3.83%	12.59%	17.39%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

Safety Tier 2 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll) - continued

Entry Age	Basic Only		Cost Sharing Contributions		COLA Only		Total	
	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*
40	7.18%	10.77%	3.00%	3.00%	2.61%	3.91%	12.79%	17.68%
41	7.31%	10.97%	3.00%	3.00%	2.65%	3.98%	12.96%	17.95%
42	7.42%	11.13%	3.00%	3.00%	2.69%	4.04%	13.11%	18.17%
43	7.49%	11.24%	3.00%	3.00%	2.72%	4.08%	13.21%	18.32%
44	7.52%	11.28%	3.00%	3.00%	2.73%	4.10%	13.25%	18.38%
45	7.49%	11.24%	3.00%	3.00%	2.72%	4.08%	13.21%	18.32%
46	7.39%	11.09%	3.00%	3.00%	2.69%	4.03%	13.08%	18.12%
47	7.24%	10.86%	3.00%	3.00%	2.63%	3.94%	12.87%	17.80%
48	7.49%	11.24%	3.00%	3.00%	2.72%	4.08%	13.21%	18.32%
49 & Over	7.76%	11.64%	3.00%	3.00%	2.82%	4.23%	13.58%	18.87%

*Use these rates for Non-Integrated Members

Interest: 7.60% per annum

COLA: 2.00%

Mortality: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, with no setback for males and set back two years for females, weighted 75% male and 25% female.

Salary Increase: Inflation (3.25%) + Across-the-Board Increase (0.50%) + Merit (See Exhibit II)

COLA Loading Factor: 36.30%

Terminal Pay: 4.0%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

Safety Tier 2C Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll)

<u>Entry Age</u>	<u>Basic Only</u>		<u>COLA Only</u>		<u>Total</u>	
	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>
15	4.67%	7.01%	1.39%	2.09%	6.06%	9.10%
16	4.67%	7.01%	1.39%	2.09%	6.06%	9.10%
17	4.75%	7.13%	1.42%	2.13%	6.17%	9.26%
18	4.84%	7.26%	1.45%	2.17%	6.29%	9.43%
19	4.93%	7.39%	1.47%	2.21%	6.40%	9.60%
20	5.01%	7.52%	1.50%	2.25%	6.51%	9.77%
21	5.10%	7.65%	1.53%	2.29%	6.63%	9.94%
22	5.19%	7.79%	1.55%	2.33%	6.74%	10.12%
23	5.28%	7.93%	1.58%	2.37%	6.86%	10.30%
24	5.38%	8.07%	1.61%	2.41%	6.99%	10.48%
25	5.47%	8.21%	1.63%	2.45%	7.10%	10.66%
26	5.57%	8.35%	1.66%	2.49%	7.23%	10.84%
27	5.67%	8.50%	1.69%	2.54%	7.36%	11.04%
28	5.77%	8.65%	1.72%	2.58%	7.49%	11.23%
29	5.87%	8.80%	1.75%	2.63%	7.62%	11.43%
30	5.97%	8.96%	1.79%	2.68%	7.76%	11.64%
31	6.08%	9.12%	1.81%	2.72%	7.89%	11.84%
32	6.19%	9.28%	1.85%	2.77%	8.04%	12.05%
33	6.30%	9.45%	1.88%	2.82%	8.18%	12.27%
34	6.41%	9.62%	1.91%	2.87%	8.32%	12.49%
35	6.53%	9.80%	1.95%	2.93%	8.48%	12.73%
36	6.65%	9.98%	1.99%	2.98%	8.64%	12.96%
37	6.78%	10.17%	2.03%	3.04%	8.81%	13.21%
38	6.91%	10.36%	2.06%	3.09%	8.97%	13.45%
39	7.04%	10.56%	2.10%	3.15%	9.14%	13.71%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

**Appendix A
Member Contribution Rates (Continued)**

Safety Tier 2C Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of payroll) - continued

<u>Entry Age</u>	<u>Basic Only</u>		<u>COLA Only</u>		<u>Total</u>	
	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>	<u>First \$161</u>	<u>Over \$161*</u>
40	7.18%	10.77%	2.15%	3.22%	9.33%	13.99%
41	7.31%	10.97%	2.19%	3.28%	9.50%	14.25%
42	7.42%	11.13%	2.21%	3.32%	9.63%	14.45%
43	7.49%	11.24%	2.24%	3.36%	9.73%	14.60%
44	7.52%	11.28%	2.25%	3.37%	9.77%	14.65%
45	7.49%	11.24%	2.24%	3.36%	9.73%	14.60%
46	7.39%	11.09%	2.21%	3.31%	9.60%	14.40%
47	7.24%	10.86%	2.16%	3.24%	9.40%	14.10%
48	7.49%	11.24%	2.24%	3.36%	9.73%	14.60%
49 & Over	7.76%	11.64%	2.32%	3.48%	10.08%	15.12%

* Use these rates for Non-Integrated Members

Interest:	7.60% per annum
COLA:	2.00%
Mortality:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, with no setback for males and set back two years for females, weighted 75% male and 25% female.
Salary Increase:	Inflation (3.25%) + Across-the-Board Increase (0.50%) + Merit (See Exhibit II)
COLA Loading Factor:	29.86%
Terminal Pay:	4.0%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

Safety Tier 2D Members' Contribution Rates for Members with Less than 5 Years of Vesting Service Based on the December 31, 2016 Actuarial Valuation

(as a % of payroll)

Entry Age	Basic Only		Cost Sharing Contributions**		COLA Only		Total	
	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*
15	4.67%	7.01%	5.00%	5.00%	1.59%	2.38%	11.26%	14.39%
16	4.67%	7.01%	5.00%	5.00%	1.59%	2.38%	11.26%	14.39%
17	4.75%	7.13%	5.00%	5.00%	1.62%	2.43%	11.37%	14.56%
18	4.84%	7.26%	5.00%	5.00%	1.65%	2.47%	11.49%	14.73%
19	4.93%	7.39%	5.00%	5.00%	1.67%	2.51%	11.60%	14.90%
20	5.01%	7.52%	5.00%	5.00%	1.71%	2.56%	11.72%	15.08%
21	5.10%	7.65%	5.00%	5.00%	1.73%	2.60%	11.83%	15.25%
22	5.19%	7.79%	5.00%	5.00%	1.77%	2.65%	11.96%	15.44%
23	5.28%	7.93%	5.00%	5.00%	1.80%	2.70%	12.08%	15.63%
24	5.38%	8.07%	5.00%	5.00%	1.83%	2.74%	12.21%	15.81%
25	5.47%	8.21%	5.00%	5.00%	1.86%	2.79%	12.33%	16.00%
26	5.57%	8.35%	5.00%	5.00%	1.89%	2.84%	12.46%	16.19%
27	5.67%	8.50%	5.00%	5.00%	1.93%	2.89%	12.60%	16.39%
28	5.77%	8.65%	5.00%	5.00%	1.96%	2.94%	12.73%	16.59%
29	5.87%	8.80%	5.00%	5.00%	1.99%	2.99%	12.86%	16.79%
30	5.97%	8.96%	5.00%	5.00%	2.03%	3.05%	13.00%	17.01%
31	6.08%	9.12%	5.00%	5.00%	2.07%	3.10%	13.15%	17.22%
32	6.19%	9.28%	5.00%	5.00%	2.11%	3.16%	13.30%	17.44%
33	6.30%	9.45%	5.00%	5.00%	2.14%	3.21%	13.44%	17.66%
34	6.41%	9.62%	5.00%	5.00%	2.18%	3.27%	13.59%	17.89%
35	6.53%	9.80%	5.00%	5.00%	2.22%	3.33%	13.75%	18.13%
36	6.65%	9.98%	5.00%	5.00%	2.26%	3.39%	13.91%	18.37%
37	6.78%	10.17%	5.00%	5.00%	2.31%	3.46%	14.09%	18.63%
38	6.91%	10.36%	5.00%	5.00%	2.35%	3.52%	14.26%	18.88%
39	7.04%	10.56%	5.00%	5.00%	2.39%	3.59%	14.43%	19.15%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

Safety Tier 2D Members' Contribution Rates for Members with Less than 5 Years of Vesting Service Based on the December 31, 2016 Actuarial Valuation - continued

(as a % of payroll)

Entry Age	Basic Only		Cost Sharing Contributions**		COLA Only		Total	
	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*
40	7.18%	10.77%	5.00%	5.00%	2.44%	3.66%	14.62%	19.43%
41	7.31%	10.97%	5.00%	5.00%	2.49%	3.73%	14.80%	19.70%
42	7.42%	11.13%	5.00%	5.00%	2.53%	3.79%	14.95%	19.92%
43	7.49%	11.24%	5.00%	5.00%	2.55%	3.82%	15.04%	20.06%
44	7.52%	11.28%	5.00%	5.00%	2.56%	3.84%	15.08%	20.12%
45	7.49%	11.24%	5.00%	5.00%	2.55%	3.82%	15.04%	20.06%
46	7.39%	11.09%	5.00%	5.00%	2.51%	3.77%	14.90%	19.86%
47	7.24%	10.86%	5.00%	5.00%	2.46%	3.69%	14.70%	19.55%
48	7.49%	11.24%	5.00%	5.00%	2.55%	3.82%	15.04%	20.06%
49 & Over	7.76%	11.64%	5.00%	5.00%	2.64%	3.96%	15.40%	20.60%

* Use these rates for Non-Integrated Members

** The 5.00% cost sharing contribution is reduced to 3.00% for members with at least 5 years of vesting service.

Interest: 7.60% per annum

COLA: 2.00%

Mortality: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, with no setback for males and set back two years for females, weighted 75% male and 25% female.

Salary Increase: Inflation (3.25%) + Across-the-Board Increase (0.50%) + Merit (See Exhibit II)

COLA Loading Factor: 34.01%

Terminal Pay: 4.0%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

**Appendix A
Member Contribution Rates (Continued)**

Safety Tier 2D Members' Contribution Rates for Members with 5 or More Years of Vesting Service Based on the December 31, 2016 Actuarial Valuation

(as a % of payroll)

Entry Age	Basic Only		Cost Sharing Contributions		COLA Only		Total	
	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*
15	4.67%	7.01%	3.00%	3.00%	1.59%	2.38%	9.26%	12.39%
16	4.67%	7.01%	3.00%	3.00%	1.59%	2.38%	9.26%	12.39%
17	4.75%	7.13%	3.00%	3.00%	1.62%	2.43%	9.37%	12.56%
18	4.84%	7.26%	3.00%	3.00%	1.65%	2.47%	9.49%	12.73%
19	4.93%	7.39%	3.00%	3.00%	1.67%	2.51%	9.60%	12.90%
20	5.01%	7.52%	3.00%	3.00%	1.71%	2.56%	9.72%	13.08%
21	5.10%	7.65%	3.00%	3.00%	1.73%	2.60%	9.83%	13.25%
22	5.19%	7.79%	3.00%	3.00%	1.77%	2.65%	9.96%	13.44%
23	5.28%	7.93%	3.00%	3.00%	1.80%	2.70%	10.08%	13.63%
24	5.38%	8.07%	3.00%	3.00%	1.83%	2.74%	10.21%	13.81%
25	5.47%	8.21%	3.00%	3.00%	1.86%	2.79%	10.33%	14.00%
26	5.57%	8.35%	3.00%	3.00%	1.89%	2.84%	10.46%	14.19%
27	5.67%	8.50%	3.00%	3.00%	1.93%	2.89%	10.60%	14.39%
28	5.77%	8.65%	3.00%	3.00%	1.96%	2.94%	10.73%	14.59%
29	5.87%	8.80%	3.00%	3.00%	1.99%	2.99%	10.86%	14.79%
30	5.97%	8.96%	3.00%	3.00%	2.03%	3.05%	11.00%	15.01%
31	6.08%	9.12%	3.00%	3.00%	2.07%	3.10%	11.15%	15.22%
32	6.19%	9.28%	3.00%	3.00%	2.11%	3.16%	11.30%	15.44%
33	6.30%	9.45%	3.00%	3.00%	2.14%	3.21%	11.44%	15.66%
34	6.41%	9.62%	3.00%	3.00%	2.18%	3.27%	11.59%	15.89%
35	6.53%	9.80%	3.00%	3.00%	2.22%	3.33%	11.75%	16.13%
36	6.65%	9.98%	3.00%	3.00%	2.26%	3.39%	11.91%	16.37%
37	6.78%	10.17%	3.00%	3.00%	2.31%	3.46%	12.09%	16.63%
38	6.91%	10.36%	3.00%	3.00%	2.35%	3.52%	12.26%	16.88%
39	7.04%	10.56%	3.00%	3.00%	2.39%	3.59%	12.43%	17.15%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

Appendix A

Member Contribution Rates (Continued)

Safety Tier 2D Members' Contribution Rates for Members with 5 or More Years of Vesting Service Based on the December 31, 2016 Actuarial Valuation – continued

(as a % of payroll)

Entry Age	Basic Only		Cost Sharing Contributions		COLA Only		Total	
	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*	First \$161	Over \$161*
40	7.18%	10.77%	3.00%	3.00%	2.44%	3.66%	12.62%	17.43%
41	7.31%	10.97%	3.00%	3.00%	2.49%	3.73%	12.80%	17.70%
42	7.42%	11.13%	3.00%	3.00%	2.53%	3.79%	12.95%	17.92%
43	7.49%	11.24%	3.00%	3.00%	2.55%	3.82%	13.04%	18.06%
44	7.52%	11.28%	3.00%	3.00%	2.56%	3.84%	13.08%	18.12%
45	7.49%	11.24%	3.00%	3.00%	2.55%	3.82%	13.04%	18.06%
46	7.39%	11.09%	3.00%	3.00%	2.51%	3.77%	12.90%	17.86%
47	7.24%	10.86%	3.00%	3.00%	2.46%	3.69%	12.70%	17.55%
48	7.49%	11.24%	3.00%	3.00%	2.55%	3.82%	13.04%	18.06%
49 & Over	7.76%	11.64%	3.00%	3.00%	2.64%	3.96%	13.40%	18.60%

* Use these rates for Non-Integrated Members

Interest:	7.60% per annum
COLA:	2.00%
Mortality:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, with no setback for males and set back two years for females, weighted 75% male and 25% female.
Salary Increase:	Inflation (3.25%) + Across-the-Board Increase (0.50%) + Merit (See Exhibit II)
COLA Loading Factor:	34.01%
Terminal Pay:	4.0%

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

**Appendix A
Member Contribution Rates (Continued)**

Safety Tier 4 Members' Contribution Rates Based on the December 31, 2016 Actuarial Valuation (as a % of eligible payroll)*

	Basic Only	COLA Only	Total
	<u>Eligible Pay</u>	<u>Eligible Pay</u>	<u>Eligible Pay</u>
All Safety Tier 4 Members	11.43%	2.77%	14.20%

Interest:	7.60% per annum
COLA:	2.00%
Mortality:	RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, with no setback for males and set back two years for females, weighted 75% male and 25% female.
Salary Increase:	Inflation (3.25%) + Across-the-Board Increase (0.50%) + Merit (See Exhibit II)
COLA Loading Factor:	24.23%
Terminal Pay:	0.0%

* It is our understanding that in the determination of pension benefits under the CalPEPRA formulas, the compensation that can be taken into account for 2017 is equal to \$118,775. (For an employer that is not enrolled in Social Security, the maximum amount is 120% of \$118,775, or \$142,530). (reference: Section 7522.10). These amounts should be adjusted for changes to the Consumer Price Index for All Urban Consumers after 2017. (reference: Section 7522.10(d))

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

**Appendix B
Projected Employer Contributions By Each Participating Employer**

Estimated Employer Contribution Requirement for Each Participating Employer in ACERA (\$000s)
Calculated Based on Projected Employer Compensation Used in the December 31, 2016 Actuarial Valuation

Dollar Contribution⁽¹⁾ - Based on December 31, 2016 Valuation

<u>Employer Name (Code)</u>	<u>General</u>				<u>Safety</u>					<u>Total</u>
	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>	<u>Tier 4</u>	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 2C</u>	<u>Tier 2D</u>	<u>Tier 4</u>	
Alameda County (101)	\$2,663	\$80,221		\$20,936	\$792	\$66,320	\$1,654	\$6,470	\$11,762	\$190,818
Health System (106)	505	34,994		11,417						46,916
Superior Court (632)	396	7,666		1,851						9,913
First 5 (714)		696		246						942
Housing Authority (103)	983	86		97						1,166
LARPD (104)	198		\$777	199						1,174
Office of Education (105)	22									22
Total	\$4,767	\$123,663	\$777	\$34,746	\$792	\$66,320	\$1,654	\$6,470	\$11,762	\$250,951

Dollar Contribution⁽¹⁾ - Based on December 31, 2015 Valuation

<u>Employer Name (Code)</u>	<u>General</u>				<u>Safety</u>					<u>Total</u>
	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>	<u>Tier 4</u>	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 2C</u>	<u>Tier 2D</u>	<u>Tier 4</u>	
Alameda County (101)	\$2,678	\$80,302		\$20,835	\$821	\$65,672	\$1,635	\$6,342	\$11,760	\$190,045
Health System (106)	505	34,873		11,310						46,688
Superior Court (632)	396	7,639		1,834						9,869
First 5 (714)		694		244						938
Housing Authority (103)	983	85		95						1,163
LARPD (104)	198		\$771	194						1,163
Office of Education (105)	22									22
Total	\$4,782	\$123,593	\$771	\$34,512	\$821	\$65,672	\$1,635	\$6,342	\$11,760	\$249,888

SECTION 4: Reporting Information for the Alameda County Employees' Retirement Association

⁽¹⁾ Contribution calculated using projected compensation provided below for the December 31, 2016 valuation:

December 31, 2016 Projected Total Compensation (\$000s)

<u>Employer Name (Code)</u>	<u>General</u>				<u>Safety</u>					<u>Total</u>
	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>	<u>Tier 4</u>	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 2C</u>	<u>Tier 2D</u>	<u>Tier 4</u>	
Alameda County (101)	\$13,246	\$414,146		\$112,380	\$1,159	\$124,544	\$3,026	\$12,658	\$23,108	\$704,267
Health System (106)	2,422	174,277		59,029						235,728
Superior Court (632)	1,902	38,177		9,572						49,651
First 5 (714)		3,466		1,273						4,739
Housing Authority (103)	3,751	335		390						4,476
LARPD (104)	755		\$2,945	1,007						4,707
Office of Education (105)	83									83
Total	\$22,159	\$630,401	\$2,945	\$183,651	\$1,159	\$124,544	\$3,026	\$12,658	\$23,108	\$1,003,651

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