



# San Mateo County Employees' Retirement Association

June 30, 2020 Actuarial Valuation

Prepared by:

**Nick Collier, ASA, EA, MAAA**  
Consulting Actuary

**Craig Glyde, ASA, EA, MAAA**  
Consulting Actuary

Milliman, Inc.  
1301 Fifth Avenue, Suite 3800  
Seattle, WA 98101-2605  
Tel +1 206 624 7940  
milliman.com



1301 Fifth Avenue  
Suite 3800  
Seattle, WA 98101-2605  
USA

Tel +1 206 624 7940

milliman.com

September 21, 2020

Board of Retirement  
San Mateo County Employees' Retirement Association  
100 Marine Parkway, Suite 125  
Redwood City, CA 94065-5208

Dear Members of the Board:

As requested, we have completed an actuarial valuation for the San Mateo County Employees' Retirement Association (SamCERA). The purpose of the valuation is to recommend the employer and member contribution rates for the fiscal year beginning July 1, 2021.

#### **Actuarial Certification – Per SamCERA Consulting Contract**

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices, including Actuarial Standards of Practice (ASOPs) Nos. 4, 27, and 35. In particular, it reflects the actuary's responsibility under Section 5.8 ("Actuary's Responsibility) of ASOP No. 4 (1993 Reformatted Edition) for assessing the implications of overall results, in terms of short-range and long-range benefit security and expected cost progression. Note that this section no longer exists in the current ASOP No. 4; however, Milliman will continue to assess the results pursuant to the prior section.

To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our best professional judgment, the assumptions and methodologies as adopted by the Board of Retirement, individually and in combination, are reasonably related to the experience of and the expectations for SamCERA, and will not, in and of themselves, expose SamCERA to "unsound financial risk." In this regard, we consider "unsound financial risk" to mean the following:

- A substantial likelihood that future required contribution rates as a percentage of payroll will be dramatically higher than the rates shown in this report, given the uncertainties of actuarial projections and assuming the full payment of all recommended contributions; or
- A substantial likelihood that SamCERA's assets will be insufficient to pay benefit payments when due, given the uncertainties of actuarial projections and assuming the full payment of all recommended contributions.

In preparing this report, we have complied with all quality assurance procedures detailed on page 26 of our October 22, 2018 proposal titled "Actuarial Consulting Services Proposal."

#### **Actuarial Certification – Milliman**

The major findings of the valuation are contained in this report. This report reflects the benefit provisions as of June 30, 2020 and member contribution rates effective July 1, 2021. In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by SamCERA staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for SamCERA have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of SamCERA and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting SamCERA.

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 or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The Board of Retirement has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix A.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts for SamCERA. The calculations in this report have been made on a basis consistent with our understanding of SamCERA's current funding requirements. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the internal business use of SamCERA. SamCERA may place the final version of this report on its website. Milliman's "work" to create this report, to the extent that Milliman's work is not subject to disclosure under applicable public records laws, may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

- (a) SamCERA may provide a copy of Milliman's work, in its entirety, to its professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit SamCERA.
- (b) SamCERA may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are retirement actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsors. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.


We would like to express our appreciation to Scott Hood, Chief Executive Officer of SamCERA, and to members of his staff, who gave substantial assistance in supplying the data on which this report is based.

We respectfully submit the following report and we look forward to discussing it with you.

Sincerely,



Nick Collier, ASA, EA, MAAA  
Consulting Actuary  
NC/CG/nlo



Craig Glyde, ASA, EA, MAAA  
Consulting Actuary

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## 1. Summary of Findings

This report presents the results of the June 30, 2020 actuarial valuation, including the Employer Statutory Contribution Rate calculated for the fiscal year beginning July 1, 2021 and the Funded Ratio of SamCERA. The following table summarizes these key results from the current and prior valuations.

	June 30, 2020	June 30, 2019
Employer Statutory Contribution Rate (all employers)	38.91%	37.86%
County Statutory Contribution Rate	39.14%	38.06%
Funded Ratio	86.4%	85.8%

Key findings and results from the valuation are summarized below.

### Funding

The Funded Ratio increased from 85.8% to 86.4%, primarily due to employer contributions to amortize the Unfunded Actuarial Accrued Liability (UAAL). On a market value basis, the Funded Ratio decreased from 86.5% to 82.6%, primarily due to a 0.9% net investment return over the period, compared to the assumed 6.5%.

The “Analysis of Change” section that follows later in Section 1 provides an analysis of the sources of change in the Funded Ratio since last year.

The assets used in the calculation of the Funded Ratio include the value of the County Supplementary Contribution Account (CSCA) and the District Supplementary Contribution Account (DSCA). Throughout this report we use the term SCA when referring to both of these accounts.

Neither the County nor the District contributed to the SCAs over the year ended June 30, 2020. In total, the CSCA has an actuarial value of \$184.7 million and the DSCA has an actuarial value of \$1.5 million as of June 30, 2020. Without the CSCA and DSCA the Funded Ratio would be 83.2% as of June 30, 2020.

### Investment Returns

SamCERA’s investment return on the market value of assets for the fiscal year 2019-2020 of 0.9% was less than the assumed rate of 6.5%. Note that under the asset smoothing method the strong return for the first six months of the fiscal year approximately offset the poor return for the second half of the fiscal year. Combined with the recognition of deferred investment losses from prior periods, the net result was a return on Valuation Assets of 6.2%, which is less than the assumed rate of 6.5%. This actuarial loss on Valuation Assets caused an increase in the SCR of 0.26% of pay.

### Employer Statutory Contribution Rate

The Statutory Contribution Rate (SCR) is comprised of the Employer Normal Cost Rate and a separate component to amortize the UAAL. The SCR increased from 37.86% of pay (calculated in the 2019 valuation) to 38.91%, an increase of 1.05% of pay. The SCR is a weighted average of the statutory contribution rates for each individual SamCERA plan. The actual percent of payroll to be contributed by each employer varies by plan, as shown in Section 6 of this report.

The “Analysis of Change” section that follows later in Section 1 provides an analysis of the sources of change in the SCR since last year. In addition, the section “Projected Future Employer Contribution Rates” below shows a 10-year projection of the statutory employer contribution rate.

The CSCA provides an offset of 3.54% of pay to the County’s SCR (which is the same offset as the prior valuation), resulting in a County-only SCR of 39.14% of pay. Without the recognition of the CSCA, the County SCR would be 42.68% of pay.

The DSCA provides an offset of 25.83% of pay (compared to 25.21% of pay in the prior valuation) for the San Mateo County Mosquito and Vector Control District (SMCM&VCD). The DSCA offset is not permitted to be larger than the UAAL contribution rate for the SMCM&VCD.

### **Economic and Demographic Assumptions**

The assumptions developed as a result of the 2020 Investigation of Experience study, described in our report dated July 28, 2020, were adopted by the Board of Retirement for use in this valuation. These changes include increasing the rates of assumed merit salary increases for Safety and Probation members, updating mortality tables to the public plan specific tables published in 2019 by the Society of Actuaries Retirement Plans Experience Committee (RPEC), and changes to the assumed rates at which active members decrement from active employment.

The net effect of these changes was an increase in the UAAL of approximately \$11.6 million effective June 30, 2020, a decrease in the Funded Ratio of 0.2%, and an increase in the employer contribution rate of 0.11% of payroll.

Member contribution rates for all plans (except the non-contributory Plan 3) changed as a result of the new assumptions, as described below.

### **Member Contribution Rates**

New member contribution rates are recommended for all plans effective July 1, 2021 based on the new assumptions adopted with the 2020 Investigation of Experience study. Member contribution rates for all plans, except Plan 3 and Plan 7, vary based on a member's entry age to SamCERA and the underlying actuarial assumptions. Due to the changes in the merit salary increase and mortality assumptions, we have calculated new member contribution rates for these plans effective July 1, 2021. Plan 7 member contribution rates are required to be equal to 50% of the Gross Normal Cost Rate of the respective plans.

Exhibit 1b includes a summary of recommended member contribution rates. In general, there are small decreases for Plan 7 member rates and small increases for other plans. Member contribution rates are discussed in Section 5 of this report, and a complete list of all member contribution rates is shown in Appendix D.

### **Summary of Contribution Rates**

The following exhibits summarize our recommendations to the Board.



**Exhibit 1a**  
**Summary of Recommended Minimum Statutory Contribution Rates**

**Recommendation #1: Adopt new Statutory Contribution Rates for fiscal year beginning July 1, 2021**

	<u>Fiscal Year Beginning</u>		<u>Increase / (Decrease)</u>
	<u>July 1, 2021</u>	<u>July 1, 2020</u>	
Gross Normal Cost	23.11%	23.73%	(0.62)%
Member Contributions	(12.21)%	(12.46)%	0.25%
Employer Normal Cost	10.90%	11.27%	(0.37)%
UAAL Amortization	28.01%	26.59%	1.42%
<b>Total Employer Rate</b>	<b>38.91%</b>	<b>37.86%</b>	<b>1.05%</b>
County Contribution Rate	39.14%	38.06%	1.08%
Courts Contribution Rate	35.85%	35.22%	0.63%
SMCM&VCD Contribution Rate	12.76%	12.58%	0.18%

Notes:

1. Detailed contribution rates by plan are shown in Section 6.
2. The Total Employer Statutory Contribution Rate of 38.91% is the aggregate rate for all employers.

**Exhibit 1b**  
**Summary of Recommended Member Contribution Rates**

**Recommendation #2: Adopt new member contribution rates for fiscal year beginning July 1, 2021**

	Entry Age	Recommended Rates			Total as a % of Pay	Current	Ratio (New/Curr)
		Basic	50% COLA Sharing	Cost Sharing		Total as a % of Pay	
<b>General Members (not including SMCM&amp;VCD)</b>							
<b>Plan 1</b>	25	7.22%	2.53%	3.00%	12.75%	13.41%	95.1%
	35	8.55%	2.99%	3.00%	14.54%	15.32%	94.9%
	45	10.16%	3.56%	3.00%	16.72%	17.65%	94.7%
<b>Plan 2</b>	25	7.22%	2.49%	3.00%	12.71%	12.57%	101.1%
	35	8.55%	2.95%	3.00%	14.50%	14.33%	101.2%
	45	10.16%	3.51%	3.00%	16.67%	16.48%	101.1%
<b>Plan 4</b>	25	6.98%	1.85%	3.00%	11.83%	11.73%	100.9%
	35	8.26%	2.18%	3.00%	13.44%	13.33%	100.8%
	45	9.77%	2.58%	3.00%	15.35%	15.22%	100.9%
<b>Plan 5</b>	25	6.07%	1.50%	0.00%	7.57%	7.53%	100.5%
	35	7.18%	1.78%	0.00%	8.96%	8.91%	100.5%
	45	8.52%	2.11%	0.00%	10.63%	10.57%	100.6%
<b>Plan 7</b>	All	7.04%	1.71%	0.00%	8.75%	9.11%	96.0%
<b>SMCM&amp;VCD Members</b>							
<b>Plan 1</b>	25	7.22%	0.00%	0.00%	7.22%	7.14%	101.1%
	35	8.55%	0.00%	0.00%	8.55%	8.45%	101.2%
	45	10.16%	0.00%	0.00%	10.16%	10.05%	101.1%
<b>Plan 2</b>	25	7.22%	0.00%	0.00%	7.22%	7.14%	101.1%
	35	8.55%	0.00%	0.00%	8.55%	8.45%	101.2%
	45	10.16%	0.00%	0.00%	10.16%	10.05%	101.1%
<b>Plan 4</b>	25	6.98%	0.00%	0.00%	6.98%	6.90%	101.2%
	35	8.26%	0.00%	0.00%	8.26%	8.17%	101.1%
	45	9.77%	0.00%	0.00%	9.77%	9.66%	101.1%
<b>Plan 7</b>	All	7.75%	1.92%	0.00%	9.67%	9.24%	104.7%

Notes:

1. All General members contribute 50% of the cost of COLA benefits except for all members of SMCM&VCD.
2. Plan 7 COLA share represents one-half of the cost of the COLA.
3. See Appendix B of this report for a full description of members COLA share. See Appendix D of this report for a full schedule of rates.

**Exhibit 1b**  
**Summary of Recommended Member Contribution Rates (continued)**

**Recommendation #2: Adopt new member contribution rates for fiscal year beginning July 1, 2021**

	Entry Age	Recommended Rates			Total as a % of Pay	Current	Ratio (New/Curr)
		Basic	50% COLA Sharing	Cost Sharing		Total as a % of Pay	
<b>Safety Members</b>							
Plan 1	25	10.09%	4.84%	5.00%	19.93%	19.54%	102.0%
	35	11.67%	5.59%	5.00%	22.26%	21.92%	101.6%
	45	13.51%	6.48%	5.00%	24.99%	24.60%	101.6%
Plan 2	25	10.09%	5.22%	5.00%	20.31%	19.88%	102.2%
	35	11.67%	6.04%	5.00%	22.71%	22.32%	101.8%
	45	13.51%	6.99%	5.00%	25.50%	25.06%	101.8%
Plan 4	25	9.72%	3.80%	5.00%	18.52%	18.17%	102.0%
	35	11.24%	4.40%	5.00%	20.64%	20.32%	101.6%
	45	12.79%	5.01%	5.00%	22.80%	22.46%	101.5%
Plan 5	25	9.72%	3.37%	4.00%	17.09%	16.87%	101.3%
	35	11.24%	3.90%	4.00%	19.14%	18.97%	100.9%
	45	12.79%	4.44%	4.00%	21.23%	21.06%	100.8%
Plan 6	25	9.72%	3.16%	0.00%	12.88%	12.56%	102.5%
	35	11.24%	3.65%	0.00%	14.89%	14.61%	101.9%
	45	12.79%	4.15%	0.00%	16.94%	16.65%	101.8%
Plan 7	All	11.48%	3.24%	0.00%	14.72%	15.28%	96.3%
<b>Probation Members</b>							
Plan 1	25	10.09%	5.37%	3.50%	18.96%	18.56%	102.1%
	35	11.67%	6.21%	3.50%	21.38%	21.03%	101.7%
	45	13.51%	7.19%	3.50%	24.20%	23.80%	101.7%
Plan 2	25	10.09%	5.37%	3.50%	18.96%	18.43%	102.8%
	35	11.67%	6.21%	3.50%	21.38%	20.88%	102.4%
	45	13.51%	7.19%	3.50%	24.20%	23.63%	102.4%
Plan 4	25	9.72%	3.86%	3.50%	17.08%	16.68%	102.4%
	35	11.24%	4.46%	3.50%	19.20%	18.83%	102.0%
	45	12.79%	5.07%	3.50%	21.36%	20.97%	101.9%
Plan 5	25	9.72%	3.40%	3.50%	16.62%	16.37%	101.5%
	35	11.24%	3.93%	3.50%	18.67%	18.47%	101.1%
	45	12.79%	4.47%	3.50%	20.76%	20.56%	101.0%
Plan 6	25	9.72%	2.96%	0.00%	12.68%	12.37%	102.5%
	35	11.24%	3.42%	0.00%	14.66%	14.39%	101.9%
	45	12.79%	3.89%	0.00%	16.68%	16.40%	101.8%
Plan 7	All	11.55%	3.30%	0.00%	14.85%	14.97%	99.2%

Notes:

1. All Safety and Probation members contribute 50% of the cost of COLA benefits.
2. Plan 7 COLA share represents one-half of the cost of the COLA.
3. See Appendix B of this report for a full description of members COLA share. See Appendix D of this report for a full schedule of rates.
4. Safety member cost sharing shown is for all members who are not Deputy Sheriffs. Cost sharing varies for Deputy Sheriffs.

**Analysis of changes since last year**

A detailed analysis of the sources of changes in both the Statutory Contribution Rate and the Funded Ratio was performed. There were several factors that caused the changes, with the overall impact of these factors being an increase in the Funded Ratio and an increase in the Statutory Contribution Rate from the prior valuation.

The following chart shows how the various factors affected the overall funding of SamCERA, as compared to the prior valuation.

Sources of Change	Statutory Contribution Rate	Funded Ratio
<b>Calculated Rate for 2020 (2019 valuation)</b>	<b>37.86%</b>	<b>85.8%</b>
Expected Year-to-Year Change	0.00%	2.2%
Assumption Changes	0.11%	-0.2%
Recognized Asset Gain / Loss		
From Current Year	0.10%	-0.1%
From Prior Years	0.16%	-0.2%
Retiree COLAs > Expected	0.31%	-0.2%
Salary and Payroll Increases > Assumed	0.36%	-0.4%
Contributions > Assumed	-0.05%	0.0%
SCA Contribution Funding	0.00%	0.0%
Increase in Plan 7 Membership	-0.09%	0.0%
Other Experience Changes	0.15%	-0.5%
<b>Total Change</b>	<b>1.05%</b>	<b>0.6%</b>
<b>Calculated Rate for 2021 (2020 valuation)</b>	<b>38.91%</b>	<b>86.4%</b>

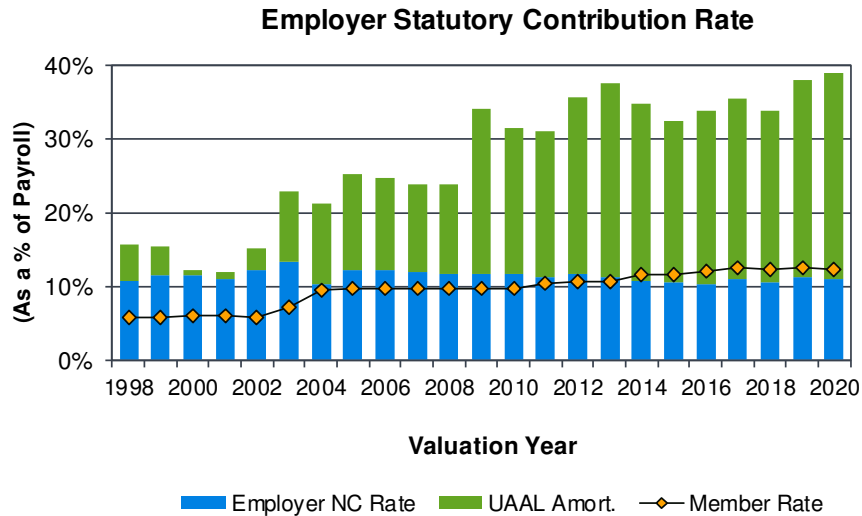
**Employer Statutory Contribution Rate**

The Statutory Contribution Rate (SCR) for each plan is equal to the payment of the Employer Normal Cost rate plus a 15-year layered amortization of the UAAL (excluding the CSCA and DSCA) for each year beginning with the UAAL as of June 30, 2008. The UAAL rate for the County is reduced to reflect the CSCA, as is the UAAL rate for SMCM&VCD to reflect the DSCA. The SCR (blended average for all employers) is 38.91% for the fiscal year beginning July 1, 2021.

It should be noted that these rates are a weighted average of each individual SamCERA plan. The actual percent of payroll to be contributed by each employer varies by plan. See Exhibit 10 for the SCR by classification and Exhibits 10a through 10d for the SCR by plan.

In our opinion, the SCRs calculated are adequate to maintain the funding of SamCERA based on the actuarial methods and assumptions shown in Appendix A of this report.

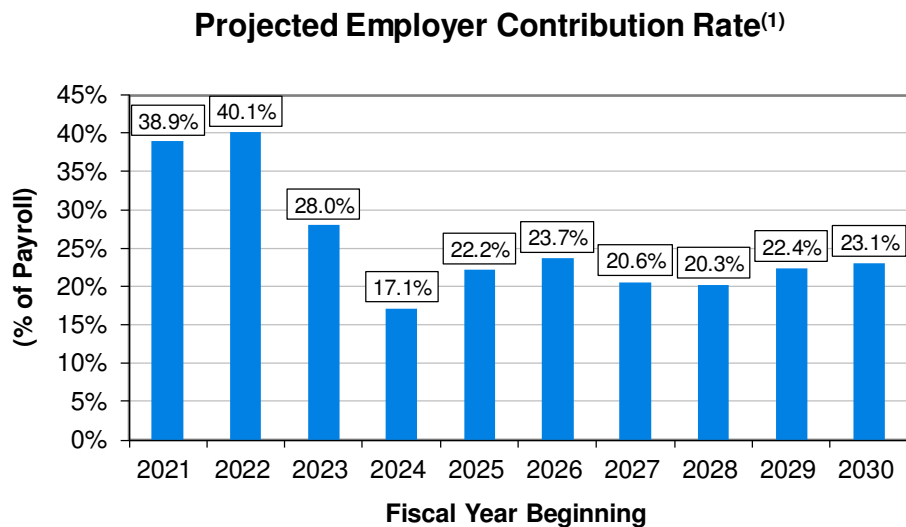
A historical perspective of the total SCR is shown in the following graph.



### Projected Future Statutory Employer Contribution Rate

The statutory employer contribution rate beginning July 1, 2021 is 38.91% of payroll, which is a weighted average for all SamCERA plans. The actual percent of payroll to be contributed by the employers varies by plan as shown in Exhibit 10.

The new statutory employer contribution rate is effective for the fiscal year beginning July 1, 2021. There is a projected increase for the next year (2022) as the increase due to recognition of deferred asset losses is phased in. Effective with the fiscal year beginning July 1, 2023, a large decrease is projected as the June 30, 2008 UAAL is fully amortized. In future years there are increases and decreases as amortization layers “roll off.” To illustrate these impacts, we have performed a 10-year projection of the employer contribution rate that assumes all actuarial assumptions are met, and reflects the projected recognition of the deferred asset gains and losses as of June 30, 2020. This projection is shown in the graph below.



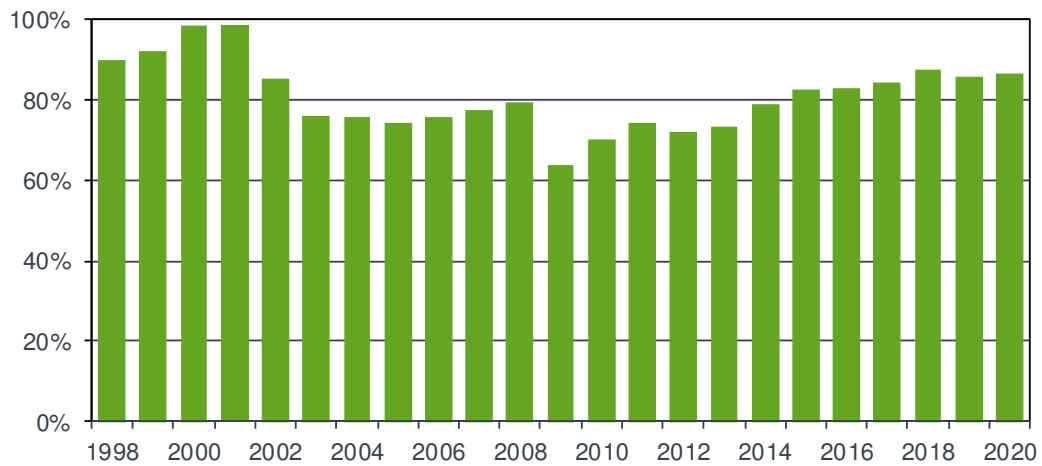
1. Projections assume that all actuarial assumptions are met after June 30, 2020, and reflect the scheduled recognition of asset gains and losses currently being deferred. Actual results will vary.

### Funding Progress

Based on the 2019 valuation, the expected UAAL as of June 30, 2020 was \$689 million. The actual UAAL for the fiscal year ended June 30, 2020 is \$788 million. This difference is due to a combination of factors, including: salary increases and retiree COLAs greater than assumed, assumption changes as a result of the 2020 Investigation of Experience, and investment returns less than assumed.

The Funded Ratio compares the value of the Actuarial Value of Assets (net of certain non-valuation reserves) to the Actuarial Accrued Liability (AAL) for all SamCERA plans combined. SamCERA's Funded Ratio increased rapidly in the last half of the 1990s, reaching almost 100% in 2001. However, due primarily to asset losses from that time through 2009, the Funded Ratio decreased significantly over those years. In recent years, the Funded Ratio has improved, due primarily to better-than-assumed investment performance and strong funding.

### Historical Funded Ratios



**Assets**

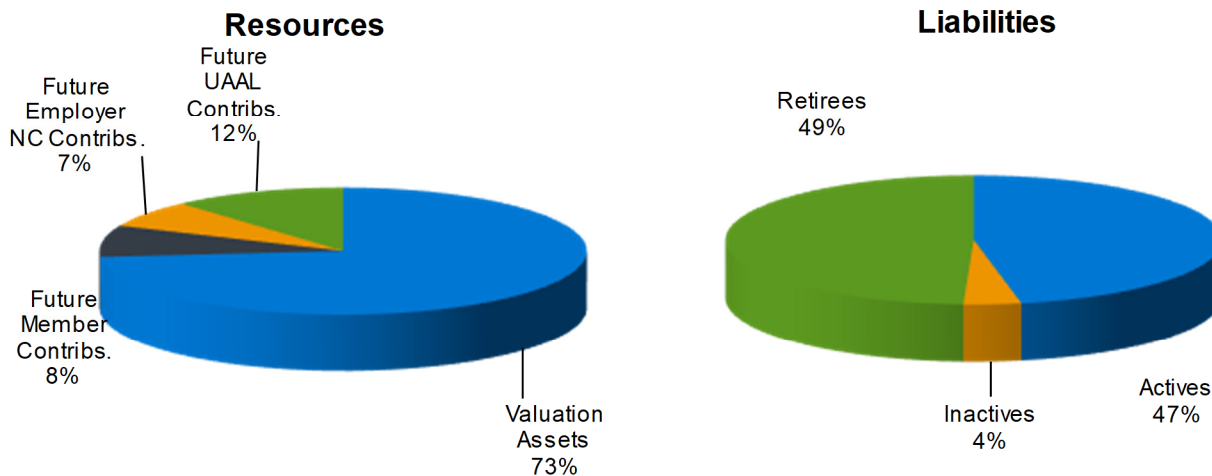
On a market value basis, for the fiscal year ended June 30, 2020, SamCERA earned 0.9% net of investment and administrative expenses. Note that this rate of return may differ from that calculated by SamCERA and shown in the CAFR based on the calculation method.

SamCERA uses an asset-smoothing method in the calculation of the UAAL contribution. Under this method, the market value returns are smoothed over a five-year (10 six-month) period. Due to the recognition of current and deferred net asset losses, the return on Actuarial Valuation Assets, at 6.2% net of expenses, was less than the assumed return of 6.5% for the fiscal year ended June 30, 2020.

**Actuarial Balance Sheet**

One part of the valuation process is to compare the total Valuation Assets of SamCERA with its total liabilities for all plans. In this analysis, SamCERA's resources equal the actuarial assets plus the expected future contributions by both the employers and members. Liabilities reflect benefits already earned in the past and those expected to be earned in the future by current members. This relationship is shown in the following chart. The AAL is the total of these liabilities less expected future Normal Cost contributions.

Comparing the current and future resources to the current and future liabilities, we then determine the annual contribution amount for the coming fiscal year.

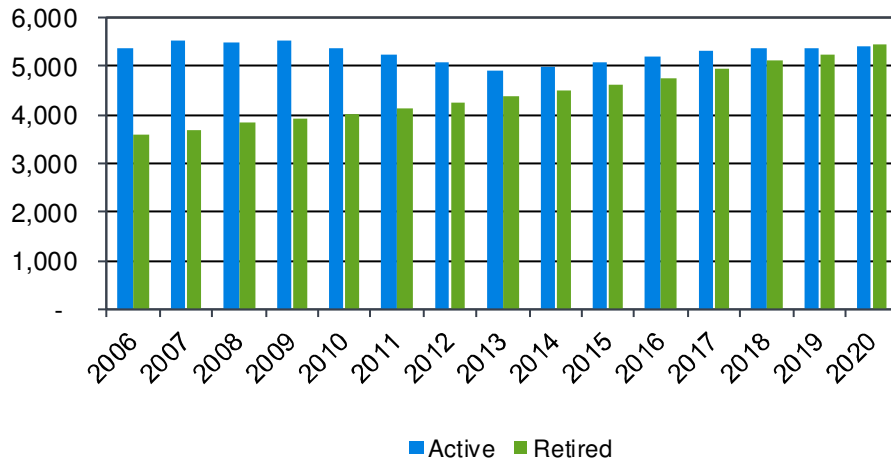


**Member Information**

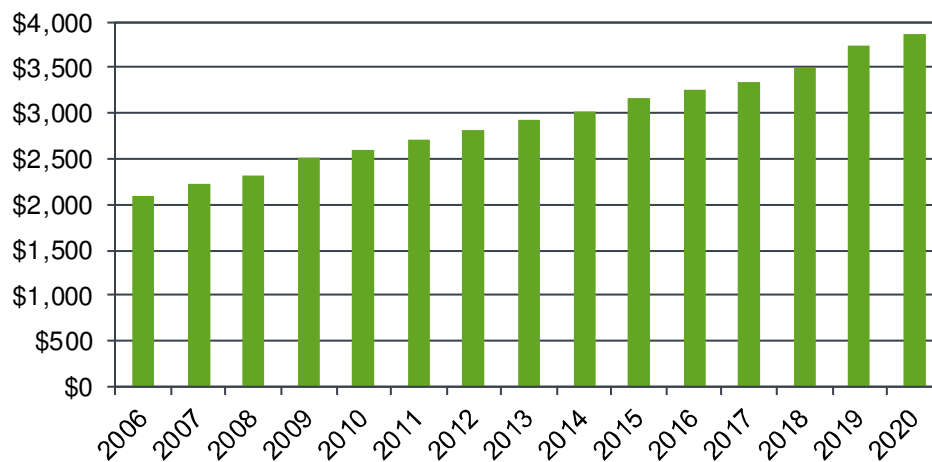
The number of active members included in the valuation increased from 5,377 in 2019 to 5,400 in 2020.

Retired member counts continue to increase steadily. For 2020, there were 5,454 retired members and beneficiaries with an average benefit of \$3,865 per month. This represents a 4.4% increase in count (up from 5,225 in 2019) and a 3.6% increase in the average monthly benefit (up from \$3,731 over the period). There are also 1,882 members who are no longer actively employed nor retired that have contributions on deposit or are entitled to a future retirement benefit.

**Membership Count**



**Average Monthly Retirement Benefit**





### Analysis of Change in Member Population

The following table summarizes the year-to-year change in member population.

	Active Members	Inactive Members	Service Retired Members	Disabled Retired Members	Beneficiaries in Pay	Total
<b>As of June 30, 2019</b>	<b>5,377</b>	<b>1,767</b>	<b>4,133</b>	<b>487</b>	<b>605</b>	<b>12,369</b>
New Members	489	35	7	2	75	608
Status Change:						
to Active	25	(24)	(1)	-	-	-
to Inactive	(213)	213	-	-	-	-
to Service Retirement	(202)	(55)	257	-	-	-
to Disabled Retirement	(15)	(3)	(10)	28	-	-
to Beneficiary	-	(3)	-	-	3	-
Refunds	(53)	(43)	-	-	-	(96)
Terminated non-vested	-	-	-	-	-	-
Deaths	(8)	(5)	(94)	(11)	(27)	(145)
<b>As of June 30, 2020</b>	<b>5,400</b>	<b>1,882</b>	<b>4,292</b>	<b>506</b>	<b>656</b>	<b>12,736</b>

### Summary Valuation Results

Exhibit 2 presents a comparison of the key results from the June 30, 2020 and June 30, 2019 valuations. More detail on each of these elements can be found in the following sections and exhibits of this report.

**Exhibit 2**  
**Summary of Significant Valuation Results**

	June 30, 2020	June 30, 2019	Relative Change
1. Total Membership			
A. Active Members	5,400	5,377	0.4%
B. Retired Members & Beneficiaries	5,454	5,225	4.4%
C. Inactive Members	1,882	1,767	6.5%
D. Total	12,736	12,369	3.0 %
2. Pay Rate			
A. Annual Total (\$thousands)	\$ 594,573	\$ 572,516	3.9%
B. Monthly Average	9,176	8,873	3.4%
3. Average Monthly Benefit to Current Retirees and Beneficiaries			
A. Service Retirement	\$ 4,078	\$ 3,914	4.2%
B. Disability Retirement	3,892	3,741	4.0%
C. Surviving Spouse and Dependents	2,449	2,478	(1.2)%
D. Total Average	3,865	3,731	3.6%
4. Actuarial Accrued Liability (\$thousands)			
A. Active Members	\$ 2,176,840	\$ 2,090,884	4.1%
B. Retired Members	3,354,864	3,130,388	7.2%
C. Inactive Members	254,350	238,706	6.6%
D. Total	\$ 5,786,054	\$ 5,459,978	6.0%
5. Assets			
A. Market Value of Fund (\$thousands)	\$ 4,780,502	\$ 4,723,110	1.2%
B. Return on Market Value	0.9%	6.2%	
C. Actuarial Value (\$thousands)	\$ 4,998,316	\$ 4,685,502	6.7%
D. Return on Actuarial Value	6.2%	5.6%	
6. Unfunded Actuarial Accrued Liability or Surplus Funding (\$thousands)	\$ 787,738	\$ 774,476	1.7%
7. Statutory Employer Contribution Rate for all plans combined as a percent of total payroll			
A. Gross Normal Cost	23.11%	23.73%	(2.6)%
B. Member Contributions	(12.21)%	(12.46)%	(2.0)%
C. Employer Normal Cost	10.90%	11.27%	(3.3)%
D. UAAL Amortization	28.01%	26.59%	5.3%
E. Total Employer Rate	38.91%	37.86%	2.8%
8. Funded Ratio (5C / 4D)	86.4%	85.8%	0.7%
9. Results Based on Market Value (No Asset Smoothing) -- For Informational Purposes Only			
A. Total Employer Rate	42.46%	37.23%	14.0%
B. Funded Ratio (5A / 4D)	82.6%	86.5%	(4.5)%

## 2. Scope of the report

This report presents the actuarial valuation of the San Mateo County Employees' Retirement Association as of June 30, 2020. This valuation was requested by the Board. Section 31453 of the County Employees Retirement Law of 1937 (the '37 Act) requires an actuarial valuation to be performed at least every three years for the purposes of setting contribution rates.

In reading our cover letter, please pay particular attention to the guidelines employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings depend. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date. On that date, the assets available for the payment of retirement benefits are appraised. These assets are compared with the accrued and future actuarial liabilities, which are generally well in excess of the actuarial assets. The purpose of the valuation is to determine what future contributions by the members and employers are needed to pay all expected future benefits not funded by the current assets.

A summary of the findings resulting from this valuation is presented in the previous section. The following sections of the report provide the details of the actuarial valuation.

**Section 3** describes the assets and investment experience of SamCERA. The assets and investment income are presented in Exhibits 3-5. Exhibits 6-8 develop the Actuarial Value of Assets as of June 30, 2020.

**Section 4** describes the benefit obligations of SamCERA. Exhibits 9a and 9b show the Actuarial Balance Sheet. Additional analysis on the change in UAAL is also provided in this section.

**Sections 5 and 6** deal with the process for determining required contributions based on the relationship between the actuarial assets and the actuarial liabilities. Section 5 discusses the member contribution rates and Section 6 discusses the employer contributions needed to fund the benefits under the actuarial cost method in use.

**Section 7** discloses supplemental information that may be included in SamCERA's CAFR.

This report includes several appendices:

- Appendix A A summary of the actuarial procedures and assumptions used to estimate liabilities and contributions.
- Appendix B A summary of the current benefit structure, as determined by the provisions of governing law as of June 30, 2020.
- Appendix C Schedules of valuation data classified by various categories of members by plan.
- Appendix D Member contribution rates by plan.
- Appendix E A glossary of actuarial terms used in this report.

**Section 8** discusses risks that could potentially affect future valuation results.

### 3. Assets

This section of the report deals with the determination of assets used for funding purposes. A historical summary of SamCERA's assets is presented below:

Year	All dollar amounts in millions		
	Market Value of Total Assets	Actuarial Value	
		Non Valuation Assets	Valuation Assets
2001	\$ 1,308	\$ 42	\$ 1,385
2002	1,207	32	1,417
2003	1,233	34	1,354
2004	1,435	31	1,453
2005	1,599	0	1,616
2006	1,790	0	1,769
2007	2,132	0	1,977
2008	2,011	0	2,219
2009	1,591	0	1,910
2010	1,816	0	2,179
2011	2,318	0	2,405
2012	2,360	0	2,480
2013	2,728	0	2,619
2014	3,292	30	2,993
2015	3,454	33	3,344
2016	3,541	36	3,625
2017	4,039	40	3,977
2018	4,374	44	4,352
2019	4,723	48	4,686
2020	4,781	51	4,998

On June 30, 2020, the total market value of the fund was about \$4.78 billion. The actuarial value of the fund was determined to be \$5.05 billion, including the non-valuation reserves.

#### Financial Exhibits

Exhibit 3 presents a Statement of Plan Net Assets and Exhibit 4 presents a Statement of Changes in Plan Net Assets.

Exhibit 5 describes the allocation of SamCERA's assets by the various reserve values determined for accounting purposes.

Exhibits 3-5 are taken from data furnished to us by SamCERA for its annual financial report. We have accepted these tables for use in this report without audit, but we have reviewed them for reasonableness and consistency with previous reports.

### Actuarial Value of Assets

The actuarial value of assets is equal to the market value of assets with a five-year (10 six-month periods) recognition of the difference between expected and actual investment returns. Effective with the June 30, 2018 valuation, all deferred gains and losses were combined into a single amount that will be recognized over a five-year (10 six-month) period. Beginning with the six-month period immediately following the June 30, 2018 valuation, offsetting of current period gains or losses against prior period gains or losses will occur, as follows. First, to the extent there is a loss for the period, it shall be used to offset any unrecognized gains from prior periods in the order of oldest to most recent. Any remaining loss for the period is recognized over a five-year (10 six-month) period. Similarly, any gain for the period shall be offset against unrecognized losses from prior periods.

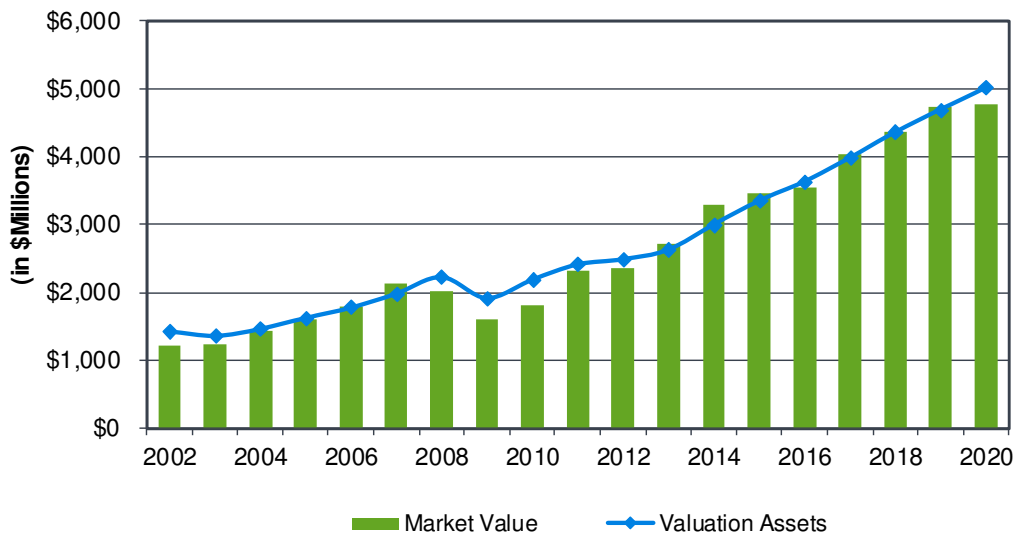
Beginning with the June 30, 2014 valuation, assets used to calculate the preliminary UAAL contribution rates exclude the value of the CSCA. The CSCA is used to adjust the County's Statutory Contribution Rate. Beginning with the June 30, 2016 valuation, assets used to calculate the preliminary UAAL contribution rates also exclude the value of the DSCA. The DSCA is used to adjust the SMCM&VCD's Statutory Contribution Rate. To adjust the Statutory Contribution Rate, we track the CSCA and DSCA assets separately.

The development of the June 30, 2020 actuarial value of assets is shown in Exhibits 6 and 7. Exhibits 6a and 7a show the development of the total actuarial value of assets. Exhibits 6b and 7b show the development excluding the Supplemental Contribution Account (SCA) assets. Exhibits 6c and 7c show the development of the actuarial value of assets for the CSCA. Exhibits 6d and 7d show the development of the actuarial value of assets for the DSCA.

The County and the SMCM&VCD each made their contributions for the year ended June 30, 2020 based on the SCR. Since the SCR reflected offsets due to the respective SCAs, each employer effectively used up an amount of the SCA equivalent to the offset. Therefore, we have shown this in the "Credits Used" column in Exhibits 6c and 6d.

The following graph shows a historical comparison of the total actuarial and market assets used for valuation purposes.

**Applicable Asset Values**



### **Valuation Assets**

Valuation Assets are the actuarial value of the fund, less the value of any reserves which have been set aside for current liabilities and special benefits (if any) that are to be funded outside of the actuarially determined contribution rates.

Valuation Assets are allocated by classification (general, safety, and probation) as shown in Exhibit 8. This allocation is necessary because the UAAL contribution rates are determined separately by employer and class.

### **Allocation of Assets**

In the calculation of the Statutory Contribution Rate, the Normal Cost Rate is determined separately for each plan. The UAAL portion of the rate is allocated proportionately to each classification. To determine the UAAL amount by classification, the actual UAAL is allocated in proportion to the expected UAAL after reflecting expected contributions from the prior year to pay down the UAAL. The allocation is done without consideration of the SCAs. Valuation Assets are equal to the AAL minus the UAAL for each classification. These calculations are shown in Exhibit 8.

CSCA valuation assets are allocated to each County member classification (General, Safety or Probation) in proportion to the actual UAAL excluding SCAs. These assets directly reduce the UAAL of each classification.

DSCA assets are allocated entirely to the SMCM&VCD general member classification.

**Exhibit 3**  
**Statement of Plan Net Assets as of June 30, 2020 and 2019**

	2020	2019
<b>ASSETS</b>		
Cash and short-term investments:		
Cash and cash equivalents	\$ 107,989,686	\$ 33,102,412
Cash management overlay	54,095,321	48,011,505
Securities lending cash collateral	2,423,778	403,093
Total cash and short-term investments	<u>164,508,785</u>	<u>81,517,010</u>
Receivables:		
Contributions	12,376,867	10,300,002
Due from brokers for investment sold	78,103,219	6,640,025
Investment income	5,390,580	6,292,641
Securities lending income	2,752	12,614
Other	86,859	95,566
Total receivables	<u>95,960,277</u>	<u>23,340,848</u>
Prepaid expense	-	11,669
Investments at fair value:		
Public equity	1,866,264,297	1,847,846,613
Fixed income	1,434,811,710	999,477,347
Alternatives	593,379,227	579,774,460
Risk parity	-	389,039,081
Inflation hedge	704,360,824	809,138,278
Total investments at fair value	<u>4,598,816,058</u>	<u>4,625,275,779</u>
Capital assets	8,108,286	8,040,088
Less: accumulated depreciation	<u>(2,898,888)</u>	<u>(2,060,891)</u>
Capital assets, net of accumulated depreciation	<u>5,209,398</u>	<u>5,979,197</u>
<b>Total assets</b>	<b><u>4,864,494,518</u></b>	<b><u>4,736,124,503</u></b>
<b>LIABILITIES</b>		
Investment management fees payable	2,035,363	2,213,009
Due to brokers for investments purchased	78,241,899	9,060,929
Securities lending collateral due to borrowers	2,423,778	405,367
Other	<u>1,291,165</u>	<u>1,335,263</u>
<b>Total liabilities</b>	<b><u>83,992,205</u></b>	<b><u>13,014,568</u></b>
<b>NET POSITION RESTRICTED FOR PENSIONS</b>	<b><u>\$ 4,780,502,313</u></b>	<b><u>\$ 4,723,109,935</u></b>

**Exhibit 4**  
**Statement of Changes in Plan Net Assets for the Fiscal Years Ended 2020 and 2019**

	2020	2019
<b>ADDITIONS</b>		
Contributions:		
Employer	\$ 198,582,998	\$ 194,830,054
Employer Supplemental	-	50,668,357
Member	70,630,765	67,695,627
Total contributions	<u>269,213,763</u>	<u>313,194,038</u>
Investment income:		
Interest and dividends	76,762,516	71,833,683
Net appreciation in fair value of investments	5,173,433	242,168,364
Total investment income	81,935,949	314,002,047
Less: investment expenses	(39,581,080)	(42,376,557)
Net investment income	<u>42,354,869</u>	<u>271,625,490</u>
Securities lending income:		
Earnings	35,620	88,955
Rebates	16,474	13,108
Fees	(14,741)	(36,070)
Net securities lending income	<u>37,353</u>	<u>65,993</u>
<b>Total additions</b>	<b><u>311,605,985</u></b>	<b><u>584,885,521</u></b>
<b>DEDUCTIONS</b>		
Benefits:		
Service retirement benefits	212,632,929	196,874,097
Disability retirement benefits	27,601,908	25,211,881
Survivor, death and other benefits	1,790,029	1,528,066
Total benefits	<u>242,024,866</u>	<u>223,614,044</u>
Member Refunds	3,796,276	3,571,079
Administrative expenses	6,371,363	6,056,713
Information technology expenses	2,021,102	2,495,264
Other expenses	-	-
<b>Total deductions</b>	<b><u>254,213,607</u></b>	<b><u>235,737,100</u></b>
Net increase	57,392,378	349,148,421
<b>NET POSITION RESTRICTED FOR PENSIONS</b>		
Beginning of year	4,723,109,935	4,373,961,514
<b>End of year</b>	<b><u>\$ 4,780,502,313</u></b>	<b><u>\$ 4,723,109,935</u></b>
Estimated Return, Net of Investment Expenses	0.9%	6.2%



**Exhibit 5**  
**Allocation of Assets by Accounting Reserve Amounts**  
**as of June 30, 2020 and 2019**

	2020	2019
<b>Valuation Reserves</b>		
1. Member Reserve	\$ 858,746,783	\$ 769,136,683
2. Employer Advance Reserve	1,213,276,549	1,086,126,550
3. Retiree Reserves	1,292,402,035	1,198,883,409
4. Cost of Living Adjustment Reserve	1,552,804,970	1,464,872,095
5. County Supplemental Contributions Account Reserve	174,529,290	188,806,043
6. District Supplemental Contributions Account Reserve	1,519,451	1,864,243
<b>Total Valuation Reserves</b>	<b>5,093,279,078</b>	<b>4,709,689,023</b>
<b>Non-Valuation Reserves</b>		
1. Contingency Reserve	50,488,044	47,328,299
2. Undistributed Earnings / (Losses) Reserve	(105,190,095)	(24,074,932)
<b>Total Non-Valuation Reserves</b>	<b>(54,702,051)</b>	<b>23,253,367</b>
<b>Market Stabilization Account</b>	<b>(258,074,714)</b>	<b>(9,832,455)</b>
<b>Total Reserves (Market Value of Assets)</b>	<b>\$ 4,780,502,313</b>	<b>\$ 4,723,109,935</b>

Note: These amounts were determined by SamCERA for accounting purposes.

**Exhibit 6a**  
**Five-Year Smoothing of Gains and Losses on Market Value (Total Assets) – History**

History of Unexpected Asset Gains and Losses								
Six-Month Period Ended	Market Value at Beginning of Period	Contributions	Benefit Payments	Market Value at End of Period	Assumed Rate of Return	Expected Return	Actual Return	Unexpected Gain / (Loss)
06/30/2020	\$ 4,950,278,117	\$ 141,276,359	\$ 126,289,581	\$ 4,780,502,313	3.250%	\$ 162,104,000	\$ (184,762,582)	\$ (346,866,582)
12/31/2019	4,723,109,935	127,937,403	119,531,561	4,950,278,117	3.250%	154,870,851	218,762,340	63,891,489
06/30/2019	4,251,567,361	102,883,854	116,505,474	4,723,109,935	3.375%	142,617,961	485,164,194	342,546,233
12/31/2018	4,373,961,514	210,310,184	110,679,649	4,251,567,361	3.375%	149,503,844	(222,024,688)	(371,528,532)
06/30/2018	4,337,368,899	146,901,128	106,950,260	4,373,961,514	3.375%	147,555,099	(3,358,253)	(150,913,352)
12/31/2017	4,038,701,990	124,539,824	102,104,343	4,337,368,899	3.375%	137,926,474	276,231,428	138,304,954
06/30/2017	3,721,598,964	154,997,828	98,037,329	4,038,701,990	3.500%	131,806,865	260,142,527	128,335,662
12/31/2016	3,541,388,497	105,889,408	95,202,951	3,721,598,964	3.500%	125,157,215	169,524,010	44,366,795
06/30/2016	3,361,636,244	141,996,842	93,308,035	3,541,388,497	3.625%	123,696,090	131,063,446	7,367,356
12/31/2015	3,454,476,328	105,166,352	89,555,664	3,361,636,244	3.625%	126,551,502	(108,450,772)	(235,002,274)

**Exhibit 6b**  
**Five-Year Smoothing of Gains and Losses on Market Value (excluding SCAs) – History**

History of Unexpected Asset Gains and Losses								
Six-Month Period Ended	Market Value at Beginning of Period	Contributions and SCA Credits	Benefit Payments	Market Value at End of Period	Assumed Rate of Return	Expected Return	Actual Return	Unexpected Gain / (Loss)
06/30/2020	\$ 4,750,877,586	\$ 157,364,783	\$ 126,289,581	\$ 4,604,453,572	3.250%	\$ 155,623,482	\$ (177,499,216)	\$ (333,122,698)
12/31/2019	4,532,439,649	127,937,403	119,531,561	4,750,877,586	3.250%	148,674,067	210,032,095	61,358,028
06/30/2019	4,114,925,851	64,852,245	116,505,474	4,532,439,649	3.375%	137,584,435	469,167,027	331,582,592
12/31/2018	4,230,263,350	210,310,184	110,679,649	4,114,925,851	3.375%	144,654,031	(214,968,034)	(359,622,065)
06/30/2018	4,212,378,467	128,178,746	106,950,260	4,230,263,350	3.375%	143,336,672	(3,343,603)	(146,680,275)
12/31/2017	3,921,574,858	124,539,824	102,104,343	4,212,378,467	3.375%	133,973,434	268,368,128	134,394,694
06/30/2017	3,637,603,049	127,692,026	98,037,329	3,921,574,858	3.500%	128,867,008	254,317,112	125,450,104
12/31/2016	3,461,178,323	105,889,408	95,202,951	3,637,603,049	3.500%	122,349,858	165,738,269	43,388,411
06/30/2016	3,298,745,030	127,369,320	93,308,035	3,461,178,323	3.625%	121,239,221	128,372,008	7,132,787
12/31/2015	3,391,154,929	103,655,923	89,555,664	3,298,745,030	3.625%	124,233,287	(106,510,158)	(230,743,445)

**Exhibit 6c**  
**Five-Year Smoothing of Gains and Losses on Market Value of CSCA – History**

History of Unexpected Asset Gains and Losses								
Six-Month Period Ended	Account Value at Beginning of Period	Contributions	Credits Used	Account Value at End of Period	Assumed Rate of Return	Expected Return	Actual Return	Unexpected Gain / (Loss)
06/30/2020	\$ 197,473,708	\$ -	\$ 15,629,442	\$ 174,529,290	3.250%	\$ 6,417,896	\$ (7,314,976)	\$ (13,732,872)
12/31/2019	188,806,043	-	-	197,473,708	3.250%	6,136,196	8,667,665	2,531,469
06/30/2019	134,646,329	50,668,357	12,444,200	188,806,043	3.375%	4,966,189	15,935,557	10,969,368
12/31/2018	141,751,083	-	-	134,646,329	3.375%	4,784,099	(7,104,754)	(11,888,853)
06/30/2018	122,954,893	27,630,129	8,745,874	141,751,083	3.375%	4,149,728	(88,065)	(4,237,793)
12/31/2017	115,170,236	-	-	122,954,893	3.375%	3,886,995	7,784,657	3,897,662
06/30/2017	82,353,954	33,600,000	6,544,198	115,170,236	3.500%	2,882,388	5,760,480	2,878,092
12/31/2016	78,626,500	-	-	82,353,954	3.500%	2,751,928	3,727,454	975,526
06/30/2016	61,353,822	19,538,000	4,910,478	78,626,500	3.625%	2,401,139	2,645,156	244,017
12/31/2015	63,321,399	-	-	61,353,822	3.625%	2,295,401	(1,967,577)	(4,262,978)

**Exhibit 6d**  
**Five-Year Smoothing of Gains and Losses on Market Value of DCSA – History**

History of Unexpected Asset Gains and Losses									
Six-Month Period Ended	Account Value at Beginning of Period	Contributions	Credits Used	Account Value at End of Period	Assumed Rate of Return	Expected Return	Actual Return	Unexpected Gain / (Loss)	
06/30/2020	\$ 1,926,823	\$ -	\$ 458,982	\$ 1,519,451	3.250%	\$ 62,622	\$ 51,610	\$ (11,012)	
12/31/2019	1,864,243	-	-	1,926,823	3.250%	60,588	62,580	1,992	
06/30/2019	1,995,181	-	192,548	1,864,243	3.375%	67,337	61,610	(5,727)	
12/31/2018	1,947,081	-	-	1,995,181	3.375%	65,714	48,100	(17,614)	
06/30/2018	2,035,539	-	161,873	1,947,081	3.375%	68,699	73,415	4,716	
12/31/2017	1,956,896	-	-	2,035,539	3.375%	66,045	78,643	12,598	
06/30/2017	1,641,961	250,000	-	1,956,896	3.500%	57,469	64,935	7,466	
12/31/2016	1,583,674	-	-	1,641,961	3.500%	55,429	58,287	2,858	
06/30/2016	1,537,392	-	-	1,583,674	3.625%	55,730	46,282	(9,448)	
12/31/2015	0	1,510,429	-	1,537,392	3.625%	22,814	26,963	4,149	

**Exhibit 7a**  
**Five-Year Smoothing – Development of Valuation Assets (Total Assets)**

<b>Development of Market Stabilization Reserve</b>				
Six-Month Period Ended	Investment Gain / (Loss)	Adjusted Investment Gain / (Loss)	Percent Excluded	Adjusted Gain / (Loss) Excluded
06/30/2020	\$ (346,866,582)	\$ (298,111,054) x	90%	= \$ (268,299,949)
12/31/2019	63,891,489	0 x	80%	= 0
06/30/2019	342,546,233	(2,994) x	70%	= (2,096)
12/31/2018	(371,528,532)	0 x	60%	= 0
06/30/2018	(150,913,352)	0 x	50%	= 0
12/31/2017	138,304,954	0 x	40%	= 0
06/30/2017	128,335,662	0 x	30%	= 0
12/31/2016	44,366,795	0 x	20%	= 0
06/30/2016	7,367,356	0 x	10%	= 0
12/31/2015	(235,002,274)	0 x	0%	= 0
Total Gain / (Loss) Excluded =				\$ (268,302,045)

<b>Development of Valuation Assets</b>		
1. Market Value of Assets as of June 30, 2020		\$ 4,780,502,313
2. Preliminary Market Stabilization Reserve		<u>(268,302,045)</u>
3. Preliminary Actuarial Value of Assets (1) - (2)		5,048,804,358
4. Corridor Around Market Value		
a) Minimum = 80% of Market	\$ 3,824,401,850	
b) Maximum = 120% of Market	5,736,602,776	
c) Corridor Adjustment		0
5. Market Stabilization Reserve	(268,302,045)	
6. Gross Actuarial Valuation of Assets (3) - (4c)		\$ 5,048,804,358
7. Non-Valuation Reserves		
a) Contingency Reserve	50,488,044	
b) Undistributed Earnings / (Losses) Reserve	0	
c) Other Specified Reserves	<u>0</u>	
d) Total		50,488,044
8. Valuation Assets (6) - (7d)		\$ 4,998,316,314

**Exhibit 7b**  
**Five-Year Smoothing – Development of Valuation Assets (excluding SCAs)**

<b>Development of Market Stabilization Reserve</b>				
Six-Month Period Ended	Investment Gain / (Loss)	Adjusted Investment Gain / (Loss)	Percent Excluded	Adjusted Gain / (Loss) Excluded
06/30/2020	\$ (333,122,698)	\$ (286,749,682) x	90%	= \$ (258,074,714)
12/31/2019	61,358,028	0 x	80%	= 0
06/30/2019	331,582,592	0 x	70%	= 0
12/31/2018	(359,622,065)	0 x	60%	= 0
06/30/2018	(146,680,275)	0 x	50%	= 0
12/31/2017	134,394,694	0 x	40%	= 0
06/30/2017	125,450,104	0 x	30%	= 0
12/31/2016	43,388,411	0 x	20%	= 0
06/30/2016	7,132,787	0 x	10%	= 0
12/31/2015	(230,743,445)	0 x	0%	= 0
Total Gain / (Loss) Excluded =				\$ (258,074,714)

<b>Development of Valuation Assets</b>		
1. Market Value of Assets as of June 30, 2020		\$ 4,604,453,572
2. Preliminary Market Stabilization Reserve		<u>(258,074,714)</u>
3. Preliminary Actuarial Value of Assets (1) - (2)		4,862,528,286
4. Corridor Around Market Value		
a) Minimum = 80% of Market	\$ 3,683,562,858	
b) Maximum = 120% of Market	5,525,344,286	
c) Corridor Adjustment		0
5. Market Stabilization Reserve	(258,074,714)	
6. Gross Actuarial Valuation of Assets (3) - (4c)		\$ 4,862,528,286
7. Non-Valuation Reserves		
a) Contingency Reserve	50,488,044	
b) Undistributed Earnings / (Losses) Reserve	0	
c) Other Specified Reserves	<u>0</u>	
d) Total		50,488,044
8. Valuation Assets (6) - (7d)		\$ 4,812,040,242

**Exhibit 7c  
Five-Year Smoothing – Development of CSCA Assets**

<b>Development of Market Stabilization Reserve</b>				
<u>Six-Month Period Ended</u>	<u>Investment Gain / (Loss) <sup>1</sup></u>	<u>Adjusted Investment Gain / (Loss)</u>	<u>Percent Excluded</u>	<u>Adjusted Gain / (Loss) Excluded</u>
06/30/2020	\$ (13,732,872)	\$ (11,350,360) x	90%	= \$ (10,215,324)
12/31/2019	2,531,469	0 x	80%	= 0
06/30/2019	10,969,368	0 x	70%	= 0
12/31/2018	(11,888,853)	0 x	60%	= 0
06/30/2018	(4,237,793)	0 x	50%	= 0
12/31/2017	3,897,662	0 x	40%	= 0
06/30/2017	2,878,092	0 x	30%	= 0
12/31/2016	975,526	0 x	20%	= 0
06/30/2016	244,017	0 x	10%	= 0
12/31/2015	(4,262,978)	0 x	0%	= 0
Total Gain / (Loss) Excluded =				\$ (10,215,324)

1. Historical amounts were recalculated as of June 30, 2019 for consistency with Addenda #1 of the MOU regarding retirement system funding.

<b>Development of Valuation Assets</b>	
1. Market Value of Assets as of June 30, 2020	\$ 174,529,290
2. Preliminary Market Stabilization Reserve	<u>(10,215,324)</u>
3. Preliminary Actuarial Value of Assets (1) - (2)	184,744,614
4. Corridor Around Market Value	
a) Minimum = 80% of Market	\$ 139,623,432
b) Maximum = 120% of Market	209,435,148
c) Corridor Adjustment	0
5. Market Stabilization Reserve	(10,215,324)
6. Gross Actuarial Valuation of Assets (3) - (4c)	\$ 184,744,614
7. Non-Valuation Reserves	
a) Contingency Reserve	0
b) Undistributed Earnings / (Losses) Reserve	0
c) Other Specified Reserves	<u>0</u>
d) Total	0
8. Valuation Assets (6) - (7d)	\$ 184,744,614



**Exhibit 7d  
Five-Year Smoothing – Development of DCSA Assets**

<b>Development of Market Stabilization Reserve</b>					
Six-Month Period Ended	Investment Gain / (Loss) <sup>1</sup>	Adjusted Investment Gain / (Loss)	Percent Excluded		Adjusted Gain / (Loss) Excluded
06/30/2020	\$ (11,012)	\$ (11,012) x	90%	=	\$ (9,911)
12/31/2019	1,992	0 x	80%	=	0
06/30/2019	(5,727)	(2,994) x	70%	=	(2,096)
12/31/2018	(17,614)	0 x	60%	=	0
06/30/2018	4,716	0 x	50%	=	0
12/31/2017	12,598	0 x	40%	=	0
06/30/2017	7,466	0 x	30%	=	0
12/31/2016	2,858	0 x	20%	=	0
06/30/2016	(9,448)	0 x	10%	=	0
12/31/2015	4,149	0 x	0%	=	0
Total Gain / (Loss) Excluded =					\$ (12,007)

1. Historical amounts were recalculated as of June 30, 2019 for consistency with the District's MOU regarding retirement system funding.

<b>Development of Valuation Assets</b>		
1. Market Value of Assets as of June 30, 2020		\$ 1,519,451
2. Preliminary Market Stabilization Reserve		(12,007)
3. Preliminary Actuarial Value of Assets (1) - (2)		1,531,458
4. Corridor Around Market Value		
a) Minimum = 80% of Market	\$ 1,215,561	
b) Maximum = 120% of Market	1,823,341	
c) Corridor Adjustment		0
5. Market Stabilization Reserve	(12,007)	
6. Gross Actuarial Valuation of Assets (3) - (4c)		\$ 1,531,458
7. Non-Valuation Reserves		
a) Contingency Reserve		0
b) Undistributed Earnings / (Losses) Reserve		0
c) Other Specified Reserves		0
d) Total		0
8. Valuation Assets (6) - (7d)		\$ 1,531,458

**Exhibit 8**  
**Allocation of Valuation Assets**

(Dollars in thousands)

<b>ALLOCATION OF VALUATION ASSETS</b>				
<b>For the Year Ended June 30, 2020</b>				
<b>(Dollars in thousands)</b>				
	<b>General</b>	<b>Safety</b>	<b>Probation</b>	<b>Total</b>
1. Prior Year UAAL	\$ 683,331	\$ 209,863	\$ 71,840	\$ 965,034
2. Expected UAAL Contribution for Preceding Year	(103,096)	(34,196)	(9,153)	(146,445)
3. Expected Interest at 6.50%	41,119	12,547	4,377	58,043
4. Expected UAAL Based on Prior Year Assumptions	621,354	188,214	67,064	876,632
5. Percentage of Total Expected UAAL	70.88%	21.47%	7.65%	100.00%
6. Actual UAAL Based on Prior Year Assumptions				962,421
7. Actual AAL Based on Prior Year Assumptions	\$ 4,242,929	\$ 1,124,699	\$ 406,833	\$ 5,774,461
8. Allocated UAAL Based on Prior Year Assumptions	682,164	206,632	73,625	962,421
<b>9. Valuation Assets (excluding SCA assets)</b>	<b>\$ 3,560,765</b>	<b>\$ 918,067</b>	<b>\$ 333,208</b>	<b>\$ 4,812,040</b>
10. Actual UAAL excluding SCA Valuation Assets	\$ 687,498	\$ 208,641	\$ 77,875	\$ 974,014
11. Allocation of UAAL	70.58%	21.42%	8.00%	100.00%
<b>12. Valuation Assets (CSCA)</b>	<b>\$ 130,393</b>	<b>\$ 39,572</b>	<b>\$ 14,780</b>	<b>\$ 184,745</b>
<b>13. Valuation Assets (DSCA)</b>	<b>\$ 1,531</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,531</b>
<b>14. Valuation Assets (Total)</b>	<b>\$ 3,692,689</b>	<b>\$ 957,639</b>	<b>\$ 347,988</b>	<b>\$ 4,998,316</b>

#### **4. Actuarial Liabilities**

This section of the report focuses on the commitments of SamCERA for retirement benefits, which are referred to as its actuarial liabilities. All liabilities reflect the benefits effective through June 30, 2020.

In an active retirement system, the combined current and future actuarial liabilities will almost always exceed the actuarial assets. This difference has to be provided by future contributions. An actuarial valuation method sets out a schedule of future contributions that will deal with this difference in an orderly fashion. The determination of the level of future contributions needed is discussed in the next section.

The actuarial assumptions used to determine the liabilities are based on the results of our Investigation of Experience study for the period ended April 30, 2020. At its meeting on July 28, 2020, the Board adopted new assumptions as recommended by Milliman. These assumptions are shown in Appendix A. The assumptions will next be reviewed in detail in 2023 as part of the triennial investigation of experience study.

##### **Actuarial Balance Sheet**

The Actuarial Balance Sheet compares the Present Value of Future Benefits for retired, inactive and active members, compares them to the resources available to meet them, and determines the amount of any difference, also called the Unfunded Actuarial Accrued Liability (UAAL). For the purpose of the Actuarial Balance Sheet, SamCERA's resources are equal to the sum of:

- (a) Assets currently available to pay benefits and considered for funding purposes, the Valuation Assets,
- (b) The present value of future contributions expected to be made by current active members, and
- (c) The present value of future contributions expected to be made by the employer.

Exhibit 9a contains an analysis of the Present Value of Future Benefits compared to total Valuation Assets.

Exhibit 9b contains an analysis using the Valuation Assets excluding the SCA assets (sum of the CSCA and DSCA). These analyses are displayed by class of membership and by type of benefit.

##### **Unfunded Actuarial Accrued Liability**

The Actuarial Accrued Liability (AAL) represents the value of benefits earned as of the valuation date, and is one component of the Present Value of Future Benefits. The difference between the AAL and Valuation Assets is referred to as the Unfunded Actuarial Accrued Liability (UAAL).

Exhibit 9c provides an analysis of the change in the UAAL since the prior valuation date.

**Exhibit 9a**  
**Actuarial Balance Sheet (Total Assets)**  
**June 30, 2020**

(Dollars in thousands)

<b>Resources</b>				
	<b>General</b>	<b>Safety</b>	<b>Probation</b>	<b>Total</b>
Valuation Assets (Actuarial)	\$ 3,692,689	\$ 957,639	\$ 347,988	\$ 4,998,316
Present Value of Future Member Contributions	421,156	95,433	29,329	545,918
Present Value of Future Employer Contributions to Fund:				
a) Normal Cost	349,816	88,599	30,625	469,040
b) Unfunded Actuarial Accrued Liability	555,574	169,069	63,095	787,738
<b>Total Resources</b>	<b>\$ 5,019,235</b>	<b>\$ 1,310,740</b>	<b>\$ 471,037</b>	<b>\$ 6,801,012</b>

<b>Liabilities</b>				
	<b>General</b>	<b>Safety</b>	<b>Probation</b>	<b>Total</b>
Present Value of Future Benefits				
1. Present Retired Members	\$ 2,337,485	\$ 784,446	\$ 232,933	\$ 3,354,864
2. Current Inactive Members	219,659	20,886	13,805	254,350
3. Current Active Members				
- Service Retirement	2,228,328	447,137	206,007	2,881,472
- Termination Benefits	107,111	14,427	3,984	125,522
- Death Benefits	23,416	3,477	1,051	27,944
- Disability Benefits	103,236	40,367	13,257	156,860
- Total Active	2,462,091	505,408	224,299	3,191,798
<b>Total Actuarial Liabilities</b>	<b>\$ 5,019,235</b>	<b>\$ 1,310,740</b>	<b>\$ 471,037</b>	<b>\$ 6,801,012</b>

**Exhibit 9b**  
**Actuarial Balance Sheet (excluding SCAs)**  
**June 30, 2020**

(Dollars in thousands)

<b>Resources</b>				
	<b>General</b>	<b>Safety</b>	<b>Probation</b>	<b>Total</b>
Valuation Assets (Actuarial)	\$ 3,560,765	\$ 918,067	\$ 333,208	\$ 4,812,040
Present Value of Future Member Contributions	421,156	95,433	29,329	545,918
Present Value of Future Employer Contributions to Fund:				
a) Normal Cost	349,816	88,599	30,625	469,040
b) Unfunded Actuarial Accrued Liability	687,498	208,641	77,875	974,014
<b>Total Resources</b>	<b>\$ 5,019,235</b>	<b>\$ 1,310,740</b>	<b>\$ 471,037</b>	<b>\$ 6,801,012</b>

<b>Liabilities</b>				
	<b>General</b>	<b>Safety</b>	<b>Probation</b>	<b>Total</b>
Present Value of Future Benefits				
1. Present Retired Members	\$ 2,337,485	\$ 784,446	\$ 232,933	\$ 3,354,864
2. Current Inactive Members	219,659	20,886	13,805	254,350
3. Current Active Members				
- Service Retirement	2,228,328	447,137	206,007	2,881,472
- Termination Benefits	107,111	14,427	3,984	125,522
- Death Benefits	23,416	3,477	1,051	27,944
- Disability Benefits	103,236	40,367	13,257	156,860
- Total Active	2,462,091	505,408	224,299	3,191,798
<b>Total Actuarial Liabilities</b>	<b>\$ 5,019,235</b>	<b>\$ 1,310,740</b>	<b>\$ 471,037</b>	<b>\$ 6,801,012</b>

**Exhibit 9c**  
**Analysis of Change in the Unfunded Actuarial Accrued Liability**  
**June 30, 2020**

(Dollars in thousands)

	Amount	As a Percent of June 30, 2020 Actuarial Accrued Liability
<b>Unfunded Actuarial Accrued Liability - June 30, 2019</b>	<b>\$ 774,476.0</b>	13.4%
Increase in UAAL due to new assumptions	11,592.5	0.2%
Interest Accrued	50,340.9	0.9%
Benefits Accrued (Normal Cost)	141,957.6	2.5%
<u>Contributions</u>		
Employers	\$ (204,935.3)	-3.5%
Members	(72,890.1)	-1.3%
CSCA and DCSA Contributions	0.0	0.0%
Total	<u>(277,825.4)</u>	-4.8%
<b>Expected Unfunded Actuarial Accrued Liability - June 30, 2020</b>	<b>\$ 700,541.6</b>	12.1%
<b>Sources of Change:</b>		0.0%
(Gain) / Loss due to Investment Income	15,884.3	0.3%
<u>Liability (Gains) and Losses</u>		
Salary Increases Greater than Expected	\$ 25,190.4	0.4%
Active Member Experience (non salary)	16,921.6	0.3%
CPI Greater than Expected	18,992.1	0.3%
Mortality Experience	2,963.1	0.1%
All Other Experience	7,244.4	0.1%
Total	<u>71,311.6</u>	1.2%
<b>Total Changes</b>	<b>\$ 87,195.9</b>	1.5%
<b>Unfunded Actuarial Accrued Liability - June 30, 2020</b>	<b>\$ 787,737.5</b>	13.6%

## 5. Member Contributions

For SamCERA members in Plans 1-6, contributions are of three types: Basic contributions, Cost Sharing contributions, and COLA Cost Sharing contributions.

SamCERA members in Plan 7 pay contributions equal to one-half of the total Normal Cost rate for all members.

There are no member contributions under General Plan 3.

### Basic Member Contributions

Basic contribution member rates for General members in Plans 1, 2 and 4 are defined in Section 31621.9 of the County Employees Retirement Law (CERL). General Plan 5 member rates are defined in Section 31621, and Probation and Safety member rates in Plans 1-6 are defined in Section 31639.25.

Basic member contributions are determined using the Entry Age Normal Cost Method and the following actuarial assumptions:

1. Expected rate of return on assets
2. Individual salary increase rate (wage growth + merit)
3. Mortality for members based on service retirement
4. No COLAs are assumed

The basic member contribution rates for Plans 1-6 were recalculated as of the June 30, 2020 valuation to reflect assumptions adopted by the Board of Retirement on July 28, 2020. The rates are shown in Appendix D.

### Cost of Living Member Contributions

Members in Plans 1-6 (except Plan 3 and SMCM&VCD members) may share in the cost of the Cost of Living Adjustment (COLA) benefit by making additional contributions. The COLA level is described in detail in the Member Contributions section of Appendix B.

COLA member rates for Plans 1-6 are determined by calculating and applying a load factor to the basic member rates. New COLA load factors were calculated in the 2020 valuation as it is a triennial year. COLA load factors are determined for each class and plan of member separately, as shown in the following table:

Plan	COLA Share	COLA Load
General 1	50%	35.00%
General 2	50%	34.50%
General 4	50%	26.45%
General 5	50%	24.73%
Safety 1	50%	47.93%
Safety 2	50%	51.77%
Safety 4	50%	39.14%
Safety 5	50%	34.72%
Safety 6	50%	32.47%
Probation 1	50%	53.21%
Probation 2	50%	53.21%
Probation 4	50%	39.67%
Probation 5	50%	34.94%
Probation 6	50%	30.44%

As an example, a member who enters General Plan 5 at age 35 has a basic member contribution rate of 7.18% (Exhibit D-1). The General Plan 5 COLA load is 24.73% for a member COLA contribution of 1.78% ( $7.18\% \times 24.73\%$ ) of pay. The basic plus COLA member contribution rate is 8.96% ( $7.18\% + 1.78\%$ ).

The COLA load for each plan is determined as follows: the present value of future normal costs with and without COLA provisions is calculated. The difference is multiplied by the COLA share percentage, and then divided by the present value of future basic only member contributions.

### **Cost Sharing Contributions**

All Plan 1, 2, and 4 employees (except SMCM&VCD), as well as Plan 5 Safety and Probation employees, make additional cost-sharing contributions as shown in Appendix B. Plan 5 General employees, and all Plan 6 and 7 employees do not participate in cost-sharing. For valuation purposes, cost-sharing contributions are assumed to be permanent. The cost-sharing contributions are fixed and not impacted by changes in assumptions.

### **Member Contribution Rates (Plan 7)**

Contributions for Plan 7 are defined in Section 7522.30 of the Government Code.

All employees of the same class who are members of Plan 7 shall contribute the same percentage of payroll. Such percentage will be 50% of the total Normal Cost rate for that class. The rates are recalculated annually.



## 6. Employer Contributions

Employer contribution rates are determined using the Entry Age Normal Cost Method. The portion of the actuarial present value of retirement benefits allocated to a valuation year by the Actuarial Cost Method is called the Normal Cost. These amounts are usually expressed as a percentage of payroll and called the Normal Cost Contribution Rate. Exhibit 11 shows the Normal Cost Rates by type of benefit and for each plan based on this valuation.

It should be noted that when we use the term "Gross Normal Cost rate," we are referring to the value of benefits earned by active members allocated to the valuation year. The Employer Normal Cost rate is the portion of the annual benefit that the employer is responsible for. This is simply the Gross Normal Cost rate less the contributions expected to be made by the members.

### Statutory Contribution Rate

A summary of the total Statutory Contribution Rate for each classification, along with a comparison to the prior year's rates, can be found in Exhibit 10, with additional detail for each plan in Exhibits 10a through 10d. These results are expressed as a percentage of payroll. Note that SamCERA's UAAL is determined separately for each class. Thus, the employers fund the UAAL evenly as a percentage of pay over salaries for all members within a class.

The UAAL rate reflects a layered 15-year amortization beginning with the June 30, 2008 valuation. Gains and losses after that date are reflected over new 15-year periods starting with the valuation date. A one-year deferral in the implementation of the new rate is reflected. Therefore, the new employer contribution rate calculated in the 2020 valuation is effective July 1, 2021, and the UAAL is amortized over the remaining 14 years.

The SCA (CSCA for the County and DSCA for the SMCM&VCD) UAAL offset amounts are calculated in a similar manner to the UAAL rate described above. Effective with the June 30, 2018 valuation, the DSCA balance and subsequent UAAL layers are amortized over a period of five years. The total DSCA offset amount in a given year is limited to the SMCM&VCD UAAL rate, and the DSCA will be adjusted to reflect the actual offset (after reflecting the limitation, if any).

Exhibits 12a through 12c show detailed information on how the UAAL contribution rate is calculated using the layered method. The UAAL contribution rates are calculated prior to reflecting the SCAs.

Exhibits 12d and 12e show detailed information on how the SCA offsets are calculated using the same layered approach as used for UAAL amortizations.

**Exhibit 10**  
**Employer Statutory Contribution Rates – All Plans**  
**For the 2021-2022 Fiscal Year**

All Plans								
	Gross Normal Cost	Member Contributions	Employer Rates					Prior Year Total Contribution Rate
			Basic Normal Cost	COLA Normal Cost	Total Normal Cost	UAAL Contribution Rate <sup>(1)</sup>	Total Contribution Rate	
<u>General</u>								
County	20.74%	(11.17)%	7.41%	2.16%	9.57%	23.22%	32.79%	32.11%
Courts	21.01%	(11.38)%	7.44%	2.19%	9.63%	26.22%	35.85%	35.22%
<b>Total</b>	20.75%	(11.18)%	7.41%	2.16%	9.57%	23.36%	32.93%	32.25%
SMCM&VCD	21.22%	(8.85)%	9.10%	3.27%	12.37%	0.39%	12.76%	12.58%
Safety	35.30%	(17.73)%	13.52%	4.05%	17.57%	54.42%	71.99%	68.89%
Probation	35.51%	(17.21)%	14.19%	4.11%	18.30%	47.68%	65.98%	60.52%
All Plans	23.11%	(12.21)%	8.43%	2.47%	10.90%	28.01%	38.91%	37.86%
County Only	23.21%	(12.26)%	8.47%	2.48%	10.95%	28.19%	39.14%	38.06%

<sup>1</sup> County UAAL Contribution Rate includes an aggregate offset of 3.54% of payroll to reflect the County Supplementary Contribution Account. Offsets vary by class of member as follows:

- General member UAAL offset is 3.00% of payroll
- Safety member UAAL offset is 6.14% of payroll
- Probation member UAAL offset is 6.28% of payroll

SMCM&VCD UAAL Contribution Rate includes an offset of 25.83% of payroll to reflect the District Supplementary Contribution Account.

**Exhibit 10a**  
**Employer Statutory Contribution Rates – General Members**  
**For the 2021-2022 Fiscal Year**

	Employer Rates							Prior Year Total Contribution Rate
	Gross Normal Cost	Member Contributions	Basic Normal Cost	COLA Normal Cost	Total Normal Cost	UAAL Contribution Rate <sup>(1)</sup>	Total Contribution Rate	
<b>General Members</b>								
<u>Plan 1</u>								
County	26.80%	(14.95)%	8.37%	3.48%	11.85%	23.22%	35.07%	45.05%
Courts	26.80%	(14.95)%	8.37%	3.48%	11.85%	26.22%	38.07%	48.08%
<b>Total</b>	26.80%	(14.95)%	8.37%	3.48%	11.85%	23.22%	35.07%	45.05%
<u>Plan 2</u>								
County	23.34%	(13.59)%	6.70%	3.05%	9.75%	23.22%	32.97%	32.02%
Courts	23.34%	(13.59)%	6.70%	3.05%	9.75%	26.22%	35.97%	35.05%
<b>Total</b>	23.34%	(13.59)%	6.70%	3.05%	9.75%	23.34%	33.09%	32.14%
<u>Plan 3</u>								
County	8.51%	0.00%	8.51%	0.00%	8.51%	23.22%	31.73%	30.67%
Courts	8.51%	0.00%	8.51%	0.00%	8.51%	26.22%	34.73%	33.70%
<b>Total</b>	8.51%	0.00%	8.51%	0.00%	8.51%	23.29%	31.80%	30.67%
<u>Plan 4</u>								
County	23.44%	(13.45)%	7.57%	2.42%	9.99%	23.22%	33.21%	32.47%
Courts	23.44%	(13.45)%	7.57%	2.42%	9.99%	26.22%	36.21%	35.50%
<b>Total</b>	23.44%	(13.45)%	7.57%	2.42%	9.99%	23.38%	33.37%	32.64%
<u>Plan 5</u>								
County	21.65%	(9.90)%	9.57%	2.18%	11.75%	23.22%	34.97%	34.22%
Courts	21.65%	(9.90)%	9.57%	2.18%	11.75%	26.22%	37.97%	37.25%
<b>Total</b>	21.65%	(9.90)%	9.57%	2.18%	11.75%	23.37%	35.12%	34.36%
<u>Plan 7</u>								
County	17.49%	(8.75)%	7.02%	1.72%	8.74%	23.22%	31.96%	31.29%
Courts	17.49%	(8.75)%	7.02%	1.72%	8.74%	26.22%	34.96%	34.32%
<b>Total</b>	17.49%	(8.75)%	7.02%	1.72%	8.74%	23.35%	32.09%	31.41%
<u>All Plans</u>								
County	20.74%	(11.17)%	7.41%	2.16%	9.57%	23.22%	32.79%	32.11%
Courts	21.01%	(11.38)%	7.44%	2.19%	9.63%	26.22%	35.85%	35.22%
<b>Total</b>	20.75%	(11.18)%	7.41%	2.16%	9.57%	23.36%	32.93%	32.25%

1. UAAL Contribution Rate includes an offset of 3.00% of payroll to reflect the County Supplementary Contribution Account, except for Courts.

**Exhibit 10b**  
**Employer Statutory Contribution Rates – SMCM&VCD Members**  
**For the 2021-2022 Fiscal Year**

SMCM&VCD Members								
	Employer Rates							Prior Year Total Contribution Rate
	Gross Normal Cost	Member Contributions	Basic Normal Cost	COLA Normal Cost	Total Normal Cost	UAAL Contribution Rate <sup>(1)</sup>	Total Contribution Rate	
Plan 1 <sup>(2)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plan 2 <sup>(2)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plan 4	22.74%	(8.19)%	10.21%	4.34%	14.55%	0.39%	14.94%	14.61%
Plan 7	19.34%	(9.67)%	7.73%	1.94%	9.67%	0.39%	10.06%	9.24%
All Plans	21.22%	(8.85)%	9.10%	3.27%	12.37%	0.39%	12.76%	12.58%

1. UAAL Contribution Rate includes an offset of 25.83% of payroll to reflect the District Supplementary Contribution Account.  
2. There are currently no active Plan 1 or Plan 2 members. Employer rates will be developed in the future if needed.

**Exhibit 10c**  
**Employer Statutory Contribution Rates – Safety Members**  
**For the 2021-2022 Fiscal Year**

Safety Members								
	Gross Normal Cost	Member Contributions	Employer Rates				Total Contribution Rate	Prior Year Total Contribution Rate
			Basic Normal Cost	COLA Normal Cost	Total Normal Cost	UAAL Contribution Rate <sup>(1)</sup>		
Plan 1 <sup>(2)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plan 2	40.73%	(19.42)%	15.02%	6.29%	21.31%	54.42%	75.73%	72.33%
Plan 4	38.39%	(19.46)%	14.64%	4.29%	18.93%	54.42%	73.35%	69.53%
Plan 5	38.06%	(19.29)%	14.59%	4.18%	18.77%	54.42%	73.19%	70.47%
Plan 6 <sup>(2)</sup>	N/A	N/A	N/A	N/A	NA	NA	NA	NA
Plan 7	29.43%	(14.72)%	11.47%	3.24%	14.71%	54.42%	69.13%	66.15%
All Plans	35.30%	(17.73)%	13.52%	4.05%	17.57%	54.42%	71.99%	68.89%

1. UAAL Contribution Rate includes an offset of 6.14% of payroll to reflect the County Supplementary Contribution Account.  
2. There are currently no active Safety Plan 1 or Plan 6 members. Employer rates will be developed in the future if needed.

**Exhibit 10d**  
**Employer Statutory Contribution Rates – Probation Members**  
**For the 2021-2022 Fiscal Year**

Probation Members								
	Gross Normal Cost	Member Contributions	Employer Rates				Total Contribution Rate	Prior Year Total Contribution Rate
			Basic Normal Cost	COLA Normal Cost	Total Normal Cost	UAAL Contribution Rate <sup>(1)</sup>		
Plan 1 <sup>(2)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plan 2	39.04%	(18.10)%	15.04%	5.90%	20.94%	47.68%	68.62%	62.52%
Plan 4	36.92%	(17.77)%	14.95%	4.20%	19.15%	47.68%	66.83%	61.10%
Plan 5	33.40%	(17.42)%	12.20%	3.78%	15.98%	47.68%	63.66%	59.05%
Plan 6 <sup>(2)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plan 7	29.70%	(14.85)%	11.54%	3.31%	14.85%	47.68%	62.53%	57.52%
All Plans	35.51%	(17.21)%	14.19%	4.11%	18.30%	47.68%	65.98%	60.52%

1. UAAL Contribution Rate includes an offset of 6.28% of payroll to reflect the County Supplementary Contribution Account.  
2. There are currently no active Probation Plan 1 or Plan 6 members. Employer rates will be developed in the future if needed.

**Exhibit 11**  
**Calculated Gross Normal Cost Rates**

All Plans					
Plan	Normal Cost				Total Gross Normal Cost
	Service Retirement	Disability Retirement	Death Benefits while Active	Termination Benefits	
General Plan 1	20.19%	1.96%	0.28%	4.37%	<b>26.80%</b>
General Plan 2	16.97%	1.58%	0.31%	4.48%	<b>23.34%</b>
General Plan 3	7.86%	0.00%	0.00%	0.65%	<b>8.51%</b>
General Plan 4	17.34%	1.68%	0.31%	4.11%	<b>23.44%</b>
General Plan 5	16.14%	1.98%	0.33%	3.20%	<b>21.65%</b>
General Plan 7	13.04%	1.72%	0.25%	2.48%	<b>17.49%</b>
<b>General Total</b>	<b>15.39%</b>	<b>1.69%</b>	<b>0.28%</b>	<b>3.39%</b>	<b>20.75%</b>
SMCM&VCD Plan 1	N/A	N/A	N/A	N/A	<b>N/A</b>
SMCM&VCD Plan 2	N/A	N/A	N/A	N/A	<b>N/A</b>
SMCM&VCD Plan 4	17.42%	1.67%	0.26%	3.39%	<b>22.74%</b>
SMCM&VCD Plan 7	14.44%	1.85%	0.38%	2.67%	<b>19.34%</b>
<b>SMCM&amp;VCD Total</b>	<b>16.09%</b>	<b>1.75%</b>	<b>0.31%</b>	<b>3.07%</b>	<b>21.22%</b>
Safety Plan 1	N/A	N/A	N/A	N/A	<b>N/A</b>
Safety Plan 2	31.97%	4.54%	0.47%	3.75%	<b>40.73%</b>
Safety Plan 4	29.70%	4.85%	0.41%	3.43%	<b>38.39%</b>
Safety Plan 5	28.16%	6.47%	0.42%	3.01%	<b>38.06%</b>
Safety Plan 6	N/A	N/A	N/A	N/A	<b>N/A</b>
Safety Plan 7	21.50%	5.24%	0.34%	2.35%	<b>29.43%</b>
<b>Safety Total</b>	<b>26.73%</b>	<b>5.17%</b>	<b>0.39%</b>	<b>3.01%</b>	<b>35.30%</b>
Probation Plan 1	N/A	N/A	N/A	N/A	<b>N/A</b>
Probation Plan 2	31.68%	3.62%	0.37%	3.37%	<b>39.04%</b>
Probation Plan 4	29.33%	3.88%	0.33%	3.38%	<b>36.92%</b>
Probation Plan 5	26.16%	4.17%	0.31%	2.76%	<b>33.40%</b>
Probation Plan 6	N/A	N/A	N/A	N/A	<b>N/A</b>
Probation Plan 7	22.56%	4.33%	0.29%	2.52%	<b>29.70%</b>
<b>Probation Total</b>	<b>28.04%</b>	<b>3.96%</b>	<b>0.32%</b>	<b>3.19%</b>	<b>35.51%</b>
<b>All Plans</b>	<b>17.28%</b>	<b>2.20%</b>	<b>0.29%</b>	<b>3.34%</b>	<b>23.11%</b>

**Exhibit 12a**  
**UAAL Amortization Detail – General Members**

(Dollars in Thousands)

<b>Unfunded Actuarial Liability Amortization Detail</b>							
<b>Date Established</b>	<b>Description</b>	<b>Balance as of June 30, 2020</b>	<b>Interest on Balance</b>	<b>Amortization Payment on June 30, 2021</b>	<b>Balance as of June 30, 2021</b>	<b>Remaining Period as of June 30, 2021</b>	<b>July 1, 2021 Amortization Payment</b>
June 30, 2008	Initial UAAL	\$ 149,558	\$ 9,721	\$ 54,877	\$ 104,402	2 Years	\$ 54,040
June 30, 2009	(Gain) / Loss	\$ 174,671	\$ 11,354	\$ 48,863	\$ 137,162	3 Years	\$ 48,118
June 30, 2010	(Gain) / Loss	\$ (74,206)	\$ (4,823)	\$ (16,880)	\$ (62,150)	4 Years	\$ (16,622)
June 30, 2011	(Gain) / Loss	\$ (24,613)	\$ (1,600)	\$ (4,742)	\$ (21,471)	5 Years	\$ (4,669)
June 30, 2012	(Gain) / Loss	\$ 82,202	\$ 5,343	\$ 13,794	\$ 73,751	6 Years	\$ 13,584
June 30, 2013	(Gain) / Loss	\$ 16,442	\$ 1,069	\$ 2,453	\$ 15,057	7 Years	\$ 2,416
June 30, 2014	(Gain) / Loss	\$ (36,482)	\$ (2,371)	\$ (4,916)	\$ (33,937)	8 Years	\$ (4,841)
June 30, 2015	(Gain) / Loss	\$ (28,218)	\$ (1,834)	\$ (3,477)	\$ (26,576)	9 Years	\$ (3,424)
June 30, 2016	(Gain) / Loss	\$ 92,240	\$ 5,996	\$ 10,496	\$ 87,740	10 Years	\$ 10,336
June 30, 2017	(Gain) / Loss	\$ 66,553	\$ 4,326	\$ 7,051	\$ 63,827	11 Years	\$ 6,944
June 30, 2018	(Gain) / Loss	\$ (21,249)	\$ (1,381)	\$ (2,111)	\$ (20,519)	12 Years	\$ (2,079)
June 30, 2019	(Gain) / Loss	\$ 228,017	\$ 14,821	\$ 21,359	\$ 221,479	13 Years	\$ 21,034
June 30, 2020	(Gain) / Loss	\$ 62,584	\$ 4,068	\$ 2,538	\$ 64,114	14 Years	\$ 5,742
Total Amortization Payment July 1, 2021:							\$ 130,578
Projected Payroll July 1, 2021:							\$ 498,020
<b>UAAL as of June 30, 2020:</b>		<b>\$ 687,498</b>	<b>UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2021:</b>				<b>26.22%</b>

Notes:

1. Amortization Payments are based on a fixed schedule that increases by the payroll assumption each year.
2. The calculation of UAAL is as of June 30, 2020; whereas, the contribution rates are effective as of July 1, 2021. The June 30, 2020 UAAL is adjusted to June 30, 2021 based on the July 1, 2020 contribution rates and June 30, 2020 valuation assumptions.
3. (Gain)/Loss includes new assumptions adopted in each of the following valuations: 2011, 2012, 2014, 2016, 2017, 2019, and 2020.



**Exhibit 12b**  
**UAAL Amortization Detail – Safety Members**

(Dollars in Thousands)

Unfunded Actuarial Liability Amortization Detail							
Date Established	Description	Balance as of June 30, 2020	Interest on Balance	Amortization Payment on June 30, 2021	Balance as of June 30, 2021	Remaining Period as of June 30, 2021	July 1, 2021 Amortization Payment
June 30, 2008	Initial UAAL	\$ 54,578	\$ 3,548	\$ 20,026	\$ 38,099	2 Years	\$ 19,721
June 30, 2009	(Gain) / Loss	\$ 64,059	\$ 4,164	\$ 17,920	\$ 50,303	3 Years	\$ 17,647
June 30, 2010	(Gain) / Loss	\$ (27,758)	\$ (1,804)	\$ (6,314)	\$ (23,248)	4 Years	\$ (6,218)
June 30, 2011	(Gain) / Loss	\$ (11,415)	\$ (742)	\$ (2,199)	\$ (9,958)	5 Years	\$ (2,166)
June 30, 2012	(Gain) / Loss	\$ 24,440	\$ 1,589	\$ 4,101	\$ 21,927	6 Years	\$ 4,039
June 30, 2013	(Gain) / Loss	\$ 4,808	\$ 312	\$ 717	\$ 4,403	7 Years	\$ 706
June 30, 2014	(Gain) / Loss	\$ (14,679)	\$ (954)	\$ (1,978)	\$ (13,655)	8 Years	\$ (1,948)
June 30, 2015	(Gain) / Loss	\$ (7,859)	\$ (511)	\$ (968)	\$ (7,401)	9 Years	\$ (954)
June 30, 2016	(Gain) / Loss	\$ 24,869	\$ 1,616	\$ 2,830	\$ 23,655	10 Years	\$ 2,787
June 30, 2017	(Gain) / Loss	\$ 18,464	\$ 1,200	\$ 1,956	\$ 17,708	11 Years	\$ 1,926
June 30, 2018	(Gain) / Loss	\$ (5,162)	\$ (336)	\$ (513)	\$ (4,985)	12 Years	\$ (505)
June 30, 2019	(Gain) / Loss	\$ 64,657	\$ 4,203	\$ 6,057	\$ 62,803	13 Years	\$ 5,964
June 30, 2020	(Gain) / Loss	\$ 19,641	\$ 1,277	\$ (311)	\$ 21,229	14 Years	\$ 1,901
Total Amortization Payment July 1, 2021:							\$ 42,901
Projected Payroll July 1, 2021:							\$ 70,837
<b>UAAL as of June 30, 2020:</b>		<b>\$ 208,641</b>	<b>UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2021:</b>				<b>60.56%</b>

Notes:

1. Amortization Payments are based on a fixed schedule that increases by the payroll assumption each year.
2. The calculation of UAAL is as of June 30, 2020; whereas, the contribution rates are effective as of July 1, 2021. The June 30, 2020 UAAL is adjusted to June 30, 2021 based on the July 1, 2020 contribution rates and June 30, 2020 valuation assumptions.
3. (Gain)/Loss includes new assumptions adopted in each of the following valuations: 2011, 2012, 2014, 2016, 2017, 2019, and 2020.

**Exhibit 12c**  
**UAAL Amortization Detail – Probation Members**

(Dollars in Thousands)

Unfunded Actuarial Liability Amortization Detail							
Date Established	Description	Balance as of June 30, 2020	Interest on Balance	Amortization Payment on June 30, 2021	Balance as of June 30, 2021	Remaining Period as of June 30, 2021	July 1, 2021 Amortization Payment
June 30, 2008	Initial UAAL	\$ 13,675	\$ 889	\$ 5,018	\$ 9,546	2 Years	\$ 4,941
June 30, 2009	(Gain) / Loss	\$ 16,123	\$ 1,048	\$ 4,510	\$ 12,660	3 Years	\$ 4,441
June 30, 2010	(Gain) / Loss	\$ (6,775)	\$ (440)	\$ (1,541)	\$ (5,674)	4 Years	\$ (1,518)
June 30, 2011	(Gain) / Loss	\$ (2,619)	\$ (170)	\$ (504)	\$ (2,284)	5 Years	\$ (497)
June 30, 2012	(Gain) / Loss	\$ 8,241	\$ 536	\$ 1,383	\$ 7,394	6 Years	\$ 1,362
June 30, 2013	(Gain) / Loss	\$ 1,227	\$ 80	\$ 183	\$ 1,124	7 Years	\$ 180
June 30, 2014	(Gain) / Loss	\$ (2,967)	\$ (193)	\$ (400)	\$ (2,760)	8 Years	\$ (394)
June 30, 2015	(Gain) / Loss	\$ (2,119)	\$ (138)	\$ (261)	\$ (1,996)	9 Years	\$ (257)
June 30, 2016	(Gain) / Loss	\$ 10,174	\$ 661	\$ 1,158	\$ 9,678	10 Years	\$ 1,140
June 30, 2017	(Gain) / Loss	\$ 9,629	\$ 626	\$ 1,020	\$ 9,235	11 Years	\$ 1,005
June 30, 2018	(Gain) / Loss	\$ (1,741)	\$ (113)	\$ (173)	\$ (1,681)	12 Years	\$ (170)
June 30, 2019	(Gain) / Loss	\$ 24,491	\$ 1,592	\$ 2,294	\$ 23,788	13 Years	\$ 2,259
June 30, 2020	(Gain) / Loss	\$ 10,538	\$ 685	\$ (466)	\$ 11,689	14 Years	\$ 1,047
Total Amortization Payment July 1, 2021:							\$ 13,540
Projected Payroll July 1, 2021:							\$ 25,092
<b>UAAL as of June 30, 2020:</b>		<b>\$ 77,875</b>	<b>UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2021:</b>				<b>53.96%</b>

Notes:

- Amortization Payments are based on a fixed schedule that increases by the payroll assumption each year.
- The calculation of UAAL is as of June 30, 2020; whereas, the contribution rates are effective as of July 1, 2021. The June 30, 2020 UAAL is adjusted to June 30, 2021 based on the July 1, 2020 contribution rates and June 30, 2020 valuation assumptions.
- (Gain)/Loss includes new assumptions adopted in each of the following valuations: 2011, 2012, 2014, 2016, 2017, 2019, and 2020.

**Exhibit 12d**  
**Amortization Detail – County SCA Offsets**  
(Dollars in Thousands)

General Members							
Date Established	Description	Balance as of June 30, 2020	Interest on Balance	Amortization Payment on June 30, 2021	Balance as of June 30, 2021	Remaining Period as of June 30, 2021	July 1, 2021 Amortization Payment
June 30, 2014	Initial CSCA	\$ 30,953	\$ 2,012	\$ 4,171	\$ 28,794	8 Years	\$ 4,107
June 30, 2015	CSCA Addition	\$ 7,261	\$ 472	\$ 895	\$ 6,838	9 Years	\$ 881
June 30, 2016	CSCA Addition	\$ 13,552	\$ 881	\$ 1,542	\$ 12,891	10 Years	\$ 1,519
June 30, 2017	CSCA Addition	\$ 23,772	\$ 1,545	\$ 2,519	\$ 22,799	11 Years	\$ 2,480
June 30, 2018	CSCA Addition	\$ 20,380	\$ 1,325	\$ 2,024	\$ 19,680	12 Years	\$ 1,994
June 30, 2019	CSCA Addition	\$ 35,394	\$ 2,301	\$ 3,316	\$ 34,379	13 Years	\$ 3,265
June 30, 2020	CSCA Addition	\$ (919)	\$ (60)	\$ -	\$ (979)	14 Years	\$ (88)
Total CSCA County Offset Payment July 1, 2021:							\$ 14,158
Projected County Payroll July 1, 2021:							\$ 472,033
<b>CSCA Value as of June 30, 2020:</b>		<b>\$ 130,393</b>		<b>CSCA County Offset (as a % of Payroll) FYB July 1, 2021:</b>			<b>3.00%</b>

Safety Members							
Date Established	Description	Balance as of June 30, 2020	Interest on Balance	Amortization Payment on June 30, 2021	Balance as of June 30, 2021	Remaining Period as of June 30, 2021	July 1, 2021 Amortization Payment
June 30, 2014	Initial CSCA	\$ 10,489	\$ 682	\$ 1,413	\$ 9,757	8 Years	\$ 1,392
June 30, 2015	CSCA Addition	\$ 2,463	\$ 160	\$ 303	\$ 2,319	9 Years	\$ 299
June 30, 2016	CSCA Addition	\$ 4,111	\$ 267	\$ 468	\$ 3,910	10 Years	\$ 461
June 30, 2017	CSCA Addition	\$ 7,174	\$ 466	\$ 760	\$ 6,880	11 Years	\$ 748
June 30, 2018	CSCA Addition	\$ 6,305	\$ 410	\$ 626	\$ 6,089	12 Years	\$ 617
June 30, 2019	CSCA Addition	\$ 9,649	\$ 627	\$ 904	\$ 9,372	13 Years	\$ 890
June 30, 2020	CSCA Addition	\$ (618)	\$ (40)	\$ -	\$ (658)	14 Years	\$ (59)
Total CSCA County Offset Payment July 1, 2021:							\$ 4,348
Projected County Payroll July 1, 2021:							\$ 70,837
<b>CSCA Value as of June 30, 2020:</b>		<b>\$ 39,572</b>		<b>CSCA County Offset (as a % of Payroll) FYB July 1, 2021:</b>			<b>6.14%</b>

Probation Members							
Date Established	Description	Balance as of June 30, 2020	Interest on Balance	Amortization Payment on June 30, 2021	Balance as of June 30, 2021	Remaining Period as of June 30, 2021	July 1, 2021 Amortization Payment
June 30, 2014	Initial CSCA	\$ 2,853	\$ 185	\$ 384	\$ 2,654	8 Years	\$ 379
June 30, 2015	CSCA Addition	\$ 702	\$ 46	\$ 86	\$ 661	9 Years	\$ 85
June 30, 2016	CSCA Addition	\$ 1,434	\$ 93	\$ 163	\$ 1,364	10 Years	\$ 161
June 30, 2017	CSCA Addition	\$ 2,838	\$ 184	\$ 301	\$ 2,722	11 Years	\$ 296
June 30, 2018	CSCA Addition	\$ 2,126	\$ 138	\$ 211	\$ 2,053	12 Years	\$ 208
June 30, 2019	CSCA Addition	\$ 3,870	\$ 252	\$ 363	\$ 3,759	13 Years	\$ 357
June 30, 2020	CSCA Addition	\$ 958	\$ 62	\$ -	\$ 1,020	14 Years	\$ 91
Total CSCA County Offset Payment July 1, 2021:							\$ 1,577
Projected County Payroll July 1, 2021:							\$ 25,092
<b>CSCA Value as of June 30, 2020:</b>		<b>\$ 14,780</b>		<b>CSCA County Offset (as a % of Payroll) FYB July 1, 2021:</b>			<b>6.28%</b>

Notes:

- CSCA Offsets are based on a fixed schedule that increases by the payroll assumption each year.
- The calculation of CSCA amounts are as of June 30, 2020; whereas, the contribution rates are effective as of July 1, 2021. The June 30, 2020 CSCA is adjusted to June 30, 2021 based on the July 1, 2020 contribution rates and June 30, 2020 valuation assumptions.

**Exhibit 12e**  
**Amortization Detail – District SCA Offsets**

(Dollars in Thousands)

Preliminary Offset Calculations							
Date Established	Description	Balance as of June 30, 2020	Interest on Balance	Amortization Payment on June 30, 2021	Balance as of June 30, 2021	Remaining Period as of June 30, 2021	July 1, 2021 Amortization Payment
June 30, 2016	Initial DSCA	\$ 1,309	\$ 85	\$ 457	\$ 938	2 Years	\$ 485
June 30, 2017	DSCA Addition	\$ 215	\$ 14	\$ 75	\$ 154	2 Years	\$ 80
June 30, 2018	DSCA Addition	\$ 3	\$ 0	\$ 1	\$ 2	2 Years	\$ 1
June 30, 2019	DSCA Addition	\$ 4	\$ 0	\$ 1	\$ 3	3 Years	\$ 1
June 30, 2020	DSCA Addition	\$ 0	\$ 0	\$ -	\$ 0	4 Years	\$ 0
Total DSCA Offset Payment July 1, 2021:							\$ 567
Projected District Payroll July 1, 2021:							\$ 2,197
<b>DSCA Value as of June 30, 2020:</b>		<u>\$ 1,531</u>		<b>DSCA District Offset (as a % of Payroll) FYB July 1, 2021:</b>			<u>25.83%</u>

Adjusted Offset Calculations							
Date Established	Description	Balance as of June 30, 2020	Interest on Balance	Amortization Payment on June 30, 2021	Balance as of June 30, 2021	Remaining Period as of June 30, 2021	July 1, 2021 Amortization Payment
June 30, 2016	Initial DSCA	\$ 1,309	\$ 85	\$ 457	\$ 938	2 Years	\$ 485
June 30, 2017	DSCA Addition	\$ 215	\$ 14	\$ 75	\$ 154	2 Years	\$ 80
June 30, 2018	DSCA Addition	\$ 3	\$ 0	\$ 1	\$ 2	2 Years	\$ 1
June 30, 2019	DSCA Addition	\$ 4	\$ 0	\$ 1	\$ 3	3 Years	\$ 1
June 30, 2020	DSCA Addition	\$ 0	\$ 0	\$ -	\$ 0	4 Years	\$ 0
Total DSCA Offset Payment July 1, 2021:							\$ 567
Projected District Payroll July 1, 2021:							\$ 2,197
<b>DSCA Value as of June 30, 2020:</b>		<u>\$ 1,531</u>		<b>DSCA District Offset (as a % of Payroll) FYB July 1, 2021:</b>			<u>25.83%</u>

Notes:

1. DSCA Offsets are based on a fixed schedule that increases by the payroll assumption each year.
2. The calculation of DSCA amounts are as of June 30, 2020; whereas, the contribution rates are effective as of July 1, 2021. The June 30, 2020 DSCA is adjusted to June 30, 2021 based on the July 1, 2020 contribution rates and June 30, 2020 valuation assumptions.
3. If the preliminary calculation of DSCA Offset results in a larger offset than the UAAL contribution rate payable by the District, the offset must be limited to the adjusted offset to prevent a negative UAAL contribution rate.

## **7. Supplemental Information**

We are providing several exhibits in this report for consistency with prior reports and as supporting information for inclusion in SamCERA's CAFR.

- Exhibit 13 – Schedule of Funding Progress
- Exhibit 14 – Solvency Test
- Exhibit 15 – History of Employer Contribution Rates
- Exhibit 16 – Actuarial Analysis of Financial Experience
- Exhibit 17 – Summary of Significant Actuarial Statistics and Measures
- Exhibit 18 – Summary of SamCERA Membership
- Exhibit 19 – Summary of Active Member Valuation Data
- Exhibit 20 – Summary of Demographic Activity of Retirees and Beneficiaries
- Exhibit 21 – Average Salary and Active Counts by Employer

The Governmental Accounting Standards Board (GASB) Statement No. 67 sets standards for defined benefit pension plan reporting and disclosures. The reporting requirements for GASB 67 include certain supplementary information that must be added to the financial statements. GASB Statement No. 68 specifies financial reporting for pension accounting by state and local governmental employers. We will provide information required for GASB 67 and GASB 68 in a separate report.

All liability calculations shown in this Section 7 are based on an investment return assumption of 6.50%. GASB 67 and 68 calculations as of June 30, 2020 will use an investment return assumption of 6.67%, as the investment return for GASB 67 and 68 is required to be gross of expected administrative expenses.

**Exhibit 13**  
**Schedule of Funding Progress**

(Dollars in Thousands)

<u>Actuarial Valuation Date</u>	<u>(a) Actuarial Value of Valuation Assets</u>	<u>(b) Actuarial Accrued Liabilities</u>	<u>(b-a) Unfunded Actuarial Accrued Liabilities (UAAL)</u>	<u>(a/b) Funded Ratio</u>	<u>(c) Covered Payroll</u>	<u>[(b-a)/c] UAAL as a Percentage of Covered Payroll</u>
June 30, 2011	\$ 2,405,140	\$ 3,246,727	\$ 841,587	74.1%	\$ 427,041	197.07%
June 30, 2012	2,480,271	3,442,553	926,282	72.0%	418,916	229.71%
June 30, 2013	2,618,639	3,572,750	954,111	73.3%	404,361	235.96%
June 30, 2014	2,993,187	3,797,042	803,855	78.8%	416,274	193.11%
June 30, 2015	3,343,550	4,045,786	702,236	82.6%	439,018	159.96%
June 30, 2016	3,624,726	4,362,296	737,570	83.1%	472,385	156.14%
June 30, 2017	3,976,717	4,719,850	743,133	84.3%	510,132	145.67%
June 30, 2018	4,351,502	4,970,535	619,033	87.5%	535,938	115.50%
June 30, 2019	4,685,502	5,459,978	774,476	85.8%	554,734	139.61%
June 30, 2020	4,998,316	5,786,054	787,738	86.4%	593,295	132.77%

Note: The Covered Payroll amounts are consistent with the GASB 67/68 Disclosure report.

**Exhibit 14  
Solvency Test**

(Dollars in Thousands)

Actuarial Valuation Date	Valuation Assets	Actuarial Accrued Liabilities for			Portion of Actuarial Accrued Liabilities Covered by Assets		
		Active Member Contributions (A)	Retirees and Beneficiaries <sup>(1)</sup> (B)	Active Members (Employer Financed Portion) (C)	(A)	(B)	(C)
June 30, 2011	\$ 2,405,140	\$ 485,126	\$ 1,866,219	\$ 895,382	100%	100%	6%
June 30, 2012	2,480,271	498,569	2,022,791	921,193	100%	98%	0%
June 30, 2013	2,618,639	534,276	2,157,590	880,884	100%	97%	0%
June 30, 2014	2,993,187	584,080	2,285,328	927,634	100%	100%	13%
June 30, 2015	3,343,550	628,287	2,451,544	965,955	100%	100%	27%
June 30, 2016	3,624,726	679,246	2,635,409	1,047,641	100%	100%	30%
June 30, 2017	3,976,717	735,102	2,811,651	1,173,097	100%	100%	37%
June 30, 2018	4,351,502	783,887	3,032,813	1,153,835	100%	100%	46%
June 30, 2019	4,685,502	769,137	3,369,094	1,321,747	100%	100%	41%
June 30, 2020	4,998,316	858,906	3,609,214	1,317,934	100%	100%	40%

1. Includes inactive members.

**Exhibit 15  
History of Employer Statutory Contribution Rates**

Statutory Contribution Rates									
Valuation Year	General Members (County & Courts)			General Members (Nurses & UAPD)			General Members (SMCM&VCD)		
	Normal	UAAL	Total	Normal	UAAL	Total	Normal	UAAL	Total
2011	9.71%	16.41%	26.12%	8.70%	16.41%	25.11%	11.97%	16.41%	28.38%
2012	9.98%	20.17%	30.15%	8.96%	20.17%	29.13%	11.68%	20.17%	31.85%
2013	9.74%	22.35%	32.09%	8.92%	22.35%	31.27%	11.70%	22.35%	34.05%
2014	10.12%	20.27%	30.39%	9.14%	20.21%	29.35%	11.72%	21.16%	32.88%

Statutory Contribution Rates									
Valuation Year	General Members (County)			General Members (Courts)			General Members (SMCM&VCD)		
	Normal	UAAL	Total	Normal	UAAL	Total	Normal	UAAL	Total
2015	8.67%	18.37%	27.04%	9.04%	19.54%	28.58%	11.75%	19.54%	31.29%
2016	8.91%	19.81%	28.72%	9.09%	21.30%	30.39%	12.02%	12.50%	24.52%
2017	9.58%	20.55%	30.13%	9.65%	22.58%	32.23%	12.32%	12.37%	24.69%
2018	9.22%	19.32%	28.54%	9.27%	21.76%	31.03%	12.13%	0.00%	12.13%
2019	9.93%	22.18%	32.11%	10.01%	25.21%	35.22%	12.58%	0.00%	12.58%
2020	9.57%	23.22%	32.79%	9.63%	26.22%	35.85%	12.37%	0.39%	12.76%

Statutory Contribution Rates									
Valuation Year	Safety Member			Probation Members (excluding Managers)			Probation Members (Managers)		
	Normal	UAAL	Total	Normal	UAAL	Total	Normal	UAAL	Total
2011	18.87%	41.75%	60.62%	19.50%	22.30%	41.80%	Same as Probation (ex Managers)		
2012	19.05%	48.51%	67.56%	19.99%	26.71%	46.70%	Same as Probation (ex Managers)		
2013	18.51%	50.33%	68.84%	18.33%	29.32%	47.65%	17.85%	29.32%	47.17%
2014	18.99%	46.48%	65.47%	18.92%	28.09%	47.01%	18.79%	28.09%	46.88%
2015	15.14%	43.58%	58.72%	15.31%	26.77%	42.08%	17.23%	26.77%	44.00%
2016	16.31%	44.25%	60.56%	15.94%	31.72%	47.66%	Same as Probation (ex Managers)		
2017	17.28%	45.57%	62.85%	17.42%	32.87%	50.29%	Same as Probation (ex Managers)		
2018	16.98%	44.68%	61.66%	16.95%	32.88%	49.83%	Same as Probation (ex Managers)		
2019	18.02%	50.87%	68.89%	17.97%	42.55%	60.52%	Same as Probation (ex Managers)		
2020	17.57%	54.42%	71.99%	18.30%	47.68%	65.98%	Same as Probation (ex Managers)		

**Notes:**

- Contribution rates shown are those calculated in the corresponding actuarial valuation. In some cases, actual contributions were higher.
- Beginning with the 2010 actuarial valuation, the Mosquito and Vector Control District adopted the same benefit formula and member contribution rates as Plan 1, 2 & 4 General County members (excluding cost sharing and COLA sharing on member rates).
- Beginning with the 2011 actuarial valuation, Plan 1, 2, and 4 members of the CNA contribute 25% of the cost of COLA, in addition to current member rates and cost sharing.
- Beginning with the 2012 actuarial valuation, Plan 1, 2, and 4 Probation members (excluding Managers) contribute 25% of the cost of COLA, in addition to current member rates and cost sharing.
- Beginning with the 2013 actuarial valuation, Plan 1, 2, and 4 members of the UAPD contribute 25% of the cost of COLA, in addition to current member rates and cost sharing. In 2011 and 2012 these members contributed the same as County General members.
- Beginning with the 2015 actuarial valuation, Plan 1, 2, and 4 members of the UAPD and the CNA, and Probation members (Managers) contribute 50% of the cost of COLA, in addition to current member rates and cost sharing.
- Effective with the first pay period after June 30, 2016 all members (except those with benefits negotiated under Court Interpreters and Board of Supervisors bargaining units, and SMCM&VCD members) contribute 50% of the cost of COLA, in addition to current member rates and cost sharing. Additionally, pick-up contributions are discontinued for members with benefits negotiated under the PDA bargaining unit.
- Effective October 2016, all members (except those with benefits negotiated under Board of Supervisors bargaining unit, and SMCM&VCD members) contribute 50% of the cost of COLA, in addition to current member rates and cost sharing. This is reflected in 2016 values.
- Effective July 1, 2018, the Board of Supervisors contribute 50% of the cost of COLA, in addition to current member rates and cost sharing. Additionally, pick-up contributions were eliminated.



**Exhibit 16**  
**Actuarial Analysis of Financial Experience**

Summary of (Gains) / Losses	Change In Liability				
	2020	2019	2018	2017	2016
Unfunded Liability as of July 1	\$ 774,476,000	\$ 619,033,000	\$ 743,133,000	\$ 737,570,000	\$ 702,236,000
Expected Change in UAAL	(85,527,000)	(153,261,000)	(109,756,000)	(110,404,000)	(96,454,000)
Salary (Gain) / Loss	25,190,000	50,472,000	10,401,000	27,685,000	24,707,000
Retiree COLA more / (less) than expected	18,992,000	21,749,000	12,203,000	7,050,000	(6,275,000)
Asset (Gain) / Loss	15,884,000	46,909,000	(42,796,000)	(28,286,000)	27,821,000
Change due to Assumption Changes	11,593,000	173,944,000	0	133,221,000	89,364,000
Miscellaneous Experience	27,129,000	15,630,000	5,848,000	(23,703,000)	(3,829,000)
Change Due to New Formula					
Unfunded Liability as of June 30	\$ 787,737,000	\$ 774,476,000	\$ 619,033,000	\$ 743,133,000	\$ 737,570,000

**Exhibit 17**  
**Summary of Significant Actuarial Statistics and Measures**

	June 30th of		Relative
	2020	2019	Change
<b>1. Active Members</b>			
Number of Members	5,400	5,377	0.4 %
Average Age	45.0	45.1	(0.2)%
Average Credited Service	10.3	10.4	(1.0)%
Covered Payroll (\$thousands)	\$ 593,295	\$ 554,734	7.0 %
Average Monthly Salary	\$ 9,176	\$ 8,873	3.4 %
<b>2. Retired Members</b>			
Number of Members			
Service Retirement	4,292	4,133	3.8 %
Disability Retirement	506	487	3.9 %
Beneficiaries	656	605	8.4 %
Average Age	71.3	71.2	0.1 %
Actual Retiree Benefits Paid (\$thousands)	\$ 242,025	\$ 223,614	8.2 %
Average Monthly Pension	\$ 3,865	\$ 3,731	3.6 %
<b>3. Number of Inactive Members</b>			
	1,882	1,767	6.5 %
<b>4. Assets</b>			
Market Value of Fund (\$thousands)	\$ 4,780,502	\$ 4,723,110	1.2 %
Return on Market Value	0.9%	6.2%	
Valuation Assets (\$thousands)	\$ 4,998,316	\$ 4,685,502	6.7 %
Return on Valuation Assets	6.2%	5.6%	
<b>5. Liability Values (\$thousands)</b>			
Actuarial Accrued Liability	\$ 5,786,054	\$ 5,459,978	6.0 %
Unfunded Actuarial Accrued Liability	\$ 787,738	\$ 774,476	1.7%
Deferred Asset (Gains) / Losses	\$ 268,302	\$ 9,720	
<b>6. Funded Ratio</b>			
(based on valuation assets)	86.4%	85.8%	0.7 %

**Exhibit 18**  
**Summary of SamCERA Membership**

<b>Plan</b>	<b>One</b>	<b>Two</b>	<b>Three</b>	<b>Four</b>	<b>Five</b>	<b>Six</b>	<b>Seven</b>	<b>Total</b>
<b>Retirees and beneficiaries currently receiving benefits:</b>								
General	1,299	2,113	144	970	12	-	12	4,550
Safety	266	242	-	119	3	-	2	632
Probation	95	117	-	59	-	-	1	272
Subtotal	<u>1,660</u>	<u>2,472</u>	<u>144</u>	<u>1,148</u>	<u>15</u>	<u>-</u>	<u>15</u>	<u>5,454</u>
<b>Inactive employees entitled to but not currently receiving benefits (Deferred):</b>								
General	6	249	70	775	97	-	531	1,728
Safety	1	15	-	45	9	-	20	90
Probation	-	16	-	39	1	-	8	64
Subtotal	<u>7</u>	<u>280</u>	<u>70</u>	<u>859</u>	<u>107</u>	<u>-</u>	<u>559</u>	<u>1,882</u>
<b>Current employees:</b>								
<b>Vested:</b>								
General	5	408	52	1,730	177	-	495	2,867
Safety	-	30	-	197	44	-	62	333
Probation	-	12	-	149	8	-	17	186
<b>Non-Vested:</b>								
General	-	1	4	9	106	-	1,668	1,788
Safety	-	-	-	1	19	-	169	189
Probation	-	-	-	-	-	-	37	37
Subtotal	<u>5</u>	<u>451</u>	<u>56</u>	<u>2,086</u>	<u>354</u>	<u>-</u>	<u>2,448</u>	<u>5,400</u>
<b>Total SamCERA Membership</b>	<b>1,672</b>	<b>3,203</b>	<b>270</b>	<b>4,093</b>	<b>476</b>	<b>-</b>	<b>3,022</b>	<b>12,736</b>

**Exhibit 19**  
**Summary of Active Member Valuation Data**

Valuation Date		Members	Annual Salary	Average Annual Salary	% Change Average Salary
2011	General	4,494	\$355,876,715	\$79,189	0.5%
	Safety	446	52,073,940	116,758	2.2%
	Probation	305	24,591,392	80,628	0.0%
	Total	5,245	432,542,046	82,468	0.9%
2012	General	4,361	351,965,689	80,708	1.9%
	Safety	435	51,129,267	117,539	0.7%
	Probation	299	24,554,583	82,122	1.9%
	Total	5,095	427,649,539	83,935	1.8%
2013	General	4,173	338,595,633	81,140	2.5%
	Safety	452	52,233,510	115,561	-1.0%
	Probation	292	23,722,165	81,240	0.8%
	Total	4,917	414,551,308	84,310	2.2%
2014	General	4,272	352,918,558	82,612	1.8%
	Safety	452	52,974,475	117,200	1.4%
	Probation	280	23,514,343	83,980	3.4%
	Total	5,004	429,407,375	85,813	1.8%
2015	General	4,334	382,303,295	88,210	6.8%
	Safety	479	55,917,864	116,739	-0.4%
	Probation	282	24,418,977	86,592	3.1%
	Total	5,095	462,640,136	90,803	5.8%
2016	General	4,421	408,191,518	92,330	4.7%
	Safety	495	61,564,028	124,372	6.5%
	Probation	271	24,034,819	88,689	2.4%
	Total	5,187	493,790,365	95,198	4.8%
2017	General	4,560	430,613,886	94,433	2.3%
	Safety	503	65,105,116	129,434	4.1%
	Probation	274	26,503,623	96,729	9.1%
	Total	5,337	522,222,625	97,849	2.8%
2018	General	4,603	448,931,595	97,530	3.3%
	Safety	508	66,799,289	131,495	1.6%
	Probation	256	25,741,800	100,554	4.0%
	Total	5,367	541,472,684	100,889	3.1%
2019	General	4,610	476,944,186	103,459	6.1%
	Safety	530	70,890,519	133,756	1.7%
	Probation	237	24,680,991	104,139	3.6%
	Total	5,377	572,515,696	106,475	5.5%
2020	General	4,655	496,992,584	106,765	3.2%
	Safety	522	72,724,015	139,318	4.2%
	Probation	223	24,856,263	111,463	7.0%
	Total	5,400	594,572,862	110,106	3.4%

**Exhibit 20**  
**Summary of Demographic Activity of Retirees and Beneficiaries**

Year Ended	Added to Rolls <sup>(1)</sup>		Removed from Rolls		Rolls end of year		% Increase in Payroll	Average Monthly Allowances
	No.	Annual Allowances in Thousands	No.	Annual Allowances in Thousands	No.	Total Retiree Payroll in Thousands		
June 30, 2011 <sup>(2)</sup>	209	\$ 12,703	64	\$ 2,916	4,147	\$ 134,675	7.8	2,706
June 30, 2012	218	14,379	90	4,209	4,275	144,845	7.6	2,823
June 30, 2013	186	13,024	63	3,095	4,398	154,774	6.9	2,933
June 30, 2014	203	12,474	83	3,479	4,518	163,769	5.8	3,021
June 30, 2015	213	16,290	93	4,179	4,638	175,880	7.4	3,160
June 30, 2016	233	15,347	123	5,030	4,748	186,197	5.9	3,268
June 30, 2017	310	16,738	102	3,867	4,956	199,068	6.9	3,347
June 30, 2018	315	21,360	162	5,242	5,109	215,186	8.1	3,510
June 30, 2019	306	24,547	190	5,769	5,225	233,964	8.7	3,731
June 30, 2020	362	23,862	133	4,862	5,454	252,963	8.1	3,865

1. Amount added to rolls includes COLAs granted in year to continuing retirees and beneficiaries.

2. Revised from June 30, 2011 valuation for corrections.

**Exhibit 21**  
**Average Salary and Active Counts by Employer**

**Schedule of Average Monthly Salary of Active Members**  
**(By Plan and Membership Type)**

	2020	2019	2018	2017	2016
General Plan 1	\$11,102	\$9,793	\$10,121	\$11,305	\$9,945
General Plan 2	10,665	10,088	9,526	8,994	8,636
General Plan 3	8,221	7,872	7,462	7,484	7,173
General Plan 4	9,671	9,302	8,534	8,134	7,807
General Plan 5	10,635	10,180	9,672	8,980	8,485
General Plan 7	7,726	7,395	6,974	6,737	6,714
General Plan Total	8,897	8,622	8,128	7,869	7,694
Safety Plan 1	0	0	0	14,434	15,810
Safety Plan 2	15,125	14,197	13,607	13,528	12,505
Safety Plan 4	13,204	12,391	11,894	11,381	10,729
Safety Plan 5	12,367	11,708	11,349	10,544	9,940
Safety Plan 6	0	0	0	0	16,793
Safety Plan 7	9,581	9,030	8,747	8,356	7,538
Safety Plan Total	11,610	11,146	10,958	10,786	10,364
Probation Plan 1	0	0	0	7,722	7,261
Probation Plan 2	10,174	9,908	9,061	9,069	8,349
Probation Plan 4	9,827	9,103	8,714	8,270	7,454
Probation Plan 5	9,343	8,587	8,219	7,612	6,429
Probation Plan 6	0	0	0	7,347	6,259
Probation Plan 7	7,598	6,973	6,676	6,121	5,962
Probation Plan Total	9,289	8,678	8,379	8,061	7,391
Grand Total	9,176	8,873	8,407	8,154	7,933

**Participating Employers and Active Members**

	2020	2019	2018	2017	2016
<i>County of San Mateo</i>					
General Members	4,379	4,350	4,343	4,303	4,170
Safety Members	522	530	508	503	495
Probation Members	223	237	256	274	271
Total	5,124	5,117	5,107	5,080	4,936
<i>San Mateo County Mosquito and Vector Control District</i>					
General Members Total	20	20	21	20	20
<i>Courts</i>					
General Members Total	256	240	239	237	231
Total Active Membership	5,400	5,377	5,367	5,337	5,187

## 8. Risk Discussion

### Overview

The results of any actuarial valuation are based on one set of reasonable assumptions. Although we believe the current assumptions provide a reasonable estimate of future expectations, it is almost certain that future experience will differ from the assumptions to some extent. It is therefore important to consider the potential impacts of these likely differences when making decisions that may affect the future financial health of the Plan, or of the Plan's members.

Actuarial Standard of Practice No. 51 (ASOP 51) addresses these issues by providing actuaries with guidance for assessing and disclosing the risk associated with measuring pension liabilities and the determination of pension plan contributions. Specifically, it directs the actuary to:

- Identify risks that may be significant to the Plan.
- Assess the risks identified as significant to the Plan. The assessment does not need to include numerical calculations.
- Disclose plan maturity measures and historical information that are significant to understanding the Plan's risks.

ASOP 51 states that if in the actuary's professional judgment, a more detailed assessment would be significantly beneficial in helping the individuals responsible for the Plan to understand the risks identified by the actuary, then the actuary should recommend that such an assessment be performed.

In addition, the California Actuarial Advisory Panel (CAAP) has adopted a set of model disclosure elements for actuarial valuation reports of public retirement systems in California. Most of these elements are included in other areas of this report. The remaining CAAP-recommended disclosures are as follows:

Disclosure Element	Description	Value
Gross Normal Cost \$	Normal Cost allocated to valuation year, paid at mid-year.	\$ 135,247,893
Statutory Contribution \$	Expected Statutory Contribution paid at mid-year.	\$ 227,715,080
Asset Smoothing Ratio	Actuarial Value of Assets divided by Market Value of Assets	104.6%
Asset Volatility Ratio	Market Value of Assets divided by Payroll	8.2
Liability Volatility Ratio	Actuarial Accrued Liability divided by Payroll	9.9

This Section 8 uses the framework of ASOP 51 and the Asset and Liability Volatility Ratios shown above to communicate important information about: significant risks to the Plan, the Plan's maturity, and relevant historical plan data.

## Factors Affecting Future Results

There are a number of factors that affect future valuation results. To the extent actual experience for these factors varies from the assumptions, this will likely cause either increases or decreases in the plan's future funding level and employer Statutory Contribution Rates (SCR). The factors that can have the most significant impact on SamCERA's valuation results are:

- Investment returns

To the extent that actual investment returns differ from the assumed investment return, the Plan's future assets, SCR, and funded status may differ significantly from those presented in this valuation. Additional discussion of the impact of variance of investment returns is included below.

- Compensation increases

Individual member retirement benefits are linked to that member's compensation. As such, assumptions need to be made as to a member's future compensation increases. Higher future compensation increases will generally result in larger retirement benefits, liabilities, SCRs, and a lower funded status. Conversely, lower compensation increases than assumed will generally result in smaller retirement benefits, liabilities, SCRs, and a higher funded status.

- Payroll variation

In the valuation, an assumption is made for the overall rate of payroll growth of SamCERA from year-to-year. To the extent that the overall rate of payroll growth is greater than assumed, the SCR may decrease since the Unfunded Actuarial Accrued Liability (UAAL) will be amortized over a larger payroll base. The opposite will occur if the overall rate of payroll growth is lower than assumed.

This effect often will offset somewhat with individual compensation increases, discussed above.

- Longevity and other demographic risks

The liabilities reported in this valuation have been calculated by assuming that members will follow specific patterns of demographic experience (e.g. mortality, retirement, termination, disability) as described in Appendix A. To the extent that actual demographic is different than are assumed to occur, future liabilities, SCRs, and funded status may differ from that presented in this valuation.

All of these assumptions are reviewed in detail during the triennial Investigation of Experience study, and are also reviewed annually during the valuation process. Changes in assumptions are generally recommended as part of the triennial Investigation of Experience if actual experience has been materially different than assumed or forecasts have been changed significantly. Additionally, changes may be recommended and discussed at each valuation if they are deemed to be appropriate at that time.

## Asset and Liability Volatility Ratios

Asset and Liability Volatility Ratios are a measure of the level of assets (or liabilities) to payroll. In general, a higher ratio means that the SCR is more sensitive to changes in levels of assets or liabilities. Asset and Liability Volatility Ratios are shown in Exhibit 22.

As shown above, in the current valuation SamCERA has an Asset Volatility Ratio of 8.2 and a Liability Volatility Ratio of 9.9.

## Discussion of Investment Return Risk

Of these factors, we believe the factor with the greatest potential risk to impact future valuation results for SamCERA is future investment returns. For example, if actual returns fall short of the current assumption of 6.5% per year, this



will cause an increase in the SCR and a decrease in the Funded Ratio, all other things being equal. Conversely, if actual returns exceed the current assumption of 6.5% per year, this will cause a decrease in the SCR and an increase in the Funded Ratio.

The magnitude of the increase or decrease in the SCR is affected by the maturity level, and specifically the asset volatility ratio. SamCERA has accumulated a significant amount of assets relative to its payroll and by several measures is considered a mature plan. Accumulating assets to pay for future benefit obligations is responsible funding, but it does mean changes in the investment markets can have a significant impact on the SCR.

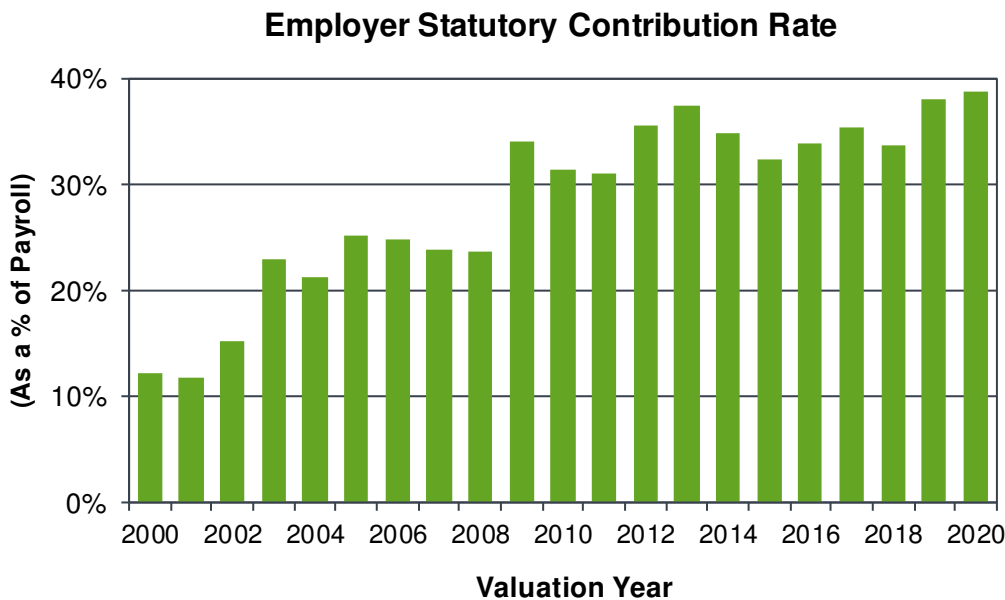
In terms of the SCR, for SamCERA with an 8.2 asset volatility ratio, a 10% investment gain or loss relative to the assumed 6.50% investment return assumption (that is, an investment return of -3.5%, or of 16.5% investment return translates to a 7.70% of pay increase (or decrease) in the SCR, all other things being equal. Since SamCERA uses actuarial smoothing, the increase would not be immediate, but would occur gradually over five years and could potentially be offset, or further increased, by future investment gains or losses or other factors.

In terms of the Funded Ratio, this level of volatility would result in an increase or decrease of approximately 8.8% in the Funded Ratio (on a market value basis) from the current Funded Ratio of 86.4%.

Over the last several years, the County has been able to reduce the year-to-year variation in its actual contribution rate by contributing at a rate that is higher than the SCR.

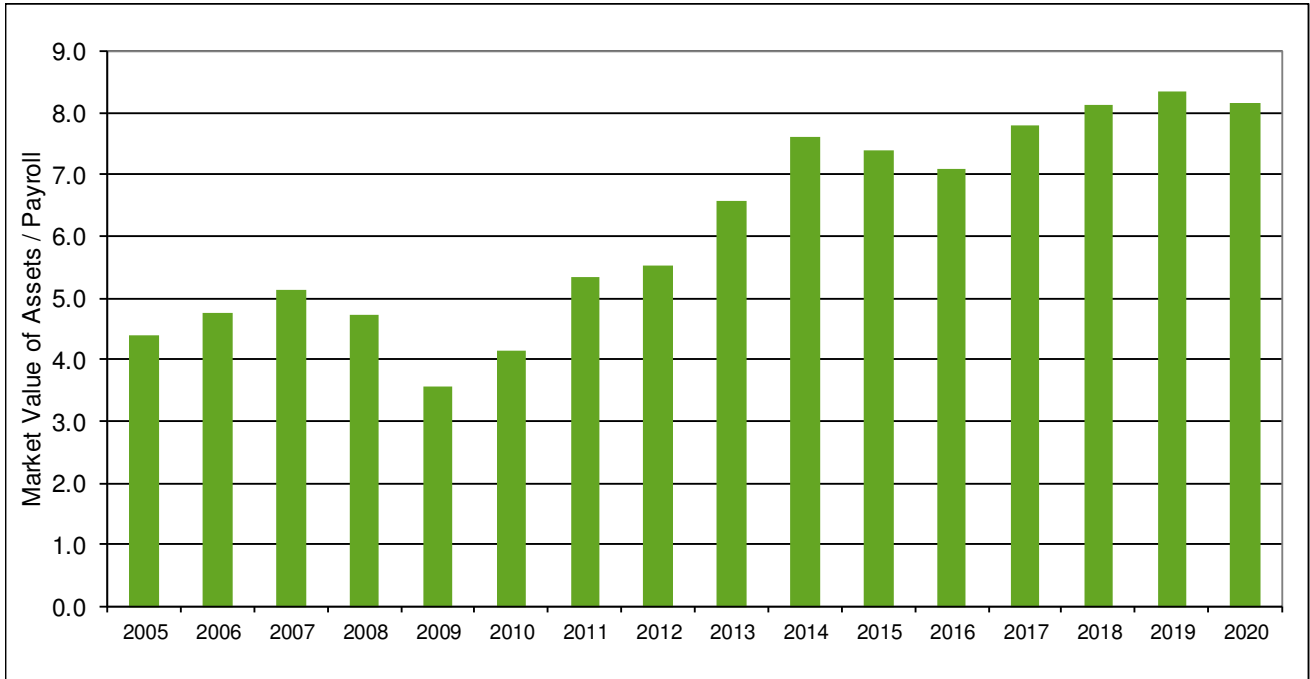
### Historical Variation in Statutory Contribution Rate

One way to assess future risks is to look at historical measurements. The following graph shows how the SCR has varied over the last 20 years under various investment return and assumption environments.

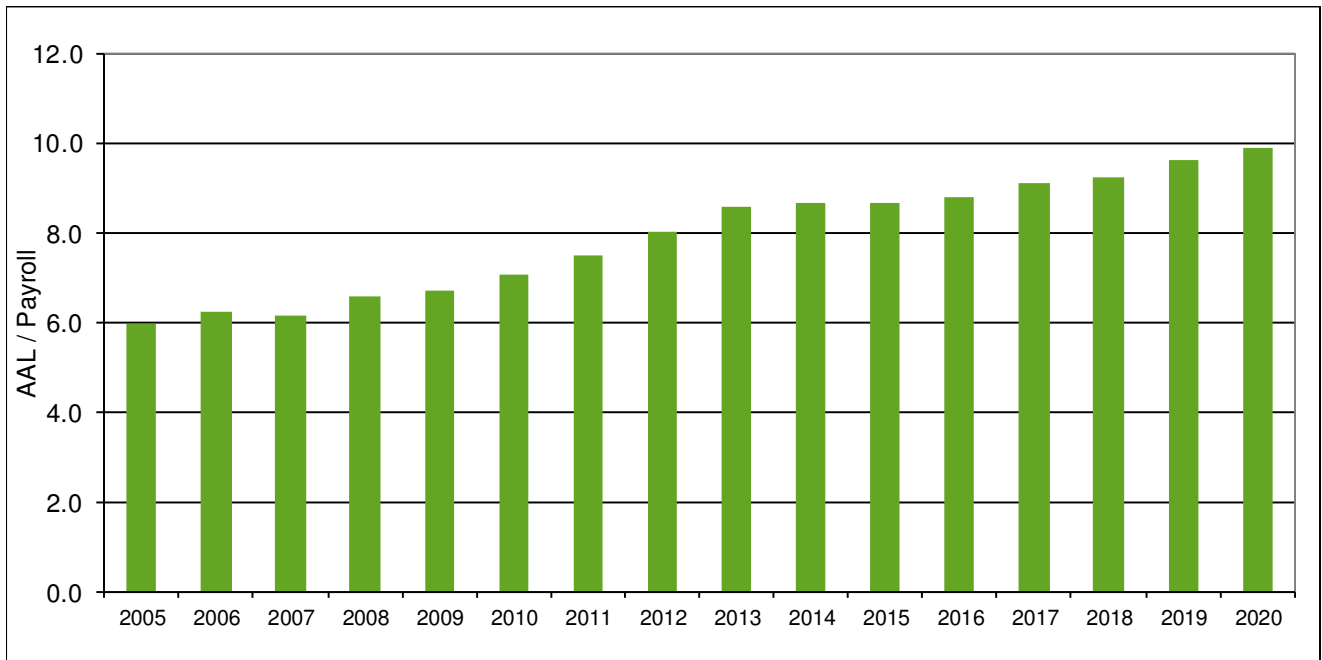


**Exhibit 22**  
**Asset and Liability Volatility Ratios**

**Asset Volatility Ratios**



**Liability Volatility Ratios**



## Appendix A Actuarial Procedures and Assumptions

The actuarial procedures and assumptions to be used in the June 30, 2020 valuation are described in this section. The assumptions were reviewed and changed as a result of the 2020 Investigation of Experience Study.

The actuarial assumptions used in the valuations are intended to estimate the future experience of the members of SamCERA and of SamCERA itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of SamCERA's benefits.

Exhibit A-1 summarizes the assumptions. The mortality rates are taken from the sources listed.

Exhibits A-2 and A-3 show how members are expected to leave retired status due to death.

Exhibit A-4 presents the probability of refund of contributions upon termination of employment while vested.

Exhibit A-5 presents the expected annual percentage increase in salaries.

Exhibits A-6 to A-11 present the probabilities a member will leave employment for various reasons.

NOTE: Assumptions for Probation members are assumed to be the same as Safety members unless otherwise noted.

### Actuarial Cost Method

The actuarial valuation is prepared using the entry age actuarial cost method (CERL 31453.5). Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit (until maximum retirement age).

For members who transferred from Plan 3 to another General plan, entry age is based on the transfer date.

The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the Unfunded Actuarial Accrued Liability (UAAL). The UAAL as of June 30, 2008 is amortized as a level percentage of the projected salaries of present and future members of SamCERA over the remaining period from the valuation date to June 30, 2023. This is commonly referred to as a "closed amortization method". Actuarial gains and losses after the June 30, 2008 valuation are amortized over new closed 15-year periods from their respective valuation dates.

The SCA (CSCA for the County UAAL and DSCA for the SMCM&VCD) offset amounts are calculated using a similar closed amortization method to the UAAL rate described above. However, effective with the June 30, 2018 valuation, the DSCA balance is amortized over five years. All layers are re-amortized as of June 30, 2018, and any future layers are amortized over new five-year periods. The total DSCA offset amount in a given year is limited to the SMCM&VCD UAAL rate, and the DSCA will be adjusted to reflect the actual offset (after reflecting the limitation, if any).

### Records and Data

The data used in this valuation consist of financial information and the age, service, and income records for active and inactive members and their survivors. All of the data were supplied by SamCERA and are accepted for valuation purposes without audit.

### Replacement of Terminated Members

The ages and relative salaries at entry of future members are assumed to follow a new entrant distribution based on the pattern of current members. Under this assumption, the normal cost rates for active members will remain

fairly stable in future years unless there are changes in the governing law, the actuarial assumptions or the pattern of the new entrants.

### **Growth in Membership**

For benefit determination purposes, no growth in the membership of SamCERA is assumed. For funding purposes, if amortization is required, the total payroll of covered members is assumed to grow due to the combined effects of future wage increases of current active members and the replacement of the current active members by new employees. No growth in the total number of active members is assumed.

### **Internal Revenue Code Section 415 Limit**

The Internal Revenue Code Section 415 maximum benefit limitations are not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement, except for Plan 7 members which cannot receive benefits in excess of the 415 limit. For Plan 7 members, the benefit levels, combined with the limited compensation are low enough that it is unlikely the 415 limit would apply.

### **Internal Revenue Code Section 401(a)(17)**

The Internal Revenue Code Section 401(a)(17) maximum compensation limitation is not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.

### **Government Code Section 7522.10**

The maximum compensation limit under Government Code 7522.10 is reflected in the valuation for funding purposes. Any limitation is also reflected in a member's benefit after retirement.

### **Employer Contributions**

The statutory employer contribution rate is set by the Retirement Board based on actuarial valuations.

### **Member Contributions**

The member contribution rates vary by entry age (except for Plan 7) and are described in the law. Code references are shown in Appendix B of the valuation report. The methods and assumptions used are detailed later in this section.

The individual member rates by entry age, plan, and class are illustrated in Appendix D of the valuation report.

### **Valuation of Assets**

The assets are valued using a modified five-year smoothed method based on the difference between the expected market value and the actual market value of the assets as of the end of each six-month period (12/31 and 6/30). The expected market value is the prior period's market value increased with the net increase in the cash flow of funds, all increased with interest during the period at the expected investment return rate assumption.

Effective June 30, 2018 all deferred gains and losses are combined into a single amount to be recognized over a five-year (10 six-month) period. Beginning with the six-month period immediately following the June 30, 2018 valuation, offsetting of current period gains or losses against prior period gains or losses will occur, as follows. First, to the extent there is a loss for the period, it shall be used to offset any unrecognized gains from prior periods in the order of oldest to most recent. Any remaining loss for the period is recognized over a five-year (10 six-month) period. Similarly, any gain for the period shall be offset against unrecognized losses from prior periods.

The gross preliminary Actuarial Value of Assets is equal to the Market Value of Assets less any of the remaining unrecognized differences. A 20% corridor is then applied, so that the gross Actuarial Value of Assets cannot be greater than 120% of the Market Value of Assets nor less than 80% of the Market Value of Assets. The Valuation

Assets used in the calculation of the SCR are equal to the gross Actuarial Value of Assets less any non-valuation reserves.

**Investment Earnings and Expenses**

The future investment earnings of the assets of SamCERA are assumed to accrue at an annual rate of 6.50% compounded annually, net of both investment and administrative expenses. This rate was adopted effective June 30, 2019.

**CPI Inflation**

The CPI inflation assumption is used in the determination of assumptions for individual salary increases, overall wage growth, and postretirement benefit increases. The CPI inflation assumption is 2.50% per year.

**Postretirement Benefit Increases**

Postretirement increases are described in Appendix B. Assumed increases for valuation purposes are:

	General	Safety	Probation
Plan 1	2.50%	2.50%	2.50%
Plan 2	2.40%	2.40%	2.40%
Plan 3	0.00%	N/A	N/A
Plans 4, 5, and 7	1.90%	1.90%	1.90%
Plan 6	N/A	1.90%	1.90%

Assumed Plan 1 General and Safety COLAs are set at the CPI inflation assumption of 2.50% per year. Since Plan 2 does not have a COLA bank, it is expected that increases will be limited in some years. This reduces the overall expected rate and is reflected in a lower assumed increase.

**Interest on Member Contributions**

The annual credited interest rate on member contributions is assumed to be 6.50% compounded semi-annually (3.25% per six-month period) for an annualized rate of 6.61%. This rate was adopted effective June 30, 2019 for valuation purposes; the change in member crediting was effective July 1, 2020.

**Individual Salary Increases**

Salaries increases of individual members are assumed to include the following components: (1) a general wage growth assumption that applies to all members, and (2) an individual-specific increase due to promotion and longevity based on years of service.

The rates of annual salary increase due to promotion and longevity assumed for the purpose of the valuation are illustrated in Exhibit A-5. The general wage growth assumption is 3.00% per year. This includes a 2.50% CPI component, and a 0.50% productivity (or "real wage growth") component.

Increases are assumed to occur mid-year. The mid-year timing reflects that salary increases occur throughout the year, or on average mid-year.

SamCERA supplied two types of compensation data:

- 1) pensionable pay from the most recent bi-weekly pay period; and
- 2) pensionable pay from the prior year.

We annualized bi-weekly pay (by multiplying by 26) and then used the greater of the two amounts.

### **Growth in Payroll**

The overall pensionable payroll of SamCERA active members is assumed to increase at 3.00% per annum.

### **PEPRA Compensation Limit**

The PEPRA compensation limit is assumed to increase in line with the Consumer Prices Index for All Urban Consumers (CPI-U) U.S City Average. We assume that CPI-U will increase at the rate of 2.25% per year.

This assumption was adopted effective June 30, 2020.

### **Social Security Wage Base**

Plan 3 members have their benefits offset by an assumed Social Security Benefit. For valuation funding purposes, we need to project the Social Security Benefit. We assume the current Social Security provisions will continue and the annual Wage Base will increase at the rate of 2.75% per year, based on the CPI-U and real wage growth assumptions. Note, statutory provisions describe how to compute a member's offset amount at time of termination or retirement.

This assumption was adopted effective June 30, 2020.

### **Retirement**

Retirement rates vary by age and are shown by plan in Exhibits A-6 through A-11.

All General members who attain or who have attained age 75 and all Safety members who have attained age 65 are assumed to retire immediately. Additionally, if a member's benefit is equal to or greater than the 100% of compensation limit, they are also assumed to retire immediately. For purposes of the valuation, immediate retirement is assumed at:

- Age 62 with 38 years of service (General, Plans 1, 2, and 4)
- Age 65 with 41 years of service (General Plan 5)
- Age 67 with 40 years of service (General Plan 7)
- Age 50 with 33 years of service (Safety & Probation, Plans 1, 2, and 4)
- Age 55 with 33 years of service (Safety & Probation Plan 5)
- Age 55 with 38 years of service (Safety & Probation Plan 6)
- Age 57 with 38 years of service (Safety & Probation Plan 7)

Deferred vested members are assumed to retire at the later of current age and:

- Age 58 (General Members, except Plan 3 and Plan 7)
- Age 65 (General Plan 3 Members)
- Age 62 (General Plan 7 Members)
- Age 50 (Probation and Safety members)

The retirement rates were adopted effective June 30, 2020.

### **Disability**

Rates of disability are illustrated in Exhibits A-6 through A-11.

The disability rates were adopted effective June 30, 2020.

**Active Member Mortality**

Rates of mortality from active service are illustrated in Exhibits A-6 through A-11. The mortality rates are based on the following mortality tables and mortality improvement scale.

Class	Gender	
General	Male	PubG-2010 (100%) Employee Male
General	Female	PubG-2010 (100%) Employee Female
Safety	Male	PubS-2010 (100%) Employee Male
Safety	Female	PubS-2010 (100%) Employee Female

All mortality rates are projected with the MP-2014 Ultimate Projection Scale.

Safety members have an additional service-connected mortality rate of 0.01% per year.

These rates were adopted effective June 30, 2020.

**Other Terminations of Employment**

Exhibits A-6 to A-11 show, for all ages, the rates assumed for future termination from active service other than for death, disability or retirement. These rates do not apply to members eligible for service retirement.

Terminating employees may withdraw their contributions immediately upon termination of employment and forfeit the right to further benefits, or they may leave their contributions on deposit with SamCERA. Former contributing members whose contributions are on deposit may later elect to receive a refund, may return to work or may remain inactive until becoming eligible to receive a retirement benefit under either SamCERA or a reciprocal retirement system. All terminating members who are not eligible for vested benefits are assumed to withdraw their contributions immediately.

The rates of termination were adopted effective June 30, 2020.

**Probability of Refund**

Exhibit A-4 shows the assumed probabilities that vested members will withdraw their contributions and elect a refund immediately upon termination and the probability the remaining members will elect a deferred vested benefit. For Plan 3, 100% of members are assumed to elect a vested benefit. All non-vested members are assumed to elect a refund and withdraw their contributions.

The probability of refund assumptions were adopted effective June 30, 2020.

**Probability of Eligible Survivor**

For members not currently in pay status, 75% of all males and 55% of all females are assumed to have eligible survivors (spouses or qualified domestic partners). Survivors are assumed to be three years younger than male members and two years older than female members. Survivors are assumed to be of the opposite sex as the member. There is no explicit assumption for children's benefits. We believe the survivor benefits based on this assumption are sufficient to cover children's benefits as they occur.

**PostRetirement Mortality – Other Than Disabled Members**

Rates of mortality for retired members, except for those retired on account of disability, are illustrated in Exhibit A-2. Beneficiary mortality is assumed to be the same as for healthy members. Beneficiaries are assumed to be of the opposite sex and have the same mortality as General members. The mortality rates are based on the following mortality tables and mortality improvement scale.

Class	Gender	
General	Male	PubG-2010 (100%) Healthy Retiree Male
General	Female	PubG-2010 (100%) Healthy Retiree Female
Safety	Male	PubS-2010 (100%) Healthy Retiree Male
Safety	Female	PubS-2010 (100%) Healthy Retiree Female

All mortality rates are projected with the MP-2014 Ultimate Projection Scale.

The rates of retired mortality were adopted effective June 30, 2020.

**PostRetirement Mortality – Disabled Members**

Rates of mortality for members retired on account of disability are illustrated in Exhibit A-3. The mortality rates are based on the following mortality tables and mortality improvement scale.

Class	Gender	
General	Male	PubG-2010 (100%*) Disabled Retiree Male
General	Female	PubG-2010 (100%*) Disabled Retiree Female
Safety	Male	PubS-2010 (100%) Disabled Retiree Male
Safety	Female	PubS-2010 (100%) Disabled Retiree Female

*\*Disabled General mortality rates are 100% of the standard table at ages 85 and above; 60% at ages 65 and below; and graded from 60% to 100% at 2% per year between age 65 and age 85.*

All mortality rates are projected with the MP-2014 Ultimate Projection Scale.

The rates of mortality were adopted effective June 30, 2020.

**Deferred Member Mortality**

Rates of mortality for members after termination from employment and before retirement are the same as PostRetirement Mortality – Other Than Disabled Members.

**Valuation of Current Deferred Members**

Current non-vested members who have terminated active employment are assumed to take a refund of their contributions at the valuation date.

Current vested members who have terminated active employment are assumed to keep their accounts with SamCERA and retire as specified in this section. An adjustment for these individuals such that the greater of the Final Average Compensation and annualized bi-weekly pay limited to two times the Final Average Compensation is used.

**Reciprocal Benefits**

30% of future deferred vested General members and 40% of future deferred vested Safety members are assumed to immediately join a reciprocal agency. For future reciprocal members, salaries are assumed to

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increase at the same rate as if they had remained in active employment with SamCERA. For current deferred vested members, eligibility is based on the data supplied by SamCERA and future salaries are assumed to increase at 3.52% annually for General members and 3.88% annually for Safety members.

This assumption was adopted effective June 30, 2020.

### **Part-Time Employees**

For valuation purposes, part-time employees are assumed to continue working the same number of hours in the future.

### **Adjustment to Plan 3 Normal Cost Rate**

Plan 3 members are eligible to transfer to Plans 2, 4 or 5 (depending on entry date) after five years of service. We have adjusted the Plan 3 Normal Cost to account for this. The adjustment is equal to 50% of the difference between the unadjusted Plan 3 Normal Cost rate and the Plan 4 Normal Cost rate.

### **Member Contribution Rate Assumptions**

In general, for all plans except Plan 3 and Plan 7, the member rate is determined by the present value of the future benefit (PVFB) payable at retirement age, divided by the present value of all future salaries payable between age at entry and retirement age. For these purposes, per the CERL:

- A. The annuity factor used for General members is based on a 33% / 67% blend of the male and female annuity factors using current valuation assumptions and no COLA. For Safety members it is based on a 75% / 25% blend of the male and female annuity factors using current valuation assumptions. The valuation mortality tables use a static projection to 2042.
- B. The annuity factor used in determining the present value of future benefits (PVFB) at entry age is equal to the life only annuity factor at 6.50%.
- C. Projected Final Average Compensation is based on annual salary in the year prior to the assumed retirement age (Plans 1 and 2), or average annual salary in the three years prior to the assumed retirement date (Plans 4, 5 and 6).
- D. Member Rates are assumed to increase with entry age. There are a few exceptions at the higher entry ages where the calculated rate is less than the previous entry age. In these cases the member contribution rate is adjusted so that it is no less than the value for the previous entry age.

Member rates for all Plans 1, 2, 4, 5, and 6 members are loaded to account for a 50% COLA share. The COLA loads are applied to the otherwise applicable basic member rates prior to the addition of any cost-sharing rates.

For Plan 7, the member contribution rate is equal to one-half of the aggregate Normal Cost of the respective plan.

**Exhibit A-1**  
**Summary of Valuation Assumptions as of June 30, 2020**

**Economic assumptions**

A. General wage increases	3.00%
B. Investment earnings	6.50%
C. Growth in active membership	0.00%
D. CPI-U inflation assumption	2.25%
E. CPI inflation assumption	2.50%

**Demographic assumptions**

A. Salary increases due to service	Exhibit A-5
B. Retirement from active service	Exhibits A-6 to A-11
C. Disability from active service	Exhibits A-6 to A-11
D. Mortality for active members prior to termination	Exhibits A-6 to A-11
E. Other terminations of employment	Exhibits A-6 to A-11
F. Probability of refund of contributions upon vested termination	Exhibit A-4
G. Mortality for active members after termination and service retired members	Exhibit A-2
H. Mortality for members retired for disability	Exhibit A-3
I. Mortality for beneficiaries	Exhibit A-2

**Exhibit A-2**  
**Mortality for Members Retired for Service <sup>(1)</sup>**

<u>Age</u>	<u>General Male</u>	<u>General Female</u>	<u>Safety Male</u>	<u>Safety Female</u>
20	0.074%	0.035%	0.061%	0.021%
25	0.056%	0.024%	0.055%	0.026%
30	0.072%	0.040%	0.061%	0.035%
35	0.094%	0.062%	0.070%	0.047%
40	0.132%	0.096%	0.088%	0.064%
45	0.196%	0.150%	0.122%	0.087%
50	0.298%	0.222%	0.192%	0.149%
55	0.431%	0.286%	0.306%	0.258%
60	0.615%	0.384%	0.508%	0.446%
65	0.913%	0.613%	0.881%	0.770%
70	1.526%	1.063%	1.568%	1.329%
75	2.671%	1.883%	2.826%	2.295%
80	4.774%	3.360%	5.103%	3.962%
85	8.591%	6.205%	9.135%	6.842%
90	14.672%	11.487%	15.860%	11.815%

**Annual Projected Mortality Improvement**

<u>Age</u>	<u>All Groups</u>
65 & Less	1.000%
70	1.000%
75	1.000%
80	1.000%
85	1.000%
90	0.930%
95	0.850%
100	0.640%
105	0.430%
110	0.210%
115	0.000%

1. Mortality rates are those applicable for the fiscal year beginning in 2010. Annual projected improvements are assumed in the following years under the schedule shown. For example, the annual mortality rate for an 85-year old General male in fiscal year beginning in 2020 is 7.770% calculated as follows:

$$\begin{aligned}
 \text{Age 85 rate in 2020} &= \text{Age 85 rate in 2010 with 10 years improvement} \\
 &= 8.591\% \times (100.0\% - 1.0\%)^{(2020-2010)} \\
 &= 7.770\%
 \end{aligned}$$

**Exhibit A-3**  
**Mortality for Members Retired for Disability**

<b>Age</b>	<b>General Male</b>	<b>General Female</b>	<b>Safety Male</b>	<b>Safety Female</b>
20	0.247%	0.140%	0.121%	0.053%
25	0.167%	0.098%	0.110%	0.065%
30	0.212%	0.154%	0.122%	0.089%
35	0.275%	0.241%	0.138%	0.121%
40	0.387%	0.377%	0.174%	0.164%
45	0.604%	0.591%	0.242%	0.223%
50	0.963%	0.890%	0.353%	0.304%
55	1.268%	1.045%	0.480%	0.461%
60	1.502%	1.174%	0.735%	0.699%
65	1.826%	1.354%	1.186%	1.061%
70	2.731%	2.003%	1.907%	1.610%
75	4.154%	3.202%	3.241%	2.443%
80	6.613%	5.406%	5.598%	3.962%
85	10.815%	9.331%	9.213%	6.842%
90	16.253%	13.665%	15.860%	11.815%

**Exhibit A-4**  
**Immediate Refund of Contributions upon Termination of Employment**  
**(Excludes Plan 3)**

<b>Years of Service</b>	<b>General</b>	<b>Safety</b>
0	100%	100%
1	100%	100%
2	100%	100%
3	100%	100%
4	100%	100%
5	26%	26%
6	26%	26%
7	26%	26%
8	26%	26%
9	26%	25%
10	25%	24%
11	25%	23%
12	24%	22%
13	23%	20%
14	23%	18%
15	23%	16%
16	22%	14%
17	21%	11%
18	19%	8%
19	17%	5%
20	15%	0%
21	14%	0%
22	11%	0%
23	9%	0%
24	7%	0%
25	5%	0%
26	2%	0%
27	0%	0%
28	0%	0%
29	0%	0%
30 & Up	0%	0%

**Exhibit A-5  
 Annual Increase in Salary**

Years of Service	Due to Promotion and Longevity		Total Annual Increase <sup>(1)</sup>	
	General	Safety	General	Safety
<1	6.50%	6.00%	9.70%	9.18%
1	4.75%	4.75%	7.89%	7.89%
2	3.50%	3.50%	6.61%	6.61%
3	2.75%	2.75%	5.83%	5.83%
4	2.00%	2.10%	5.06%	5.16%
5	1.75%	1.70%	4.80%	4.75%
6	1.50%	1.40%	4.55%	4.44%
7	1.25%	1.20%	4.29%	4.24%
8	1.05%	1.10%	4.08%	4.13%
9	0.90%	1.00%	3.93%	4.03%
10	0.80%	0.95%	3.82%	3.98%
11	0.70%	0.90%	3.72%	3.93%
12	0.60%	0.85%	3.62%	3.88%
13	0.50%	0.85%	3.52%	3.88%
14	0.50%	0.85%	3.52%	3.88%
15	0.50%	0.85%	3.52%	3.88%
16	0.50%	0.85%	3.52%	3.88%
17	0.50%	0.85%	3.52%	3.88%
18	0.50%	0.85%	3.52%	3.88%
19	0.50%	0.85%	3.52%	3.88%
20 or More	0.50%	0.85%	3.52%	3.88%

1. The total expected increase in salary is the increase due to promotion and longevity, adjusted for assumed 3.00% per annum increases in the general wage. The total result is compounded rather than additive.

### Rates of Separation from Active Service Exhibits A-6 to A-11

A schedule of the probabilities of termination of employment due to the following causes can be found on the following pages:

Service Retirement:	Member retires after meeting age and service requirements for reasons other than disability.
Withdrawal:	Member terminates and elects a refund of member contributions, or a deferred retirement benefit.
Service Disability:	Member receives disability retirement; disability is service related.
Ordinary Disability:	Member receives disability retirement; disability is not service related.
Service Death:	Member dies before retirement; death is service related.
Ordinary Death:	Member dies before retirement; death is not service related.

Each rate represents the probability that a member will separate from service at each age due to the particular cause. For example, a rate of 0.0300 for a member's service retirement at age 50 means we assume that 30 out of 1,000 members who are age 50 will retire at that age.

Each Exhibit represents the detailed rates needed for each SamCERA plan by sex:

- A-6: General Plans 1, 2, 4, 5, and 7 Males
- A-7: General Plans 1, 2, 4, 5, and 7 Females
- A-8: General Plan 3 Males
- A-9: General Plan 3 Females
- A-10: Safety and Probation Plans 1, 2, 4, 5, 6, and 7 Males
- A-11: Safety and Probation Plans 1, 2, 4, 5, 6, and 7 Females

**Exhibit A-6**  
**Rate of Separation from Active Service**  
**General Plans 1, 2, 4, 5, and 7 – Male**

Age	Service Retirement <sup>(1)(2)</sup>		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5 & 7						
18	0.00000	0.00000	0.00034	0.00018	N/A	0.00036	0	0.15000
19	0.00000	0.00000	0.00034	0.00018	N/A	0.00038	1	0.13000
20	0.00000	0.00000	0.00036	0.00020	N/A	0.00037	2	0.10500
21	0.00000	0.00000	0.00037	0.00020	N/A	0.00036	3	0.08500
22	0.00000	0.00000	0.00038	0.00020	N/A	0.00033	4	0.07500
23	0.00000	0.00000	0.00037	0.00020	N/A	0.00031	5	0.06700
24	0.00000	0.00000	0.00037	0.00020	N/A	0.00029	6	0.06000
25	0.00000	0.00000	0.00038	0.00020	N/A	0.00028	7	0.05400
26	0.00000	0.00000	0.00038	0.00020	N/A	0.00030	8	0.04900
27	0.00000	0.00000	0.00038	0.00020	N/A	0.00031	9	0.04400
28	0.00000	0.00000	0.00038	0.00020	N/A	0.00033	10	0.04100
29	0.00000	0.00000	0.00042	0.00023	N/A	0.00034	11	0.03800
30	0.00000	0.00000	0.00044	0.00024	N/A	0.00036	12	0.03500
31	0.00000	0.00000	0.00047	0.00026	N/A	0.00038	13	0.03300
32	0.00000	0.00000	0.00048	0.00026	N/A	0.00040	14	0.03100
33	0.00000	0.00000	0.00054	0.00029	N/A	0.00042	15	0.02900
34	0.00000	0.00000	0.00059	0.00031	N/A	0.00044	16	0.02700
35	0.00000	0.00000	0.00062	0.00033	N/A	0.00047	17	0.02500
36	0.00000	0.00000	0.00067	0.00036	N/A	0.00050	18	0.02300
37	0.00000	0.00000	0.00072	0.00039	N/A	0.00053	19	0.02100
38	0.00000	0.00000	0.00081	0.00044	N/A	0.00057	20	0.01900
39	0.00000	0.00000	0.00090	0.00048	N/A	0.00061	21	0.01700
40	0.00000	0.00000	0.00099	0.00054	N/A	0.00066	22	0.01500
41	0.00000	0.00000	0.00107	0.00058	N/A	0.00071	23	0.01400
42	0.00000	0.00000	0.00116	0.00063	N/A	0.00077	24	0.01300
43	0.00000	0.00000	0.00128	0.00069	N/A	0.00083	25	0.01200
44	0.00000	0.00000	0.00140	0.00076	N/A	0.00090	26	0.01100
45	0.00000	0.00000	0.00155	0.00083	N/A	0.00098	27	0.01000
46	0.00000	0.00000	0.00164	0.00089	N/A	0.00107	28	0.01000
47	0.00000	0.00000	0.00175	0.00094	N/A	0.00116	29	0.01000
48	0.00000	0.00000	0.00184	0.00099	N/A	0.00127	30 & Above <sup>(3)</sup>	0.01000
49	0.00000	0.00000	0.00192	0.00103	N/A	0.00138		
50	0.03000	0.02400	0.00202	0.00108	N/A	0.00149		
51	0.03000	0.02400	0.00208	0.00112	N/A	0.00162		
52	0.03000	0.02400	0.00217	0.00117	N/A	0.00175		
53	0.04000	0.03200	0.00229	0.00123	N/A	0.00189		
54	0.05000	0.04000	0.00240	0.00129	N/A	0.00203		
55	0.10000	0.08000	0.00250	0.00135	N/A	0.00219		
56	0.05000	0.04000	0.00263	0.00141	N/A	0.00236		
57	0.07500	0.06000	0.00274	0.00148	N/A	0.00255		
58	0.10000	0.08000	0.00288	0.00155	N/A	0.00275		
59	0.15000	0.12000	0.00302	0.00162	N/A	0.00296		
60	0.15000	0.12000	0.00313	0.00169	N/A	0.00319		
61	0.20000	0.16000	0.00324	0.00175	N/A	0.00344		
62	0.25000	0.20000	0.00337	0.00182	N/A	0.00371		
63	0.22000	0.17600	0.00334	0.00180	N/A	0.00401		
64	0.22000	0.17600	0.00329	0.00177	N/A	0.00433		
65	0.30000	0.24000	0.00317	0.00171	N/A	0.00468		
66	0.30000	0.24000	0.00313	0.00169	N/A	0.00506		
67	0.30000	0.36000	0.00320	0.00172	N/A	0.00548		
68	0.30000	0.30000	0.00329	0.00177	N/A	0.00594		
69	0.30000	0.30000	0.00332	0.00179	N/A	0.00646		
70	0.30000	0.30000	0.00307	0.00165	N/A	0.00703		
71	0.30000	0.30000	0.00304	0.00163	N/A	0.00767		
72	0.30000	0.30000	0.00326	0.00176	N/A	0.00837		
73	0.30000	0.30000	0.00364	0.00196	N/A	0.00915		
74	0.30000	0.30000	0.00390	0.00210	N/A	0.01001		
75	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed at ages 62 and above with 38 or more years of service (65/41 for Plan 5; 67/40 for Plan 7). Rates of retirement are 0.00% prior to age 52 for Plan 7.

2. Service retirement rates vary by years of service (75% of these rates are applicable at less than 20 years of service; 120% at 20 to 29 years of service; 160% at 30 or more years of service).

3. 0.00% probability of termination with 30 years of service and above for Plans 1, 2, 4, and 5.



**Exhibit A-7**  
**Rate of Separation from Active Service**  
**General Plans 1, 2, 4, 5, and 7 – Female**

Age	Service Retirement <sup>(1)(2)</sup>		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5 & 7						
18	0.00000	0.00000	0.00034	0.00018	N/A	0.00013	0	0.15000
19	0.00000	0.00000	0.00034	0.00018	N/A	0.00013	1	0.13000
20	0.00000	0.00000	0.00036	0.00020	N/A	0.00013	2	0.10500
21	0.00000	0.00000	0.00037	0.00020	N/A	0.00012	3	0.08500
22	0.00000	0.00000	0.00038	0.00020	N/A	0.00011	4	0.07500
23	0.00000	0.00000	0.00037	0.00020	N/A	0.00010	5	0.06700
24	0.00000	0.00000	0.00037	0.00020	N/A	0.00009	6	0.06000
25	0.00000	0.00000	0.00038	0.00020	N/A	0.00009	7	0.05400
26	0.00000	0.00000	0.00038	0.00020	N/A	0.00010	8	0.04900
27	0.00000	0.00000	0.00038	0.00020	N/A	0.00011	9	0.04400
28	0.00000	0.00000	0.00038	0.00020	N/A	0.00012	10	0.04100
29	0.00000	0.00000	0.00042	0.00023	N/A	0.00013	11	0.03800
30	0.00000	0.00000	0.00044	0.00024	N/A	0.00015	12	0.03500
31	0.00000	0.00000	0.00047	0.00026	N/A	0.00016	13	0.03300
32	0.00000	0.00000	0.00048	0.00026	N/A	0.00018	14	0.03100
33	0.00000	0.00000	0.00054	0.00029	N/A	0.00019	15	0.02900
34	0.00000	0.00000	0.00059	0.00031	N/A	0.00021	16	0.02700
35	0.00000	0.00000	0.00062	0.00033	N/A	0.00023	17	0.02500
36	0.00000	0.00000	0.00067	0.00036	N/A	0.00025	18	0.02300
37	0.00000	0.00000	0.00072	0.00039	N/A	0.00028	19	0.02100
38	0.00000	0.00000	0.00081	0.00044	N/A	0.00030	20	0.01900
39	0.00000	0.00000	0.00090	0.00048	N/A	0.00033	21	0.01700
40	0.00000	0.00000	0.00099	0.00054	N/A	0.00036	22	0.01500
41	0.00000	0.00000	0.00107	0.00058	N/A	0.00040	23	0.01400
42	0.00000	0.00000	0.00116	0.00063	N/A	0.00043	24	0.01300
43	0.00000	0.00000	0.00128	0.00069	N/A	0.00047	25	0.01200
44	0.00000	0.00000	0.00140	0.00076	N/A	0.00051	26	0.01100
45	0.00000	0.00000	0.00155	0.00083	N/A	0.00056	27	0.01000
46	0.00000	0.00000	0.00164	0.00089	N/A	0.00061	28	0.01000
47	0.00000	0.00000	0.00175	0.00094	N/A	0.00066	29	0.01000
48	0.00000	0.00000	0.00184	0.00099	N/A	0.00071	30 & Above <sup>(3)</sup>	0.01000
49	0.00000	0.00000	0.00192	0.00103	N/A	0.00077		
50	0.03000	0.02400	0.00202	0.00108	N/A	0.00083		
51	0.03000	0.02400	0.00208	0.00112	N/A	0.00090		
52	0.03000	0.02400	0.00217	0.00117	N/A	0.00097		
53	0.04000	0.03200	0.00229	0.00123	N/A	0.00105		
54	0.05000	0.04000	0.00240	0.00129	N/A	0.00113		
55	0.10000	0.08000	0.00250	0.00135	N/A	0.00123		
56	0.05000	0.04000	0.00263	0.00141	N/A	0.00133		
57	0.07500	0.06000	0.00274	0.00148	N/A	0.00144		
58	0.10000	0.08000	0.00288	0.00155	N/A	0.00156		
59	0.15000	0.12000	0.00302	0.00162	N/A	0.00170		
60	0.15000	0.12000	0.00313	0.00169	N/A	0.00186		
61	0.20000	0.16000	0.00324	0.00175	N/A	0.00203		
62	0.25000	0.20000	0.00337	0.00182	N/A	0.00222		
63	0.22000	0.17600	0.00334	0.00180	N/A	0.00244		
64	0.22000	0.17600	0.00329	0.00177	N/A	0.00269		
65	0.30000	0.24000	0.00317	0.00171	N/A	0.00296		
66	0.30000	0.24000	0.00313	0.00169	N/A	0.00327		
67	0.30000	0.36000	0.00320	0.00172	N/A	0.00362		
68	0.30000	0.30000	0.00329	0.00177	N/A	0.00400		
69	0.30000	0.30000	0.00332	0.00179	N/A	0.00442		
70	0.30000	0.30000	0.00307	0.00165	N/A	0.00489		
71	0.30000	0.30000	0.00304	0.00163	N/A	0.00541		
72	0.30000	0.30000	0.00326	0.00176	N/A	0.00598		
73	0.30000	0.30000	0.00364	0.00196	N/A	0.00661		
74	0.30000	0.30000	0.00390	0.00210	N/A	0.00731		
75	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed at ages 62 and above with 38 or more years of service (65/41 for Plan 5; 67/40 for Plan 7). Rates of retirement are 0.00% prior to age 52 for Plan 7.

2. Service retirement rates vary by years of service (75% of these rates are applicable at less than 20 years of service; 120% at 20 to 29 years of service; 160% at 30 or more years of service).

3. 0.00% probability of termination with 30 years of service and above for Plans 1, 2, 4, and 5.

**Exhibit A-8**  
**Rate of Separation from Active Service**  
**General Plan 3 – Male**

<u>Age</u>	<u>Service Retirement</u>	<u>Service Disability</u>	<u>Ordinary Disability</u>	<u>Service Death</u>	<u>Ordinary Death</u>	<u>Years of Service</u>	<u>Other Terminations</u>
18	0.00000	N/A	N/A	N/A	0.00036	0	0.15000
19	0.00000	N/A	N/A	N/A	0.00038	1	0.13000
20	0.00000	N/A	N/A	N/A	0.00037	2	0.10500
21	0.00000	N/A	N/A	N/A	0.00036	3	0.08500
22	0.00000	N/A	N/A	N/A	0.00033	4	0.07500
23	0.00000	N/A	N/A	N/A	0.00031	5	0.06700
24	0.00000	N/A	N/A	N/A	0.00029	6	0.06000
25	0.00000	N/A	N/A	N/A	0.00028	7	0.05400
26	0.00000	N/A	N/A	N/A	0.00030	8	0.04900
27	0.00000	N/A	N/A	N/A	0.00031	9	0.04400
28	0.00000	N/A	N/A	N/A	0.00033	10	0.04100
29	0.00000	N/A	N/A	N/A	0.00034	11	0.03800
30	0.00000	N/A	N/A	N/A	0.00036	12	0.03500
31	0.00000	N/A	N/A	N/A	0.00038	13	0.03300
32	0.00000	N/A	N/A	N/A	0.00040	14	0.03100
33	0.00000	N/A	N/A	N/A	0.00042	15	0.02900
34	0.00000	N/A	N/A	N/A	0.00044	16	0.02700
35	0.00000	N/A	N/A	N/A	0.00047	17	0.02500
36	0.00000	N/A	N/A	N/A	0.00050	18	0.02300
37	0.00000	N/A	N/A	N/A	0.00053	19	0.02100
38	0.00000	N/A	N/A	N/A	0.00057	20	0.01900
39	0.00000	N/A	N/A	N/A	0.00061	21	0.01700
40	0.00000	N/A	N/A	N/A	0.00066	22	0.01500
41	0.00000	N/A	N/A	N/A	0.00071	23	0.01400
42	0.00000	N/A	N/A	N/A	0.00077	24	0.01300
43	0.00000	N/A	N/A	N/A	0.00083	25	0.01200
44	0.00000	N/A	N/A	N/A	0.00090	26	0.01100
45	0.00000	N/A	N/A	N/A	0.00098	27	0.01000
46	0.00000	N/A	N/A	N/A	0.00107	28	0.01000
47	0.00000	N/A	N/A	N/A	0.00116	29	0.01000
48	0.00000	N/A	N/A	N/A	0.00127	30 & Above	0.01000
49	0.00000	N/A	N/A	N/A	0.00138		
50	0.00000	N/A	N/A	N/A	0.00149		
51	0.00000	N/A	N/A	N/A	0.00162		
52	0.00000	N/A	N/A	N/A	0.00175		
53	0.00000	N/A	N/A	N/A	0.00189		
54	0.00000	N/A	N/A	N/A	0.00203		
55	0.03000	N/A	N/A	N/A	0.00219		
56	0.03000	N/A	N/A	N/A	0.00236		
57	0.03000	N/A	N/A	N/A	0.00255		
58	0.03000	N/A	N/A	N/A	0.00275		
59	0.03000	N/A	N/A	N/A	0.00296		
60	0.03000	N/A	N/A	N/A	0.00319		
61	0.06000	N/A	N/A	N/A	0.00344		
62	0.15000	N/A	N/A	N/A	0.00371		
63	0.10000	N/A	N/A	N/A	0.00401		
64	0.15000	N/A	N/A	N/A	0.00433		
65	0.30000	N/A	N/A	N/A	0.00468		
66	0.30000	N/A	N/A	N/A	0.00506		
67	0.30000	N/A	N/A	N/A	0.00548		
68	0.30000	N/A	N/A	N/A	0.00594		
69	0.30000	N/A	N/A	N/A	0.00646		
70	0.40000	N/A	N/A	N/A	0.00703		
71	0.40000	N/A	N/A	N/A	0.00767		
72	0.40000	N/A	N/A	N/A	0.00837		
73	0.40000	N/A	N/A	N/A	0.00915		
74	0.40000	N/A	N/A	N/A	0.01001		
75	1.00000	N/A	N/A	N/A	N/A		

**Exhibit A-9**  
**Rate of Separation from Active Service**  
**General Plan 3 – Female**

<u>Age</u>	<u>Service Retirement</u>	<u>Service Disability</u>	<u>Ordinary Disability</u>	<u>Service Death</u>	<u>Ordinary Death</u>	<u>Years of Service</u>	<u>Other Terminations</u>
18	0.0000	N/A	N/A	N/A	0.00013	0	0.15000
19	0.0000	N/A	N/A	N/A	0.00013	1	0.13000
20	0.0000	N/A	N/A	N/A	0.00013	2	0.10500
21	0.0000	N/A	N/A	N/A	0.00012	3	0.08500
22	0.0000	N/A	N/A	N/A	0.00011	4	0.07500
23	0.0000	N/A	N/A	N/A	0.00010	5	0.06700
24	0.0000	N/A	N/A	N/A	0.00009	6	0.06000
25	0.0000	N/A	N/A	N/A	0.00009	7	0.05400
26	0.0000	N/A	N/A	N/A	0.00010	8	0.04900
27	0.0000	N/A	N/A	N/A	0.00011	9	0.04400
28	0.0000	N/A	N/A	N/A	0.00012	10	0.04100
29	0.0000	N/A	N/A	N/A	0.00013	11	0.03800
30	0.0000	N/A	N/A	N/A	0.00015	12	0.03500
31	0.0000	N/A	N/A	N/A	0.00016	13	0.03300
32	0.0000	N/A	N/A	N/A	0.00018	14	0.03100
33	0.0000	N/A	N/A	N/A	0.00019	15	0.02900
34	0.0000	N/A	N/A	N/A	0.00021	16	0.02700
35	0.0000	N/A	N/A	N/A	0.00023	17	0.02500
36	0.0000	N/A	N/A	N/A	0.00025	18	0.02300
37	0.0000	N/A	N/A	N/A	0.00028	19	0.02100
38	0.0000	N/A	N/A	N/A	0.00030	20	0.01900
39	0.0000	N/A	N/A	N/A	0.00033	21	0.01700
40	0.0000	N/A	N/A	N/A	0.00036	22	0.01500
41	0.0000	N/A	N/A	N/A	0.00040	23	0.01400
42	0.0000	N/A	N/A	N/A	0.00043	24	0.01300
43	0.0000	N/A	N/A	N/A	0.00047	25	0.01200
44	0.0000	N/A	N/A	N/A	0.00051	26	0.01100
45	0.0000	N/A	N/A	N/A	0.00056	27	0.01000
46	0.0000	N/A	N/A	N/A	0.00061	28	0.01000
47	0.0000	N/A	N/A	N/A	0.00066	29	0.01000
48	0.0000	N/A	N/A	N/A	0.00071	30 & Above	0.01000
49	0.0000	N/A	N/A	N/A	0.00077		
50	0.0000	N/A	N/A	N/A	0.00083		
51	0.0000	N/A	N/A	N/A	0.00090		
52	0.0000	N/A	N/A	N/A	0.00097		
53	0.0000	N/A	N/A	N/A	0.00105		
54	0.0000	N/A	N/A	N/A	0.00113		
55	0.0400	N/A	N/A	N/A	0.00123		
56	0.0400	N/A	N/A	N/A	0.00133		
57	0.0400	N/A	N/A	N/A	0.00144		
58	0.0400	N/A	N/A	N/A	0.00156		
59	0.0400	N/A	N/A	N/A	0.00170		
60	0.0400	N/A	N/A	N/A	0.00186		
61	0.0600	N/A	N/A	N/A	0.00203		
62	0.1500	N/A	N/A	N/A	0.00222		
63	0.1000	N/A	N/A	N/A	0.00244		
64	0.1500	N/A	N/A	N/A	0.00269		
65	0.3000	N/A	N/A	N/A	0.00296		
66	0.3000	N/A	N/A	N/A	0.00327		
67	0.3000	N/A	N/A	N/A	0.00362		
68	0.3000	N/A	N/A	N/A	0.00400		
69	0.3000	N/A	N/A	N/A	0.00442		
70	0.4000	N/A	N/A	N/A	0.00489		
71	0.4000	N/A	N/A	N/A	0.00541		
72	0.4000	N/A	N/A	N/A	0.00598		
73	0.4000	N/A	N/A	N/A	0.00661		
74	0.4000	N/A	N/A	N/A	0.00731		
75	1.0000	N/A	N/A	N/A	N/A		

**Exhibit A-10**  
**Rate of Separation from Active Service**  
**Safety & Probation Plans – Male**

Age	Service Retirement <sup>(1)(2)</sup>		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5, 6, 7						
18	0.00000	0.00000	0.00150	0.00000	0.00010	0.00037	0	0.10000
19	0.00000	0.00000	0.00150	0.00000	0.00010	0.00040	1	0.08000
20	0.00000	0.00000	0.00150	0.00000	0.00010	0.00041	2	0.06000
21	0.00000	0.00000	0.00150	0.00000	0.00010	0.00041	3	0.04500
22	0.00000	0.00000	0.00150	0.00000	0.00010	0.00040	4	0.03500
23	0.00000	0.00000	0.00150	0.00000	0.00010	0.00039	5	0.03000
24	0.00000	0.00000	0.00150	0.00000	0.00010	0.00038	6	0.02600
25	0.00000	0.00000	0.00150	0.00000	0.00010	0.00037	7	0.02300
26	0.00000	0.00000	0.00150	0.00000	0.00010	0.00038	8	0.02100
27	0.00000	0.00000	0.00150	0.00000	0.00010	0.00039	9	0.01900
28	0.00000	0.00000	0.00150	0.00000	0.00010	0.00040	10	0.01700
29	0.00000	0.00000	0.00150	0.00000	0.00010	0.00041	11	0.01500
30	0.00000	0.00000	0.00170	0.00000	0.00010	0.00041	12	0.01350
31	0.00000	0.00000	0.00190	0.00000	0.00010	0.00042	13	0.01200
32	0.00000	0.00000	0.00210	0.00000	0.00010	0.00043	14	0.01100
33	0.00000	0.00000	0.00230	0.00000	0.00010	0.00044	15	0.01000
34	0.00000	0.00000	0.00250	0.00000	0.00010	0.00045	16	0.00900
35	0.00000	0.00000	0.00270	0.00000	0.00010	0.00047	17	0.00800
36	0.00000	0.00000	0.00290	0.00000	0.00010	0.00049	18	0.00700
37	0.00000	0.00000	0.00310	0.00000	0.00010	0.00050	19	0.00600
38	0.00000	0.00000	0.00330	0.00000	0.00010	0.00053	20 & Above <sup>(3)</sup>	0.00500
39	0.00000	0.00000	0.00350	0.00000	0.00010	0.00056		
40	0.00000	0.00000	0.00370	0.00000	0.00010	0.00059		
41	0.00000	0.00000	0.00390	0.00000	0.00010	0.00062		
42	0.00000	0.00000	0.00410	0.00000	0.00010	0.00067		
43	0.00000	0.00000	0.00430	0.00000	0.00010	0.00071		
44	0.00000	0.00000	0.00450	0.00000	0.00010	0.00076		
45	0.05000	0.00000	0.00470	0.00000	0.00010	0.00082		
46	0.05000	0.00000	0.00490	0.00000	0.00010	0.00088		
47	0.05000	0.00000	0.00520	0.00000	0.00010	0.00095		
48	0.05000	0.00000	0.00550	0.00000	0.00010	0.00102		
49	0.11000	0.00000	0.00580	0.00000	0.00010	0.00111		
50	0.22500	0.18000	0.00750	0.00000	0.00010	0.00120		
51	0.16000	0.12800	0.00920	0.00000	0.00010	0.00129		
52	0.16000	0.12800	0.01090	0.00000	0.00010	0.00140		
53	0.22000	0.17600	0.01260	0.00000	0.00010	0.00151		
54	0.22000	0.17600	0.01430	0.00000	0.00010	0.00162		
55	0.25000	0.20000	0.01600	0.00000	0.00010	0.00175		
56	0.25000	0.20000	0.01770	0.00000	0.00010	0.00190		
57	0.25000	0.25000	0.01940	0.00000	0.00010	0.00205		
58	0.25000	0.25000	0.02110	0.00000	0.00010	0.00223		
59	0.25000	0.25000	0.02280	0.00000	0.00010	0.00243		
60	0.40000	0.40000	0.02080	0.00000	0.00010	0.00264		
61	0.40000	0.40000	0.01880	0.00000	0.00010	0.00288		
62	0.40000	0.40000	0.01680	0.00000	0.00010	0.00315		
63	0.40000	0.40000	0.01480	0.00000	0.00010	0.00344		
64	0.40000	0.40000	0.01280	0.00000	0.00010	0.00375		
65	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed as follows:

- with 33 or more years of service for Safety and Probation Plans 1, 2, and 4.
- at ages 55 and above with 33 or more years of service for Safety and Probation Plan 5.
- at ages 55 and above with 38 or more years of service for Safety and Probation Plan 6.
- at ages 57 and above with 38 or more years of service for Safety and Probation Plan 7.

2. Service retirement rates vary by years of service (40% of these rates are applicable at less than 15 years of service; 90% at 15 to 19 years of service; 120% at 20 to 24 years of service; 170% at 25 or more years of service).

3. 0.00% probability of termination with 20 years of service and above for all Safety/Probation plans except Plan 7.

**Exhibit A-11  
 Rate of Separation from Active Service  
 Safety & Probation Plans – Female**

Age	Service Retirement <sup>(1)(2)</sup>		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5, 6, 7						
18	0.00000	0.00000	0.00150	0.00000	0.00010	0.00014	0	0.10000
19	0.00000	0.00000	0.00150	0.00000	0.00010	0.00015	1	0.08000
20	0.00000	0.00000	0.00150	0.00000	0.00010	0.00016	2	0.06000
21	0.00000	0.00000	0.00150	0.00000	0.00010	0.00017	3	0.04500
22	0.00000	0.00000	0.00150	0.00000	0.00010	0.00017	4	0.03500
23	0.00000	0.00000	0.00150	0.00000	0.00010	0.00018	5	0.03000
24	0.00000	0.00000	0.00150	0.00000	0.00010	0.00019	6	0.02600
25	0.00000	0.00000	0.00150	0.00000	0.00010	0.00020	7	0.02300
26	0.00000	0.00000	0.00150	0.00000	0.00010	0.00021	8	0.02100
27	0.00000	0.00000	0.00150	0.00000	0.00010	0.00022	9	0.01900
28	0.00000	0.00000	0.00150	0.00000	0.00010	0.00024	10	0.01700
29	0.00000	0.00000	0.00150	0.00000	0.00010	0.00025	11	0.01500
30	0.00000	0.00000	0.00170	0.00000	0.00010	0.00027	12	0.01350
31	0.00000	0.00000	0.00190	0.00000	0.00010	0.00028	13	0.01200
32	0.00000	0.00000	0.00210	0.00000	0.00010	0.00030	14	0.01100
33	0.00000	0.00000	0.00230	0.00000	0.00010	0.00032	15	0.01000
34	0.00000	0.00000	0.00250	0.00000	0.00010	0.00034	16	0.00900
35	0.00000	0.00000	0.00270	0.00000	0.00010	0.00036	17	0.00800
36	0.00000	0.00000	0.00290	0.00000	0.00010	0.00038	18	0.00700
37	0.00000	0.00000	0.00310	0.00000	0.00010	0.00041	19	0.00600
38	0.00000	0.00000	0.00330	0.00000	0.00010	0.00043	20 & Above <sup>(3)</sup>	0.00500
39	0.00000	0.00000	0.00350	0.00000	0.00010	0.00046		
40	0.00000	0.00000	0.00370	0.00000	0.00010	0.00049		
41	0.00000	0.00000	0.00390	0.00000	0.00010	0.00052		
42	0.00000	0.00000	0.00410	0.00000	0.00010	0.00056		
43	0.00000	0.00000	0.00430	0.00000	0.00010	0.00059		
44	0.00000	0.00000	0.00450	0.00000	0.00010	0.00063		
45	0.05000	0.00000	0.00470	0.00000	0.00010	0.00067		
46	0.05000	0.00000	0.00490	0.00000	0.00010	0.00071		
47	0.05000	0.00000	0.00520	0.00000	0.00010	0.00076		
48	0.05000	0.00000	0.00550	0.00000	0.00010	0.00080		
49	0.11000	0.00000	0.00580	0.00000	0.00010	0.00085		
50	0.22500	0.18000	0.00750	0.00000	0.00010	0.00091		
51	0.16000	0.12800	0.00920	0.00000	0.00010	0.00097		
52	0.16000	0.12800	0.01090	0.00000	0.00010	0.00103		
53	0.22000	0.17600	0.01260	0.00000	0.00010	0.00109		
54	0.22000	0.17600	0.01430	0.00000	0.00010	0.00116		
55	0.25000	0.20000	0.01600	0.00000	0.00010	0.00123		
56	0.25000	0.20000	0.01770	0.00000	0.00010	0.00131		
57	0.25000	0.25000	0.01940	0.00000	0.00010	0.00140		
58	0.25000	0.25000	0.02110	0.00000	0.00010	0.00148		
59	0.25000	0.25000	0.02280	0.00000	0.00010	0.00158		
60	0.40000	0.40000	0.02080	0.00000	0.00010	0.00168		
61	0.40000	0.40000	0.01880	0.00000	0.00010	0.00178		
62	0.40000	0.40000	0.01680	0.00000	0.00010	0.00190		
63	0.40000	0.40000	0.01480	0.00000	0.00010	0.00202		
64	0.40000	0.40000	0.01280	0.00000	0.00010	0.00215		
65	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed as follows:

- with 33 or more years of service for Safety and Probation Plans 1, 2, and 4.
- at ages 55 and above with 33 or more years of service for Safety and Probation Plan 5.
- at ages 55 and above with 38 or more years of service for Safety and Probation Plan 6.
- at ages 57 and above with 38 or more years of service for Safety and Probation Plan 7.

2. Service retirement rates vary by years of service (40% of these rates are applicable at less than 15 years of service; 90% at 15 to 19 years of service; 120% at 20 to 24 years of service; 170% at 25 or more years of service).

3. 0.00% probability of termination with 20 years of service and above for all Safety/Probation plans except Plan 7.

## Appendix B Summary of Benefit Provisions

All actuarial calculations are based on our understanding of the statutes governing the SamCERA as contained in the County Employees Retirement Law (CERL) of 1937, with provisions adopted by the SamCERA Board, effective through June 30, 2020. The benefit and contribution provisions of this law are summarized briefly below, along with corresponding references to the Code Section. This summary does not attempt to cover all the detailed provisions of the law.

### MEMBERSHIP IN RETIREMENT PLANS

The County has established 12 defined benefit plans based on a member's date of entry into SamCERA. Plans 1, 2, 4, 5, 6, and 7 are open to all members depending on their date of entry. Only General members are eligible for Plan 3. **Government Code Section**

Employees of the Mosquito and Vector Control District are eligible for participation in all General retirement plans, except for Plan 3.

- Plan 1:** Employees hired on or before July 5, 1980.
- Plan 2:** Employees hired after July 5, 1980 but on or before July 12, 1997.
- Plan 3:** General members hired on or before December 22, 2012 may have elected to participate in Plan 3. After five years of service, Plan 3 members can elect membership under the open eligible contributory plan. Members currently working in a contributory plan with Plan 3 service may purchase an upgrade of their Plan 3 service. (31496)
- Plan 4:** Employees hired after July 12, 1997 and before August 7, 2011 (General members, except Plan 5 transfers; see below); before July 10, 2011 (Probation members); and before January 8, 2012 (Safety members).
- Plan 5:** General members hired on or after August 7, 2011, and Deputy Sheriffs hired on or after January 8, 2012. Probation members hired on or after July 10, 2011 and Safety members (except Deputy Sheriffs) may elect this Plan. Members must be first hired before January 1, 2013 to be eligible to elect this Plan.  
After 10 years of service, General Plan 5 members can elect to transfer to Plan 4 and must pay the total actuarial equivalent cost of the increase in past service benefits at the date of transfer.
- Plan 6:** Probation members hired on or after July 10, 2011 and Safety members (except Deputy Sheriffs) may elect this Plan. Members must be first hired before January 1, 2013 to be eligible to elect this Plan.
- Plan 7:** Employees first hired on or after January 1, 2013.

## MEMBER CONTRIBUTIONS

### Basic:

**Plans 1, 2, 4, 5, and 6:** Contributions are based on the entry age and class of each member and are required of all members. See section 5 for details on this calculation. Current member rates are shown in Appendix D.

Basic contributions cease when general members are credited with 30 years of service in a contributory plan provided they were members of SamCERA or a reciprocal system on March 7, 1973, and continuously thereafter. All safety members are eligible for the 30-year cessation of contributions. (31625.2, 31664.1)

**Plan 7:** Members contribute 50% of the aggregate Normal Cost rate for their Plan.

**Plan 3:** No member contributions are required under Plan 3.

### Cost-of-Living:

**Plans 1, 2, and 4:** All members of Plans 1, 2 and 4 contribute 50% of the cost of COLA benefits in addition to other current member rates and cost sharing, except as described in the following paragraph.

Members of SMCM&VCD do not contribute towards the COLA benefit.

**Plans 5 and 6:** All members of Plans 5 and 6 contribute 50% of the cost of the COLA.

**Plan 7:** Members contribute 50% of the aggregate Normal Cost rate for their Plan.

### Cost Sharing:

**General Members:** All members of Plans 1, 2, and 4 (except SMCM&VCD) contribute an additional 3.0% for cost sharing. (31678.2)

All other General members do not participate in cost sharing.

**MEMBER CONTRIBUTIONS (Continued)**

**Safety  
Members:**

Deputy Sheriffs in Plans 1, 2, 4, and 5 contribute the following additional cost sharing rates based on age and service:

If age 45 or older	4.5%
If age is less than 45	
▪ Service is less than 5 years:	3.0%
▪ Service between 5 and 15 years:	3.5%
▪ Service is more than 15 years:	4.5%

Safety members (except Deputy Sheriffs) in Plans 1, 2, and 4 contribute an additional 5.0% cost sharing.

Safety members (except Deputy Sheriffs) in Plan 5 contribute an additional 4.0% cost sharing.

Safety members in Plan 6 and 7 do not participate in cost sharing.

**Probation  
Members:**

Members of Plans 1, 2, 4, and 5 contribute an additional 3.5% for cost sharing.

Members of Plans 6 and 7 do not participate in cost sharing.

**Interest  
Crediting:**

Interest is credited to contributions semiannually on June 30 and December 31 at an interest rate set by the Board of Retirement on amounts that have been on deposit for at least six months. (31591, 31700)

**Employer  
Pick-Up:**

Effective with the first pay period in July 2016, no employer provides for employer pick-up contributions.



**EMPLOYER CONTRIBUTIONS**

The employer (County, Courts, or District) contributes to the retirement fund a percent of the total compensation provided for all members based on an actuarial investigation, valuation and recommendation of the actuary. (31453, 31453.5, 31453.6, 31454 31581)

**SERVICE RETIREMENT ALLOWANCE**

**Eligibility:**

**General Members:** All members of Plans 1, 2, 4, and 5 are eligible to retire after meeting one of the following age and service requirements: (31672)

- Age 50 with 10 years of service\*;
- Any age with 30 years of service; or
- Age 70 regardless of service.

Plan 3 members are eligible to retire at age 65 with 10 years of service. A reduced benefit is also payable at age 55 with 10 years of service. (31496)

Plan 7 members are eligible to retire at age 52 with 5 years of service.

**Safety and Probation Members:** Members of all plans except Plan 7 are eligible to retire after meeting one of the following age and service requirements: (31663.25)

- Age 50 with 10 years of service;
- Any age with 20 years of service.

Plan 7 members are eligible to retire at age 50 with 5 years of service. (31672.1)  
 \* For part-time employees, age 50 is replaced with age 55.

**Final Average Compensation:**

**Plans 1 and 2:** Monthly average of a member's highest 12 consecutive months of compensation. (31462.1)

**All other Plans:** Monthly average of a member's highest compensation during any three years. Years do not have to be consecutive, except for Plan 7. [31462, 31496.3(d)]

**Compensation Limit:**

**All Plans, except Plan 7:** The amount of compensation that is taken into account in computing benefits payable to any person who first becomes a member on or after July 1, 1996, shall not exceed the dollar limitations in Section 401(a)(17) of Title 26 of the US Code. (31671)

**SERVICE RETIREMENT ALLOWANCE (Continued)**

**Plan 7:** The amount of compensation taken into account shall not exceed the following applicable percentage of the Social Security Taxable Wage Base:

- 100% for a member covered by Social Security (County and Courts General members);
- 120% for a member not covered by Social Security (all other members).

The amount of compensation taken into account shall be adjusted based on changes in the Consumer Price Index for All Urban Consumers. Adjustments shall be effective annually on January 1.

**Monthly Allowance:**

<b>Plans 1, 2, 4, and 5:</b>	<p><b>General members:</b>  <math>1/60 \times \text{Final Average Compensation} \times \text{General age factor} \times \text{years of service.}</math></p> <p><b>Safety &amp; Probation members:</b>  <math>3\% \times \text{Final Average Compensation} \times \text{Safety age factor} \times \text{years of service.}</math></p>	<p>(31676.14) – Plans 1, 2 &amp; 4 (31676.1) – Plan 5 (31664.1) – Plans 1, 2 &amp; 4 (31664.2) – Plan 5</p>
<b>Plan 6:</b>	<p><b>Safety &amp; Probation members:</b>  <math>2\% \times \text{Final Average Compensation} \times \text{Safety age factor} \times \text{years of service.}</math></p>	<p>(31664)</p>
<b>Plan 7:</b>	<p><b>General members:</b>  <math>2\% \times \text{Final Average Compensation} \times \text{General age factor} \times \text{years of service.}</math></p> <p><b>Safety and Probation members:</b>  <math>2\% \times \text{Final Average Compensation} \times \text{Safety age factor} \times \text{years of service.}</math></p>	<p>7522.20(a)  7522.25(d)</p>
<b>Plan 3:</b>	<p><b>General members: (a)+(b)-(c) where:</b></p> <p>(a) <math>2\% \times \text{Final Average Compensation} \times (\text{Years of Service, (up to 35 years), plus}</math></p> <p>(b) <math>1\% \times \text{Final Average Compensation} \times \text{Years of Service in excess of 35 (up to 10)}</math></p> <p>(c) <math>\text{Estimated Primary Insurance Amount (PIA)} \times \text{Years of Covered Service (up to 35) divided by 35.}</math></p> <p>The PIA is calculated based on certain assumptions specified by statute, and an assumed Social Security retirement age of 65.</p> <p>If retirement occurs prior to age 65, benefit amount is adjusted by an actuarial equivalent factor (see Sample Plan Age Factors).</p>	<p>(31496)</p>

**SERVICE RETIREMENT ALLOWANCE (Continued)**

**Percentage of Final Average Compensation at Sample Ages:**

<b>Plan</b>	<b>Age 50</b>	<b>Age 55</b>	<b>Age 60</b>	<b>Age 65</b>	
County General 1,2&4	1.475%	1.948%	2.440%	2.611%	(31676.14)
SMCM&VCD*	1.475%	1.948%	2.440%	2.611%	(31676.14)
General Plan 3**	N/A	0.780%	1.220%	2.000%	(31496)
General Plan 5	1.182%	1.492%	1.917%	2.432%	(31676.1)
General Plan 7	N/A	1.300%	1.800%	2.300%	(7522.20(a))
Safety/Probation 1,2,&4	3.000%	3.000%	3.000%	3.000%	(31664.1)
Safety/Probation Plan 5	2.290%	3.000%	3.000%	3.000%	(31664.2)
Safety/Probation Plan 6	2.000%	2.620%	2.620%	2.620%	(31664)
Safety/Probation Plan 7	2.000%	2.500%	2.700%	2.700%	(7522.25(d))

\* As of the June 30, 2010 actuarial valuation, SMCM&VCD has adopted the same benefit structure as County General.

\*\* Prior to reduction for PIA benefit. Actual percentage will be less.

**Maximum**

**Allowance:** Allowance may not exceed 100% of Final Average Compensation.

**All Plans**

**Except 3:**

**Plan 3:** The sum of the normal retirement allowance and the estimated PIA cannot exceed 70% of Final Average Compensation for a member with 35 or less years of service, and cannot exceed 80% of Final Average Compensation if service exceeds 35 years. (31496)

**SERVICE RETIREMENT ALLOWANCE (Continued)**

**Unmodified Retirement Allowance (Normal Form):**

<b>All Plans Except 3:</b>	Life Annuity payable to retired member with 60% continuance to an eligible survivor (or eligible children).	(31760.1)
<b>Plan 3:</b>	Life Annuity payable to retired member with 50% continuance to an eligible survivor (or eligible children).	(31497.71)
	Eligible survivor includes certain domestic partners.	(31780.2)

**Optional Retirement Allowance:**

A member may elect to have the actuarial equivalent of the service or disability retirement allowance applied to a lesser retirement allowance during the retired member's life in order to provide an optional survivor allowance.

<b>Option 1:</b>	Member's allowance is reduced to pay a cash refund of any unpaid annuity payments (up to the amount of the member's contributions at retirement) to the member's estate or to a beneficiary having an insurable interest in the life of the member.	(31761)
<b>Option 2:</b>	100% of member's reduced allowance is payable to an eligible survivor or beneficiary having an insurable interest in the life of the member.	(31762)
<b>Option 3:</b>	50% of member's reduced allowance is payable to an eligible survivor or beneficiary having an insurable interest in the life of the member.	(31763)
<b>Option 4:</b>	Other % of member's reduced allowance is payable to an eligible survivor or beneficiary(ies) having an insurable interest in the life of the member.	(31764)

For Options 2, 3 or 4, the continuance will not be paid if the member revokes their election and names another beneficiary after retirement. (31782)

**All Allowances:** All allowances are made on a pro rata basis (based on the number of days in that month) if not in effect for the entire month of retirement. For deaths that occur mid-month, the full month's payment is made. (31600)

**SERVICE-CONNECTED DISABILITY RETIREMENT ALLOWANCE**

<b><u>Eligibility:</u></b>		
<b>All Plans</b>	Any age or years of service; disability must result from occupational injury or disease, and member must be permanently incapacitated for the performance of duty.	(31720, 31720.5, 31720.6, 31720.7, 31720.9)
<b>Except 3:</b>		
<b>Plan 3:</b>	Not available under Plan 3.	(31487)
<b><u>Monthly Allowance:</u></b>	Greater of (1) 50% of Final Average Compensation or (2) the service retirement allowance, if eligible to retire.	(31727.4)
<b><u>Normal Form Of Payment:</u></b>	Life Annuity with 100% continuance to a surviving spouse (or eligible children).	(31760, 31786)

**NONSERVICE-CONNECTED DISABILITY RETIREMENT ALLOWANCE**

<b><u>Eligibility:</u></b>		
<b>All Plans Except 3:</b>	Any age with five years of service and permanently incapacitated for the performance of duty.	(31720, 31836)
<b>Plan 3:</b>	Not available under Plan 3.	(31487)
<b><u>Monthly Allowance:</u></b>	The monthly allowance is equal to a service retirement allowance if the member is eligible to retire, otherwise allowance equals (a) or (b) where:	(31726, 31726.5)
<b>General Members:</b>	(a) 90% of 1/60th of Final Average Compensation x years of service, if member must rely on service in another retirement system in order to be eligible to retire, or allowance exceeds 1/3 of Final Average Compensation.	(31727(a))
	(b) 90% of 1/60th of Final Average Compensation x years of service projected to age 65, not to exceed 1/3 of Final Average Compensation.	(31727(b))
<b>Safety Members:</b>	1/60 is replaced by 1/50 and age 65 is replaced by age 55 in (a) and (b) above.	(31727.2)
<b><u>Normal Form Of Payment:</u></b>	Life Annuity with 60% continuance to a surviving spouse (or eligible children).	(31760.1)

**SERVICE-CONNECTED DEATH BENEFITS**

**Eligibility**

**All Plans Except 3:** Active members who die in service as a result of injury or disease arising out of and in the course of employment. (31787)

**Plan 3:** Not available under Plan 3. (31487)

**Monthly Allowance:** An annual death allowance is payable monthly to an eligible survivor (or eligible children) equal to 50% of the member's Final Average Compensation. (31787)

**Optional Combined Benefit:** (31781.3)

In lieu of the monthly allowance above, an eligible survivor may elect:

- (a) A lump sum equal to 1/12 of the compensation earned in the preceding 12 months x years of service (benefit not to exceed 50% of the 12 months' compensation), plus
- (b) A monthly payment equal to 50% of the member's Final Average Compensation, reduced by a monthly amount, which is the actuarial equivalent of (a) above based on the age of eligible survivor.

**Death Benefit (Lump Sum):** (31781)

The member's normal contributions and interest, plus 1/12 of the compensation earned in the preceding 12 months x years of service (benefit not to exceed 50% of the 12 months' compensation).

**Additional Allowance for Children:** (31787.5)

25% of death allowance (whether or not the monthly allowance or combined benefit is chosen) for one child, 40% for two children, and 50% for three or more children.

**Additional Amount for Spouse of Safety Member:** (31787.6)

An eligible survivor of a safety member is also entitled to receive a lump sum death benefit equal to 12 x monthly rate of compensation at the time of member's death in addition to all other benefits.

Note: For valuation purposes, an unmarried member is assumed to take the lump sum benefit. A married member is assumed to take the monthly allowance or the lump sum, whichever is more valuable.

**NONSERVICE-CONNECTED DEATH BENEFITS**

**Eligibility:**

**All Plans Except 3:** Active members who die while in service or while physically or mentally incapacitated for the performance of duty. (31780)

**Plan 3:** Not available under Plan 3.

**Death Benefit (Lump Sum):** (31781)

The member's normal contributions and interest, plus 1/12 of the Compensation earned in preceding 12 months x the number of completed years of service (benefit not to exceed 50% of the 12 months' compensation).

**Optional Death Benefit:**

In lieu of the lump sum death benefit, several optional death benefits are available to provide flexibility to survivors, as follows.

**First Optional Death Benefit:** (31781.1)

If a member who would have been entitled to a nonservice-connected disability retirement allowance dies prior to retirement as a result of such disability, the eligible survivor (or eligible children) may elect to receive an optional death allowance equal to 60% of the monthly retirement allowance to which the member would have been entitled as of the date of death.

**Second Optional Death Benefit:** (31781.2, 31765.2)

If a member dies prior to reaching the minimum retirement age but has 10 or more years of service, an eligible survivor (or eligible children) may elect to leave the amount of the death benefit on deposit until the earliest date the member could have retired and at that time receive the allowance provided for in 31765.2 (a 60% continuance).

**Third Optional Death Benefit:**

An eligible survivor of a member who dies after five years of service may elect a combined benefit equal to:

(a) A lump sum equal to 1/12 of the compensation earnable in the preceding 12 months x the number of completed years of service (benefit not to exceed 50% of the 12 months' compensation), plus (31781.3)

(b) A monthly payment equal to 60% of the monthly retirement allowance to which the member would have been entitled if the member retired or had been retired for a nonservice-connected disability as of the date of death, reduced by a monthly amount which is the actuarial equivalent of (a) above based on the age of the eligible survivor. (31781.1)

## NONSERVICE-CONNECTED DEATH BENEFITS (Continued)

### Fourth Optional Death Benefit:

If a member dies while eligible for a service retirement and the eligible survivor is designated as beneficiary, the spouse (or eligible children) may elect to receive 60% of the monthly retirement allowance to which the member would have been entitled as of the date of death. (31765.1)

Note for Third and Fourth Optional Death Benefits: In order to leave the eligible survivor the greatest benefit, the member is assumed to have retired for nonservice-connected disability, elected the Option 2 retirement allowance, and then died the next day.

### Fifth Optional Death Benefit:

If a member dies while eligible for a service retirement and the eligible survivor is designated as beneficiary and survives the member by not less than 30 days the spouse (or eligible children) may elect to receive the same retirement allowance as the spouse would have received had the member retired on the date of death and selected Option 3. (31765)

Note: For valuation purposes, an unmarried member is assumed to take the lump sum benefit. A married member is assumed to receive an annuity or a lump sum, whichever is more valuable. The annuity is equal to the Option 2-100% Continuance calculation for the larger of either (1) a non-service connected disability benefit or (2) the member's earned service retirement benefit (if eligible).



**DEFERRED RETIREMENT BENEFITS**

**Eligibility:**

**All Plans, except Plans 3 and 7:** Age 50 with 10 years of membership. (31700)

Member contributions must be left on deposit (except Plan 3) and the member must have terminated with five years of service or entered a reciprocal agency. Members are eligible for service retirement when they would have reached eligibility if they would have remained in an active position.

**Plan 3:** Age 55 with 10 years of service. (31496)

**Plan 7: General members:**

Age 52 with 5 years of service.

**Safety and Probation members:**

Age 50 with 5 years of service.

**All Plans:** Member contributions must be left on deposit and the member must have terminated with 5 years of service or entered a reciprocal agency. Members (except for Plan 7) are eligible for service retirement when they would have reached eligibility if they would have remained in an active position.

**Monthly Allowance:**

**All Plans Except 3:** Same as service retirement allowance; payable any time after the member would have been eligible for service retirement. (31703, 31704, 31705)

If a terminated member dies before the effective date of the deferred retirement allowance, the member's accumulated contributions are paid to the estate or to the named beneficiary. (31702)

**Plan 3:** Same as service retirement allowance at normal retirement age 65 or in an actuarially equivalent reduced amount at early retirement, after age 55. (31496)

No benefit is paid for death while inactive.

**COST-OF-LIVING INCREASES**

Cost-of-living increases (or decreases) are applied to all retirement allowances (service and disability), optional death allowances, and annual death allowances effective April 1, based on changes in the Consumer Price Index (CPI) from the previous January 1 to the current January 1, to the nearest ½ of 1%. (31870, 31870.1, 31870.2, 31874.4)

**Plan 1: General & Safety** (31870.2)  
 Members (and their beneficiaries) are limited to a maximum 5% cost-of-living increase.

**Probation** (31870.1)  
 Members (and their beneficiaries) are limited to a maximum 3% cost-of-living increase.

**Plan 2: All members** (31870.1)  
 Members (and their beneficiaries) are limited to a maximum 3% cost-of-living increase.

**Plan 3: Plan 3** does not have a COLA. (31487)

**Other Plans: All members** (31870)  
 Members (and their beneficiaries) are limited to a maximum 2% cost-of-living increase.

**COLA Bank**

**Plan 1:** When the CPI exceeds the applicable percentage (3% or 5%), the difference between the actual CPI and the maximum cost-of-living increase given in any year is credited to the COLA Accumulation (COLA Bank). It may be used in future years to provide cost-of-living increases when the CPI falls below the applicable percentage. (31870.1, 31870.2)

All other Plans do not have a COLA bank.

**Other Plans:** (31874.4)

## Appendix C Valuation Data and Schedules

Data on SamCERA membership as of June 30, 2020 was supplied to us by SamCERA staff. On the following table, Exhibit C-1, we present a summary of SamCERA membership at June 30, 2020 for active members. Similar information is shown in Exhibit C-2 for inactive members and Exhibits C-3a and C-3b for retired members.

Note that salary amounts shown are annualized amounts based on the biweekly pay for the period prior to the valuation date. If the annualized amount was less than the total prior earnings, total prior year earnings were used.

Additional statistical data on both active and retired members is shown in the following tables.

Exhibit C-4: Age, Service, Compensation Distribution of Active Members

Exhibit C-5: Age, Retirement Year, Benefit Amount and Plan Distribution of Retired Members

Exhibits C-4 and C-5 are shown for all plans combined as well as for classification separately.

**Exhibit C-1**  
**SamCERA Membership – Active Members as of June 30, 2020**

	<b>Total Number</b>	<b>Annual Salary</b>	<b>Average Age</b>	<b>Average Monthly Salary</b>	<b>Average Credited Service</b>
<b>General Members</b>					
Plan 1	5	\$ 666,140	65.6	\$ 11,102	37.2
Plan 2	409	52,344,200	56.8	10,665	27.3
Plan 3	56	5,524,555	53.9	8,221	16.2
Plan 4	1,739	201,810,749	50.1	9,671	15.5
Plan 5	283	36,115,557	45.8	10,635	5.8
Plan 7	2,163	200,531,384	39.4	7,726	3.2
<b>Total</b>	<b>4,655</b>	<b>\$ 496,992,584</b>	<b>45.5</b>	<b>\$ 8,897</b>	<b>10.3</b>
<b>Safety Members</b>					
Plan 1	-	\$ -	-	\$ -	-
Plan 2	30	5,444,925	53.4	15,125	24.8
Plan 4	198	31,371,664	47.1	13,204	15.1
Plan 5	63	9,349,509	41.9	12,367	5.9
Plan 7	231	26,557,917	34.6	9,581	3.4
<b>Total</b>	<b>522</b>	<b>\$ 72,724,015</b>	<b>41.3</b>	<b>\$ 11,610</b>	<b>9.4</b>
<b>Probation Members</b>					
Plan 1	-	\$ -	-	\$ -	-
Plan 2	12	1,465,025	50.0	10,174	25.8
Plan 4	149	17,571,086	46.2	9,827	17.1
Plan 5	8	896,964	36.8	9,343	7.7
Plan 6	-	-	-	-	-
Plan 7	54	4,923,188	32.9	7,598	3.6
<b>Total</b>	<b>223</b>	<b>\$ 24,856,263</b>	<b>42.9</b>	<b>\$ 9,289</b>	<b>14.0</b>
<b>Grand Total</b>	<b>5,400</b>	<b>\$ 594,572,862</b>	<b>45.0</b>	<b>\$ 9,176</b>	<b>10.3</b>

**Exhibit C-2**  
**SamCERA Membership – Inactive Members as of June 30, 2020**

	<b>Deferred Vested Number</b>	<b>Deferred Vested Average Age</b>	<b>Contingent Vested Number</b>	<b>Contingent Vested Average Age</b>
<b>General Members</b>				
Plan 1	6	65.7	-	-
Plan 2	202	56.6	47	56.5
Plan 3	70	58.1	-	-
Plan 4	586	46.8	189	48.6
Plan 5	33	43.6	64	44.0
Plan 7	42	36.5	489	39.3
Total	939	49.3	789	43.0
<b>Safety Members</b>				
Plan 1	1	69.0	-	-
Plan 2	7	51.3	8	55.5
Plan 4	30	45.6	15	50.7
Plan 5	2	49.0	7	41.3
Plan 7	3	31.3	17	35.5
Total	43	46.2	47	44.6
<b>Probation Members</b>				
Plan 1	-	-	-	-
Plan 2	8	53.4	8	51.4
Plan 4	30	44.0	9	48.7
Plan 5	-	-	1	40.0
Plan 6	-	-	-	-
Plan 7	1	35	7	30.6
Total	39	45.7	25	44.1
<b>Grand Total</b>	<b>1,021</b>	<b>49.0</b>	<b>861</b>	<b>43.1</b>

**Exhibit C-3a**  
**SamCERA Membership – Retired Members as of June 30, 2020**

	Number	Average Age	Monthly Allowance	Average Monthly Benefit
<b>General Members</b>				
Plan 1	1,299	80.3	\$ 5,288,347	\$ 3,824
Plan 2	2,113	70.0	7,589,905	3,441
Plan 3	144	72.0	190,051	541
Plan 4	970	66.1	2,205,158	2,246
Plan 5	12	59.1	20,351	1,454
Plan 7	12	63.3	13,634	1,136
<b>Total</b>	<b>4,550</b>	<b>72.1</b>	<b>\$ 15,307,446</b>	<b>\$ 3,364</b>
<b>Safety Members</b>				
Plan 1	266	75.6	\$ 1,943,226	\$ 7,278
Plan 2	242	62.7	1,987,515	8,047
Plan 4	119	57.6	529,509	4,450
Plan 5	3	55.7	5,451	1,817
Plan 7	2	61.0	3,186	1,593
<b>Total</b>	<b>632</b>	<b>67.1</b>	<b>\$ 4,468,887</b>	<b>\$ 7,071</b>
<b>Probation Members</b>				
Plan 1	95	77.4	\$ 402,484	\$ 4,025
Plan 2	117	61.5	650,297	5,202
Plan 4	59	57.7	249,050	3,953
Plan 7	1	56.0	2,053	2,053
<b>Total</b>	<b>272</b>	<b>66.2</b>	<b>\$ 1,303,884</b>	<b>\$ 4,794</b>
<b>Grand Total</b>	<b>5,454</b>	<b>71.3</b>	<b>\$ 21,080,218</b>	<b>\$ 3,865</b>

**Exhibit C-3b**  
**SamCERA Membership – Retired Members as of June 30, 2020**  
**Subtotaled by Class and Retirement Type**

<u>Plan</u>	<u>Retirement Type</u>	<u>Number</u>	<u>Monthly Benefit</u>	<u>Average Monthly Benefit</u>
<b><i>General Plans:</i></b>				
	Healthy	3,654	\$ 13,017,285	\$ 3,252
	Disabled	367	1,156,445	3,043
	Beneficiaries	529	1,133,716	2,007
	Total	<u>4,550</u>	<u>\$ 15,307,446</u>	<u>\$ 3,364</u>
<b><i>Safety Plans:</i></b>				
	Healthy	409	\$ 3,329,873	\$ 8,063
	Disabled	119	722,317	6,019
	Beneficiaries	104	416,698	3,969
	Total	<u>632</u>	<u>\$ 4,468,887</u>	<u>\$ 7,071</u>
<b><i>Probation Plans:</i></b>				
	Healthy	229	\$ 1,157,113	\$ 4,781
	Disabled	20	90,664	4,317
	Beneficiaries	23	56,108	2,158
	Total	<u>272</u>	<u>\$ 1,303,884</u>	<u>\$ 4,794</u>
<b><i>Grand Totals</i></b>				
	Healthy	4,292	\$ 17,504,271	\$ 4,078
	Disabled	506	1,969,425	3,892
	Beneficiaries	656	1,606,522	2,449
	Total	<u>5,454</u>	<u>\$ 21,080,218</u>	<u>\$ 3,865</u>

**Exhibit C-4**  
**Age & Service Distribution of Active Members by Count and Average Compensation**  
**as of June 30, 2020 – All Members**

<b>Count</b>											
<b>Age</b>	<b>Years of Service</b>									<b>Total Count</b>	
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over		
Under 25	25	20	0	0	0	0	0	0	0	45	
25-29	117	256	30	0	0	0	0	0	0	403	
30-34	92	376	177	22	1	0	0	0	0	668	
35-39	71	312	219	138	34	2	0	0	0	776	
40-44	45	199	159	193	142	26	0	0	0	764	
45-49	36	141	124	167	200	116	19	0	0	803	
50-54	27	122	98	133	163	136	68	12	0	759	
55-59	25	68	89	100	103	96	58	56	9	604	
60-64	13	46	69	79	73	47	30	30	8	395	
65 & Over	5	18	31	38	41	17	8	10	15	183	
<b>Total Count</b>	456	1,558	996	870	757	440	183	108	32	5,400	

<b>Compensation</b>											
<b>Age</b>	<b>Years of Service</b>									<b>Average Comp.</b>	
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over		
Under 25	\$73,636	\$83,562	-	-	-	-	-	-	-	\$78,047	
25-29	78,159	88,487	98,765	-	-	-	-	-	-	86,254	
30-34	83,715	95,062	107,875	111,148	133,167	-	-	-	-	97,481	
35-39	90,814	99,070	111,624	115,505	102,931	117,189	-	-	-	104,996	
40-44	92,108	101,348	110,651	121,023	121,468	105,062	-	-	-	111,576	
45-49	100,047	100,041	122,981	120,168	126,353	120,618	117,573	-	-	117,710	
50-54	83,981	101,291	126,939	123,402	119,318	126,795	122,727	139,440	-	118,826	
55-59	106,925	100,459	110,395	119,297	121,331	118,349	125,606	131,905	97,668	117,001	
60-64	104,825	97,289	117,617	121,708	107,879	123,587	142,133	135,449	122,187	117,866	
65 & Over	84,334	114,134	114,582	131,235	103,969	167,053	103,502	146,331	141,129	123,092	
<b>Avg. Annual Compensation</b>	\$86,857	\$96,900	\$113,733	\$120,407	\$119,202	\$123,209	\$125,445	\$135,062	\$124,170	\$110,106	



**Exhibit C-4a**  
**Age & Service Distribution of Active Members by Count and Average Compensation**  
**as of June 30, 2020 – General Members**

<b>Count</b>										
<b>Age</b>	<b>Years of Service</b>									<b>Total Count</b>
	<b>0-1</b>	<b>1-4</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>	<b>35&amp;Over</b>	
Under 25	21	11	0	0	0	0	0	0	0	32
25-29	100	191	20	0	0	0	0	0	0	311
30-34	85	328	131	15	1	0	0	0	0	560
35-39	68	283	186	101	29	1	0	0	0	668
40-44	41	188	145	167	105	22	0	0	0	668
45-49	34	135	98	137	148	76	14	0	0	642
50-54	26	111	82	125	137	113	54	11	0	659
55-59	25	60	75	98	100	86	56	53	9	562
60-64	13	46	63	75	72	44	30	30	8	381
65 & Over	5	17	29	35	36	17	8	10	15	172
<b>Total Count</b>	<b>418</b>	<b>1,370</b>	<b>829</b>	<b>753</b>	<b>628</b>	<b>359</b>	<b>162</b>	<b>104</b>	<b>32</b>	<b>4,655</b>

<b>Compensation</b>										
<b>Age</b>	<b>Years of Service</b>									<b>Average Comp.</b>
	<b>0-1</b>	<b>1-4</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>	<b>35&amp;Over</b>	
Under 25	\$72,642	\$67,921	-	-	-	-	-	-	-	\$71,019
25-29	76,105	82,839	88,790	-	-	-	-	-	-	81,057
30-34	83,390	92,675	101,720	102,079	133,167	-	-	-	-	93,706
35-39	90,857	97,359	108,204	109,485	97,892	94,196	-	-	-	101,569
40-44	92,527	99,990	107,312	119,241	114,592	96,023	-	-	-	108,098
45-49	99,176	98,545	118,074	116,578	122,388	109,442	111,078	-	-	112,467
50-54	84,162	98,412	119,470	121,151	116,947	118,460	108,671	129,555	-	113,435
55-59	106,925	96,799	102,602	119,406	121,434	116,549	123,993	131,841	97,668	115,400
60-64	104,825	97,289	112,999	118,326	107,352	121,753	142,133	135,449	122,187	116,071
65 & Over	84,334	111,933	111,756	126,470	102,862	167,053	103,502	146,331	141,129	121,762
<b>Avg. Annual Compensation</b>	<b>\$86,636</b>	<b>\$94,694</b>	<b>\$108,818</b>	<b>\$117,689</b>	<b>\$115,789</b>	<b>\$117,355</b>	<b>\$120,117</b>	<b>\$134,034</b>	<b>\$124,170</b>	<b>\$106,765</b>

**Exhibit C-4b**  
**Age & Service Distribution of Active Members by Count and Average Compensation**  
**as of June 30, 2020 – Safety Members**

<b>Count</b>										
<b>Age</b>	<b>Years of Service</b>									<b>Total Count</b>
	<b>0-1</b>	<b>1-4</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>	<b>35&amp;Over</b>	
Under 25	4	9	0	0	0	0	0	0	0	13
25-29	13	51	9	0	0	0	0	0	0	73
30-34	5	39	36	6	0	0	0	0	0	86
35-39	3	24	24	19	3	1	0	0	0	74
40-44	4	10	12	13	15	3	0	0	0	57
45-49	1	6	23	18	25	18	2	0	0	93
50-54	0	11	15	6	12	14	10	1	0	69
55-59	0	8	14	1	1	7	2	2	0	35
60-64	0	0	6	4	1	3	0	0	0	14
65 & Over	0	1	2	3	2	0	0	0	0	8
<b>Total Count</b>	<b>30</b>	<b>159</b>	<b>141</b>	<b>70</b>	<b>59</b>	<b>46</b>	<b>14</b>	<b>3</b>	<b>0</b>	<b>522</b>

<b>Compensation</b>										
<b>Age</b>	<b>Years of Service</b>									<b>Average Comp.</b>
	<b>0-1</b>	<b>1-4</b>	<b>5-9</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>	<b>35&amp;Over</b>	
Under 25	\$78,854	\$102,678	-	-	-	-	-	-	-	\$95,348
25-29	94,182	109,925	121,309	-	-	-	-	-	-	108,525
30-34	105,366	115,080	130,729	135,540	-	-	-	-	-	122,493
35-39	89,842	121,293	140,489	152,541	144,726	140,183	-	-	-	135,472
40-44	87,813	128,847	152,389	152,471	167,116	162,722	-	-	-	148,165
45-49	146,841	133,701	146,265	155,256	161,495	160,619	149,006	-	-	154,132
50-54	-	130,339	166,125	176,826	142,009	185,391	199,074	248,180	-	167,030
55-59	-	127,903	152,143	131,986	133,205	140,432	170,772	158,785	-	144,587
60-64	-	-	166,113	185,116	145,776	150,488	-	-	-	166,741
65 & Over	-	151,549	155,553	186,823	139,997	-	-	-	-	162,890
<b>Avg. Annual Compensation</b>	<b>\$94,474</b>	<b>\$117,161</b>	<b>\$143,916</b>	<b>\$156,888</b>	<b>\$156,634</b>	<b>\$164,119</b>	<b>\$187,879</b>	<b>\$188,583</b>	<b>-</b>	<b>\$139,318</b>

**Exhibit C-4c**  
**Age & Service Distribution of Active Members by Count and Average Compensation**  
**as of June 30, 2020 – Probation Members**

<b>Count</b>										
	<b>Age</b>	<b>Years of Service</b>								
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	0	0	0	0	0	0	0	0	0	0
25-29	4	14	1	0	0	0	0	0	0	19
30-34	2	9	10	1	0	0	0	0	0	22
35-39	0	5	9	18	2	0	0	0	0	34
40-44	0	1	2	13	22	1	0	0	0	39
45-49	1	0	3	12	27	22	3	0	0	68
50-54	1	0	1	2	14	9	4	0	0	31
55-59	0	0	0	1	2	3	0	1	0	7
60-64	0	0	0	0	0	0	0	0	0	0
65 & Over	0	0	0	0	3	0	0	0	0	3
<b>Total Count</b>	8	29	26	47	70	35	7	1	0	223

<b>Compensation</b>										
	<b>Age</b>	<b>Years of Service</b>								
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	-	-	-	-	-	-	-	-	-	-
25-29	\$77,446	\$87,445	\$95,387	-	-	-	-	-	-	\$85,758
30-34	43,399	95,306	106,232	100,823	-	-	-	-	-	95,804
35-39	-	89,246	105,325	110,187	113,303	-	-	-	-	106,003
40-44	-	81,744	102,265	112,469	123,160	130,923	-	-	-	117,662
45-49	82,867	-	104,773	108,521	115,547	126,496	126,926	-	-	117,395
50-54	79,273	-	151,549	103,832	123,066	140,300	121,613	-	-	126,147
55-59	-	-	-	95,917	110,201	118,414	-	81,510	-	107,582
60-64	-	-	-	-	-	-	-	-	-	-
65 & Over	-	-	-	-	93,234	-	-	-	-	93,234
<b>Avg. Annual Compensation</b>	\$69,840	\$89,999	\$106,770	\$109,619	\$118,270	\$129,480	\$123,890	81,510	-	\$111,463

**Exhibit C-5**  
**Distribution of Retired Members by Age and Retirement Year**  
**as of June 30, 2020 – All Plans Combined**

Age	Retirement Year								Total Count	Average Monthly Benefit
	Pre-1990	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	2020-24		
Under 35	-	-	-	-	1	4	2	-	7	\$ 1,346
35-39	-	-	1	1	-	2	3	1	8	4,144
40-44	-	-	-	-	1	6	14	-	21	3,051
45-49	-	-	-	-	9	7	23	3	42	3,815
50-54	-	-	2	7	8	13	130	27	187	4,330
55-59	-	-	6	10	18	89	249	29	401	4,268
60-64	-	1	11	17	72	200	347	66	714	4,272
65-69	-	6	10	75	196	336	374	22	1,019	4,148
70-74	7	16	84	169	309	329	191	10	1,115	4,066
75-79	10	50	132	200	266	130	62	7	857	3,990
80-84	31	85	103	127	73	35	21	4	479	3,189
85-89	43	62	97	37	26	26	18	3	312	2,732
90-94	77	45	34	9	5	7	11	1	189	2,169
95-99	48	9	12	7	4	2	6	1	89	2,729
100 & Over	8	1	3	-	-	1	1	-	14	2,086
<b>Total Count</b>	224	275	495	659	988	1,187	1,452	174	<b>5,454</b>	
<b>Avg Monthly Benefit</b>	\$ 2,235	\$ 2,631	\$ 2,795	\$ 3,666	\$ 4,541	\$ 3,900	\$ 4,137	\$ 5,366		\$ 3,865

**Exhibit C-5a**  
**Distribution of Retired Members by Age and Retirement Year**  
**as of June 30, 2020 – General Plans Combined**

Age	Retirement Year								Total Count	Average Monthly Benefit
	Pre-1990	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	2020-24		
Under 35	-	-	-	-	1	4	2	-	7	\$ 1,346
35-39	-	-	1	1	-	2	1	1	6	4,601
40-44	-	-	-	-	1	3	9	-	13	2,930
45-49	-	-	-	-	5	6	9	-	20	2,951
50-54	-	-	1	4	6	10	53	14	88	2,443
55-59	-	-	4	5	9	58	168	21	265	2,916
60-64	-	-	8	9	52	154	309	61	593	3,673
65-69	-	5	8	71	150	303	347	22	906	3,647
70-74	3	7	70	114	275	311	178	8	966	3,708
75-79	2	39	81	147	251	116	52	6	694	3,588
80-84	24	72	84	115	69	31	19	2	416	2,943
85-89	37	61	90	34	26	24	14	3	289	2,615
90-94	74	45	34	9	5	7	11	1	186	2,098
95-99	47	9	11	7	4	2	6	1	87	2,660
100 & Over	8	1	3	-	-	1	1	-	14	2,086
<b>Total Count</b>	195	239	395	516	854	1,032	1,179	140	<b>4,550</b>	
<b>Avg Monthly Benefit</b>	\$ 1,970	\$ 2,293	\$ 2,262	\$ 3,008	\$ 4,096	\$ 3,427	\$ 3,571	\$ 4,888		\$ 3,364

**Exhibit C-5b**  
**Distribution of Retired Members by Age and Retirement Year**  
**as of June 30, 2020 – Safety Plans Combined**

Age	Retirement Year								Total Count	Average Monthly Benefit
	Pre-1990	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	2020-24		
Under 35	-	-	-	-	-	-	-	-	-	\$ -
35-39	-	-	-	-	-	-	2	-	2	2,772
40-44	-	-	-	-	-	2	3	-	5	3,302
45-49	-	-	-	-	4	1	5	2	12	4,539
50-54	-	-	1	3	2	3	42	6	57	6,524
55-59	-	-	2	4	8	20	52	6	92	7,350
60-64	-	1	3	5	16	30	31	4	90	7,910
65-69	-	1	2	4	37	23	23	-	90	8,613
70-74	4	9	11	49	21	9	12	1	116	6,872
75-79	8	10	36	33	7	9	7	1	111	6,466
80-84	7	7	12	4	2	3	2	2	39	5,997
85-89	6	1	2	1	-	1	2	-	13	5,933
90-94	3	-	-	-	-	-	-	-	3	6,588
95-99	1	-	1	-	-	-	-	-	2	5,739
100 & Over	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	29	29	70	103	97	101	181	22	<b>632</b>	
<b>Avg Monthly Benefit</b>	\$ 4,017	\$ 5,437	\$ 5,460	\$ 6,927	\$ 8,554	\$ 7,838	\$ 7,177	\$ 8,125		\$ 7,071

**Exhibit C-5c**  
**Distribution of Retired Members by Age and Retirement Year**  
**as of June 30, 2020 – Probation Plans Combined**

Age	Retirement Year								Total Count	Average Monthly Benefit
	Pre-1990	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	2020-24		
Under 35	-	-	-	-	-	-	-	-	-	\$ -
35-39	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	1	2	-	3	3,155
45-49	-	-	-	-	-	-	9	1	10	4,676
50-54	-	-	-	-	-	-	35	7	42	5,305
55-59	-	-	-	1	1	11	29	2	44	5,963
60-64	-	-	-	3	4	16	7	1	31	5,178
65-69	-	-	-	-	9	10	4	-	23	6,411
70-74	-	-	3	6	13	9	1	1	33	4,681
75-79	-	1	15	20	8	5	3	-	52	4,062
80-84	-	6	7	8	2	1	-	-	24	2,887
85-89	-	-	5	2	-	1	2	-	10	1,947
90-94	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	-	7	30	40	37	54	92	12	<b>272</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ 2,545	\$ 3,594	\$ 3,762	\$ 4,278	\$ 5,566	\$ 5,418	\$ 5,878		\$ 4,794

## Appendix D Member Contribution Rates

This section illustrates the member basic contribution rates and COLA sharing contribution rates by entry age for Plans 1 through 6. For different COLA sharing percentages, the COLA contribution rates may be adjusted ratably, and should be rounded to two decimal places.

Member contribution rates for Plan 7 are not defined by entry age. Plan 7 members contribute 50% of the total Normal Cost rate. For the 2021-2022 fiscal year, Plan 7 member contribution rates are:

- General Plan 7 members: 8.75%
- SMCM&VCD Plan 7 members: 9.67%
- Safety Plan 7 members: 14.72%
- Probation Plan 7 members: 14.85%

Please refer to Appendix B for a detailed description of member contribution rates.



**Exhibit D-1**  
**General Member Contribution Rates (including SMCM&VCD)**

Entry Age <sup>(1)</sup>	Basic Member Rates				
	General & SMCM&VCD			General	SMCM&VCD
	Plans 1&2	Plan 4	Plan 5	Plan 7	Plan 7
16	6.20%	5.99%	5.20%	8.75%	9.67%
17	6.31%	6.10%	5.29%	8.75%	9.67%
18	6.42%	6.20%	5.38%	8.75%	9.67%
19	6.53%	6.31%	5.48%	8.75%	9.67%
20	6.64%	6.42%	5.57%	8.75%	9.67%
21	6.75%	6.53%	5.67%	8.75%	9.67%
22	6.87%	6.64%	5.76%	8.75%	9.67%
23	6.99%	6.75%	5.86%	8.75%	9.67%
24	7.10%	6.87%	5.96%	8.75%	9.67%
25	7.22%	6.98%	6.07%	8.75%	9.67%
26	7.35%	7.10%	6.17%	8.75%	9.67%
27	7.47%	7.22%	6.28%	8.75%	9.67%
28	7.60%	7.34%	6.38%	8.75%	9.67%
29	7.73%	7.47%	6.49%	8.75%	9.67%
30	7.86%	7.59%	6.60%	8.75%	9.67%
31	7.99%	7.72%	6.71%	8.75%	9.67%
32	8.13%	7.85%	6.83%	8.75%	9.67%
33	8.26%	7.99%	6.94%	8.75%	9.67%
34	8.40%	8.12%	7.06%	8.75%	9.67%
35	8.55%	8.26%	7.18%	8.75%	9.67%
36	8.69%	8.40%	7.30%	8.75%	9.67%
37	8.85%	8.55%	7.42%	8.75%	9.67%
38	9.00%	8.70%	7.55%	8.75%	9.67%
39	9.16%	8.85%	7.68%	8.75%	9.67%
40	9.32%	9.01%	7.81%	8.75%	9.67%
41	9.49%	9.16%	7.94%	8.75%	9.67%
42	9.66%	9.32%	8.08%	8.75%	9.67%
43	9.83%	9.47%	8.22%	8.75%	9.67%
44	10.00%	9.63%	8.37%	8.75%	9.67%
45	10.16%	9.77%	8.52%	8.75%	9.67%
46	10.33%	9.91%	8.66%	8.75%	9.67%
47	10.49%	10.04%	8.81%	8.75%	9.67%
48	10.63%	10.16%	8.96%	8.75%	9.67%
49	10.77%	10.26%	9.10%	8.75%	9.67%
50	10.90%	10.32%	9.24%	8.75%	9.67%
51	11.00%	10.34%	9.37%	8.75%	9.67%
52	11.06%	10.34%	9.49%	8.75%	9.67%
53	11.06%	10.60%	9.60%	8.75%	9.67%
54	11.06%	10.93%	9.70%	8.75%	9.67%
55	11.06%	10.93%	9.76%	8.75%	9.67%
56	11.06%	10.93%	9.78%	8.75%	9.67%
57	11.06%	10.93%	9.78%	8.75%	9.67%
58	11.06%	10.93%	10.02%	8.75%	9.67%
59	11.06%	10.93%	10.34%	8.75%	9.67%
60	11.06%	10.93%	10.34%	8.75%	9.67%

1. For General and SMCM&VCD members entering after age 60, the rate equals the rate at age 60.

**Exhibit D-2**  
**Safety/Probation Member Contribution Rates**

Entry Age <sup>(1)</sup>	Basic Member Rates			
	Safety & Probation		Safety	Probation
	Plans 1&2	Plans 4&5&6	Plan 7	Plan 7
16	8.86%	8.53%	14.72%	14.85%
17	8.99%	8.66%	14.72%	14.85%
18	9.12%	8.78%	14.72%	14.85%
19	9.25%	8.91%	14.72%	14.85%
20	9.39%	9.04%	14.72%	14.85%
21	9.52%	9.17%	14.72%	14.85%
22	9.66%	9.31%	14.72%	14.85%
23	9.80%	9.44%	14.72%	14.85%
24	9.94%	9.58%	14.72%	14.85%
25	10.09%	9.72%	14.72%	14.85%
26	10.23%	9.86%	14.72%	14.85%
27	10.38%	10.00%	14.72%	14.85%
28	10.53%	10.15%	14.72%	14.85%
29	10.69%	10.29%	14.72%	14.85%
30	10.84%	10.44%	14.72%	14.85%
31	11.00%	10.60%	14.72%	14.85%
32	11.16%	10.75%	14.72%	14.85%
33	11.33%	10.91%	14.72%	14.85%
34	11.50%	11.07%	14.72%	14.85%
35	11.67%	11.24%	14.72%	14.85%
36	11.85%	11.41%	14.72%	14.85%
37	12.03%	11.58%	14.72%	14.85%
38	12.22%	11.76%	14.72%	14.85%
39	12.40%	11.93%	14.72%	14.85%
40	12.60%	12.10%	14.72%	14.85%
41	12.79%	12.28%	14.72%	14.85%
42	12.98%	12.44%	14.72%	14.85%
43	13.17%	12.59%	14.72%	14.85%
44	13.35%	12.71%	14.72%	14.85%
45	13.51%	12.79%	14.72%	14.85%
46	13.63%	12.81%	14.72%	14.85%
47	13.70%	12.81%	14.72%	14.85%
48	13.70%	13.14%	14.72%	14.85%
49	13.70%	13.55%	14.72%	14.85%
50	13.70%	13.55%	14.72%	14.85%

1. For Safety and Probation members entering after age 50, the rate equals the rate at age 50.

**Exhibit D-3**  
**General Member Contribution Rates (except SMCM&VCD)**

Entry Age <sup>(1)</sup>	50% Member COLA Rates			
	Plan 1	Plan 2	Plan 4	Plan 5
16	2.17%	2.14%	1.58%	1.29%
17	2.21%	2.18%	1.61%	1.31%
18	2.25%	2.21%	1.64%	1.33%
19	2.29%	2.25%	1.67%	1.36%
20	2.32%	2.29%	1.70%	1.38%
21	2.36%	2.33%	1.73%	1.40%
22	2.40%	2.37%	1.76%	1.42%
23	2.45%	2.41%	1.79%	1.45%
24	2.49%	2.45%	1.82%	1.47%
25	2.53%	2.49%	1.85%	1.50%
26	2.57%	2.54%	1.88%	1.53%
27	2.61%	2.58%	1.91%	1.55%
28	2.66%	2.62%	1.94%	1.58%
29	2.71%	2.67%	1.98%	1.60%
30	2.75%	2.71%	2.01%	1.63%
31	2.80%	2.76%	2.04%	1.66%
32	2.85%	2.80%	2.08%	1.69%
33	2.89%	2.85%	2.11%	1.72%
34	2.94%	2.90%	2.15%	1.75%
35	2.99%	2.95%	2.18%	1.78%
36	3.04%	3.00%	2.22%	1.81%
37	3.10%	3.05%	2.26%	1.83%
38	3.15%	3.11%	2.30%	1.87%
39	3.21%	3.16%	2.34%	1.90%
40	3.26%	3.22%	2.38%	1.93%
41	3.32%	3.27%	2.42%	1.96%
42	3.38%	3.33%	2.47%	2.00%
43	3.44%	3.39%	2.50%	2.03%
44	3.50%	3.45%	2.55%	2.07%
45	3.56%	3.51%	2.58%	2.11%
46	3.62%	3.56%	2.62%	2.14%
47	3.67%	3.62%	2.66%	2.18%
48	3.72%	3.67%	2.69%	2.22%
49	3.77%	3.72%	2.71%	2.25%
50	3.82%	3.76%	2.73%	2.29%
51	3.85%	3.80%	2.73%	2.32%
52	3.87%	3.82%	2.73%	2.35%
53	3.87%	3.82%	2.80%	2.37%
54	3.87%	3.82%	2.89%	2.40%
55	3.87%	3.82%	2.89%	2.41%
56	3.87%	3.82%	2.89%	2.42%
57	3.87%	3.82%	2.89%	2.42%
58	3.87%	3.82%	2.89%	2.48%
59	3.87%	3.82%	2.89%	2.56%
60	3.87%	3.82%	2.89%	2.56%

1. For General and SMCM&VCD members entering after age 60, the rate equals the rate at age 60.

**Exhibit D-4**  
**Safety Member Contribution Rates**

Entry Age <sup>(1)</sup>	50% Member COLA Rates				
	Plan 1	Plan 2	Plan 4	Plan 5	Plan 6
16	4.25%	4.59%	3.34%	2.96%	2.77%
17	4.31%	4.65%	3.39%	3.01%	2.81%
18	4.37%	4.72%	3.44%	3.05%	2.85%
19	4.43%	4.79%	3.49%	3.09%	2.89%
20	4.50%	4.86%	3.54%	3.14%	2.94%
21	4.56%	4.93%	3.59%	3.18%	2.98%
22	4.63%	5.00%	3.64%	3.23%	3.02%
23	4.70%	5.07%	3.69%	3.28%	3.07%
24	4.76%	5.15%	3.75%	3.33%	3.11%
25	4.84%	5.22%	3.80%	3.37%	3.16%
26	4.90%	5.30%	3.86%	3.42%	3.20%
27	4.98%	5.37%	3.91%	3.47%	3.25%
28	5.05%	5.45%	3.97%	3.52%	3.30%
29	5.12%	5.53%	4.03%	3.57%	3.34%
30	5.20%	5.61%	4.09%	3.62%	3.39%
31	5.27%	5.69%	4.15%	3.68%	3.44%
32	5.35%	5.78%	4.21%	3.73%	3.49%
33	5.43%	5.87%	4.27%	3.79%	3.54%
34	5.51%	5.95%	4.33%	3.84%	3.59%
35	5.59%	6.04%	4.40%	3.90%	3.65%
36	5.68%	6.13%	4.47%	3.96%	3.70%
37	5.77%	6.23%	4.53%	4.02%	3.76%
38	5.86%	6.33%	4.60%	4.08%	3.82%
39	5.94%	6.42%	4.67%	4.14%	3.87%
40	6.04%	6.52%	4.74%	4.20%	3.93%
41	6.13%	6.62%	4.81%	4.26%	3.99%
42	6.22%	6.72%	4.87%	4.32%	4.04%
43	6.31%	6.82%	4.93%	4.37%	4.09%
44	6.40%	6.91%	4.97%	4.41%	4.13%
45	6.48%	6.99%	5.01%	4.44%	4.15%
46	6.53%	7.06%	5.01%	4.45%	4.16%
47	6.57%	7.09%	5.01%	4.45%	4.16%
48	6.57%	7.09%	5.14%	4.56%	4.27%
49	6.57%	7.09%	5.30%	4.70%	4.40%
50	6.57%	7.09%	5.30%	4.70%	4.40%

1. For Safety members entering after age 50, the rate equals the rate at age 50.

**Exhibit D-5**  
**Probation Member Contribution Rates**

Entry Age <sup>(1)</sup>	50% Member COLA Rates				
	Plan 1	Plan 2	Plan 4	Plan 5	Plan 6
16	4.71%	4.71%	3.38%	2.98%	2.60%
17	4.78%	4.78%	3.44%	3.03%	2.64%
18	4.85%	4.85%	3.48%	3.07%	2.67%
19	4.92%	4.92%	3.53%	3.11%	2.71%
20	5.00%	5.00%	3.59%	3.16%	2.75%
21	5.07%	5.07%	3.64%	3.20%	2.79%
22	5.14%	5.14%	3.69%	3.25%	2.83%
23	5.21%	5.21%	3.74%	3.30%	2.87%
24	5.29%	5.29%	3.80%	3.35%	2.92%
25	5.37%	5.37%	3.86%	3.40%	2.96%
26	5.44%	5.44%	3.91%	3.45%	3.00%
27	5.52%	5.52%	3.97%	3.49%	3.04%
28	5.60%	5.60%	4.03%	3.55%	3.09%
29	5.69%	5.69%	4.08%	3.60%	3.13%
30	5.77%	5.77%	4.14%	3.65%	3.18%
31	5.85%	5.85%	4.21%	3.70%	3.23%
32	5.94%	5.94%	4.26%	3.76%	3.27%
33	6.03%	6.03%	4.33%	3.81%	3.32%
34	6.12%	6.12%	4.39%	3.87%	3.37%
35	6.21%	6.21%	4.46%	3.93%	3.42%
36	6.31%	6.31%	4.53%	3.99%	3.47%
37	6.40%	6.40%	4.59%	4.05%	3.52%
38	6.50%	6.50%	4.67%	4.11%	3.58%
39	6.60%	6.60%	4.73%	4.17%	3.63%
40	6.70%	6.70%	4.80%	4.23%	3.68%
41	6.81%	6.81%	4.87%	4.29%	3.74%
42	6.91%	6.91%	4.93%	4.35%	3.79%
43	7.01%	7.01%	4.99%	4.40%	3.83%
44	7.10%	7.10%	5.04%	4.44%	3.87%
45	7.19%	7.19%	5.07%	4.47%	3.89%
46	7.25%	7.25%	5.08%	4.48%	3.90%
47	7.29%	7.29%	5.08%	4.48%	3.90%
48	7.29%	7.29%	5.21%	4.59%	4.00%
49	7.29%	7.29%	5.38%	4.73%	4.12%
50	7.29%	7.29%	5.38%	4.73%	4.12%

1. For Probation members entering after age 50, the rate equals the rate at age 50.

## Appendix E Glossary

The following definitions include excerpts from a list adopted by the major actuarial organizations in the United States. In some cases, the definitions have been modified for specific applicability to SamCERA and include terms used exclusively by SamCERA. Defined terms are capitalized throughout this Appendix.

### **Accrued Benefit**

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

### **Actuarial Accrued Liability**

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

### **Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

### **Actuarial Gain (Loss)**

A measure of the difference between actual experience and that expected based on a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

### **Actuarial Present Value**

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

### **Actuarial Valuation**

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

### **Actuarial Value of Assets**

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

### **Actuarially Equivalent**

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

### **Amortization Payment**

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

### **COLA**

Cost of living adjustments to benefit payments are made each April 1. See full description in Appendix B.

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### **County Supplementary Contributions Account (CSCA) Reserve**

This is a reserve for supplemental contributions from the County of San Mateo that are over and above the County's required statutory contribution rates.

### **District Supplementary Contributions Account (DSCA) Reserve**

This is a reserve for supplemental contributions from the San Mateo County Mosquito and Vector Control District ("District") that are over and above the District's required statutory contribution rates.

### **Employer Reserve**

The accumulation of employer contributions for future retirement benefit payments. Additions include contributions from employers and related earnings. Deductions include annuity payments to retired members and survivors, lump sum death benefit payments to member survivors, and supplemental disability payments.

### **Entry Age Actuarial Cost Method**

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.

### **Funded Ratio**

A measurement of funded status. The Funded Ratio is calculated by dividing the Valuation Assets by the Actuarial Accrued Liability. For example, a Funded Ratio of 90% indicates assets are 10% less than liabilities.

### **Member Reserve**

The accumulation of member contributions. Additions include member contributions and related earnings. Deductions include annuity payments to retirees and refunds to members.

### **Non-Valuation Reserves**

Reserves excluded from the calculation of contribution rates.

### **Normal Cost**

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

### **Plan Year**

A 12-month period beginning July 1 and ending June 30.

### **Projected Benefits**

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.

### **Unfunded Actuarial Accrued Liability**

The excess, if any, of the Actuarial Accrued Liability over the Actuarial Value of Assets.

### **Valuation Date**

The date upon which the Normal Cost, Actuarial Accrued Liability, and Actuarial Value of Assets are determined. Generally, the Valuation Date will coincide with the ending of a Plan Year.

### **Valuation Reserves**

All reserves excluding the Non-Valuation Reserves.