San Mateo County Employees' Retirement Association

Investigation of Experience
July 1, 2008 – April 30, 2011

July 18, 2011

By

Nick J. Collier

Associate, Society of Actuaries
Enrolled Actuary
Member, American Academy of Actuaries

and

Jennifer D. Sorensen

Associate, Society of Actuaries
Member, American Academy of Actuaries

Milliman

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

Tel +1 206 624 7940
Fax +1 206 623 3485

milliman.com

July 18, 2011

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

Dear Members of the Board:

It is a pleasure to submit this report of our investigation of the experience of the San Mateo County Employees' Retirement Association for the period July 1, 2008 through April 30, 2011. The results of this investigation are the basis for the actuarial assumptions and methods to be used in the actuarial valuation to be performed as of June 30, 2011.

The purpose of this report is to communicate the results of our review of the actuarial methods and the economic and demographic assumptions to be used in the completion of the upcoming valuation. Several of our recommendations represent changes from the prior methods or assumptions and are designed to better anticipate the emerging experience of *SamCERA*.

We have provided financial information showing the estimated impact of the recommended assumptions, if they had been reflected in the June 30, 2010 actuarial valuation. We believe the recommended assumptions provide a reasonable estimate of anticipated experience affecting *SamCERA*. Nevertheless, the emerging costs will vary from those presented in this report to the extent that actual experience differs from that projected by the actuarial assumptions. Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as the following:

- Plan experience differing from the actuarial assumptions,
- Future changes in the actuarial assumptions,
- Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as potential additional contribution requirements due to changes in the plan's funded status), and
- Changes in the plan provisions or accounting standards.

Due to the scope of this assignment, we did not perform an analysis of the potential range of such measurements.

In preparing this report, we relied without audit on information (some oral and some in writing) supplied by *SamCERA*'s staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. In our examination, after discussion with *SamCERA* and certain adjustments, we have found the data to be reasonably consistent and comparable with data used for other purposes. Since the experience study results are dependent on the integrity of the data supplied, the results can be expected to differ if the

underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our determinations might need to be revised.

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

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 would like to acknowledge the help in the preparation of the data for this investigation given by the *SamCERA* staff. We look forward to our discussions and the opportunity to respond to your questions and comments at your next meeting.

I, Nick Collier, am a member of the American Academy of Actuaries and an Associate of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Nick J. Collier, ASA, EA, MAAA
Principal and Consulting Actuary
NJC/nlo

San Mateo County Employees' Retirement Association
Investigation of Experience (2008-2011)

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San Mateo County Employees' Retirement Association
Investigation of Experience (2008-2011)

Section 1: Executive Summary

Overview

Any actuarial valuation is based on certain underlying assumptions. Determining the adequacy of the contribution rate is highly dependent on the assumptions that the actuary uses to project the future benefit payments and then to discount the value of future benefits to determine the present values. Thus, the assumptions are critical in assisting the system in adequately pre-funding for the benefits prior to retirement.

To assess the reasonableness of the assumptions used in the valuation, they should be studied regularly. This process is called an investigation of experience (or experience study).

Summary of Results

This section describes the key findings of this investigation of experience of the San Mateo County Employees' Retirement Association (*SamCERA*) for the period July 1, 2008 through April 30, 2011. We are recommending several changes to the demographic assumptions. We are not recommending any changes to the economic assumptions. Throughout this report, we will refer to our recommended assumptions as the "proposed" assumptions.

Note that in addition to the recommended changes, we have shown an alternative set of economic assumptions that are based on a lower inflation assumption, as discussed later in this report. We would describe the current set of economic assumptions as middle-of-the-road (i.e., neither aggressive nor conservative). If the Board wished to move to the alternate set of economic assumptions, it would provide some level of conservatism.

The table on the following page shows a summary of our recommendations for all assumptions and methods studied.

Summary (continued)

Assumption	Recommendation
Inflation	No Change
Investment Return	No Change
Wage Growth	No Change
Payroll Increase Assumption	No Change
Funding Method	No Change
Merit Salary Scale	No Change
Death while Active	Reduce rates for males
Retirement	Reduce rates
Disability	Increase rates for general members
Termination	Reduce rates
Probability of Refund	Reduce rates for safety members
Mortality	Reduce rates (increase life expectancies) for healthy retirees
Prob. Elig. Survivor	No Change
Reciprocity	Reduce rates for general members; increase rates for safety members

If adopted, the new assumptions would result in an increase in the County contribution rate and a decrease in the Funded Ratio calculated in the next valuation, as compared to the current assumptions. This is discussed further in the Financial Impact section at the end of the Executive Summary.

Economic Assumptions

Section 2 discusses the economic assumptions: price inflation, general wage growth (includes price inflation and productivity) and the investment return assumption. We have not recommended that the Board make any changes to the current economic assumptions.

As discussed in Section 2, although inflation historically has averaged close to the current 3.50% assumption, forecasts for inflation in the future are much lower. In particular, the capital market assumptions of investment consultants are projecting inflation at around 2.50% to 2.75% over the next 10 years. We still believe the current assumption is reasonable, but there is evidence to support a lower inflation assumption.

We have recommended the Board retain the current assumptions; however, we have also shown an alternative set of economic assumptions based on a lower inflation assumption. If the Board adopts a lower inflation assumption, we would recommend a corresponding lower investment return and wage growth assumption. The alternate set of economic assumptions would provide a slightly more conservative basis for the valuation.

Actuarial Methods and Miscellaneous Assumptions

Section 3 discusses the actuarial methods and other miscellaneous assumptions used in the valuation and administration of the system.

We are recommending changes in this area as follows:

- If the recommended new mortality assumptions are adopted, a corresponding change to the member contribution rates should be made. The impact of this is discussed later in this section.
- If the recommended new mortality assumptions are adopted, a corresponding change to the factors used for determining optional benefits and the purchase costs for Additional Retirement Credit (ARC) should be considered.
- The assumption for reciprocal employment should be split by class: General members (35%) and Safety members (45%).

Demographic Assumptions

Sections 4-9 discuss the demographic assumptions. Unlike the economic assumptions, which are more global in nature, the demographic assumptions are based heavily on recent *SamCERA* experience. Demographic assumptions are used to predict future member behavior (e.g., when will a member retire? How long will the member live?).

Based on the results of this study, we are recommending changes to many of the demographic assumptions. In cases where we have recommended changes, the changes have for the most part only partially reflected recent experience. Our reason for recommending only partial reflections of experience is twofold:

1. The recent recessionary economic environment has caused some short-term aberrations in typical member behavior. We do not recommend altering assumptions in reaction to temporary trends, but rather we take a long-term view of member behavior.
2. The Actuarial Standards of Practice (ASOPs) govern the assumption-setting process of actuaries. The ASOPs urge that an actuary not give undue weight to recent experience. Again, this is due to the long-term nature of actuarial assumptions. For this reason, in many cases we consider both the current (2011) and prior (2008) experience study results in evaluating potential assumption changes.

From a cost perspective, the most significant change that we have recommended is a strengthening of the mortality assumption (i.e., increased life expectancies). Although the change is fairly small, it did have the largest financial impact as discussed at the end of this section.

Demographic Assumptions (continued)

When reviewing the sections on demographic assumptions, please note the following:

- Our analysis uses the Actual-to-Expected (A/E) ratio to measure how well the current assumptions fit actual experience. For example, if the service retirement A/E is 80%, it indicates that there were 20% fewer service retirements than expected, and that we should consider decreasing the assumption. By decreasing the expected rates, this results in a higher ratio, in this case closer to 100%.
- Due to scheduling considerations, the data provided to us by *SamCERA* was as of April 30, 2011. This was necessary to complete both the experience investigation and the valuation in time for inclusion in the Comprehensive Annual Financial Report (CAFR). Thus, the study period was two years and ten months instead of the three years implied by the "triennial" description. We do not believe this two-month difference has a material impact on the results.
- When we refer to "Safety" members in this report, we are including both Safety and Probation members.
- When we refer to the "proposed" assumptions, these are the assumptions that we are recommending. The current assumptions are also referred to as the "expected" assumptions.
- For many of the assumptions, we show detail graphs of our analysis showing the actual experience for the study (blue bar), the actual experience from the prior study (green bar), the current assumption (red line), and the new proposed assumptions.

The recommended rates are shown in detail in Appendix A.

Individual Salary Increases due to Promotion and Longevity (Merit)

Section 4 discusses the individual salary increases due to promotion and longevity – the merit component of salaries. Overall, the results of our last two salary studies show increases in line with what the current rates predicted. We are not recommending any changes to this assumption. See Section 4 for more details on this analysis.

Mortality

The mortality assumption is used to predict the life expectancy of both members currently in pay status (referred to as retired mortality) and those expected to receive a benefit in the future (referred to as active mortality). Due to a lack of statistically significant experience data for deaths from active status, the assumptions for active mortality are set to be consistent with the assumptions for retired mortality.

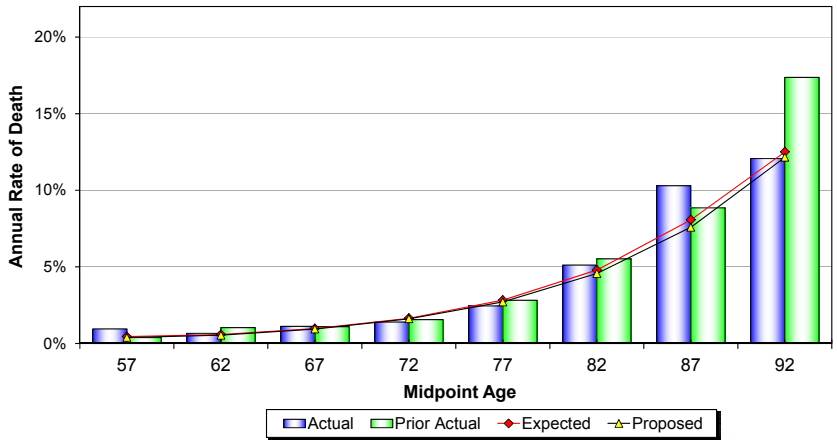
Mortality (continued)

Overall, the actual number of deaths for the current group of retirees (both service and disabled) was slightly greater than that predicted by the assumptions. This is indicated by an actual-to-expected (A/E) ratio of 111%. That is, there were 11% more deaths than the current assumptions would have predicted.

For most assumptions, an A/E of 111% would lead us to recommend no change or a small increase; however, we believe that some additional margin should be built into mortality assumptions to account for the trend of increasing life expectancies. In particular, there was no margin for male service retirees for either General or Safety.

In *SamCERA*'s case, the results of this study show that male retirees appear to be living longer, as compared to the results of the prior study done in 2008. Although this may be partly due to statistical fluctuation, this result is generally consistent with what we have found in other large plans.

We are recommending a reduction in the mortality rates for male service retirees and beneficiaries to reflect that people are living longer. For disabled retirees, we are recommending a small increase in the rates of mortality. The reduced rates are represented by the yellow lines compared to the current rates shown as red lines in the following graph for all service and disabled retirees. Note that the blue bars (actual rates from the current) study tend to be shorter than the green bars (actual rates from the prior study). This indicates a slight decrease in the mortality rates since the prior study.



Under the current assumptions, the Actual-to-Expected (A/E) ratio is 108% for all service retirees, indicating that there were slightly more deaths than predicted. Under the revised assumptions, the A/E ratio is 112%, providing some additional margin for future improvements in mortality. Further analysis is shown in Section 5 of this report.

Mortality (continued)

For active mortality (the probability of death while actively employed), we are recommending using a standard mortality table for active employees, with adjustments similar to those made to the mortality for *SamCERA's* retired members.

Service Retirement

Overall, the actual number of service retirements was less than what the assumptions predicted for both General members and Safety/Probation members. The following chart shows the results for all members eligible for retirement.

Service Retirements					
Class	**Actual**	**Expected**	**Act / Exp**	**Proposed**	**Act / Prop**
General	296	376	79%	358	83%
Safety	43	68	63%	57	75%
Total	339	444	76%	415	82%

Retirement and termination rates may be influenced by recessionary economic environments. While we do believe that some of the reduction in retirement rates may be due in part to a longer-term trend, it is likely that these rates are being temporarily influenced by the recent recession. We are therefore recommending only a partial reflection of the recent experience through slightly decreased proposed rates of retirement. Further analysis is shown in Section 6 of this report.

Disability Retirement

Overall, the actual number of disability retirements was greater in total than the assumptions predicted . The following chart shows the results for General and Safety disability retirements.

Disability Retirements					
Class	**Actual**	**Expected**	**Act / Exp**	**Proposed**	**Act / Prop**
General	31	25	124%	29	107%
Safety	6	8	75%	8	75%
Total	37	33	112%	37	100%

As indicated by the increased number of expected disabilities under the proposed rates (29 proposed versus 25 expected under the current assumptions), we are recommending slightly higher rates of disability retirement for General members. Further analysis is shown in Section 7 of this report.

Termination

The actual number of terminations for both General and Safety/Probation members was lower than the assumptions predicted. The following chart shows the results for the two groups.

Termination					
Class	**Actual**	**Expected**	**Act / Exp**	**Proposed**	**Act / Prop**
General	582	746	78%	718	81%
Safety	31	47	66%	44	70%
Total	613	793	77%	762	80%

Termination (continued)

As mentioned above, recessionary economic environments may tend to cause temporarily reduced rates of termination and retirement. Therefore, we are recommending a partial recognition of recent experience by slightly lowering termination rates. Further analysis is shown in Section 8 of this report.

Probability of Refund upon Vested Termination

The actual number of refunds for vested members at termination was in line with the assumptions for General members, and was lower than the assumptions predicted for Safety members.

Probability of Refund					
Class	**Actual**	**Expected**	**Act / Exp**	**Proposed**	**Act / Prop**
General	59	66	90%	66	90%
Safety	2	6	33%	5	40%
Total	61	72	85%	71	86%

We are recommending slightly lowering the rates of refund for Safety members, and no change for General members. Further analysis is shown in Section 9 of this report.

Financial Impact of the Recommended Assumptions

The following exhibit shows the expected financial impact the proposed changes would have on *SamCERA*'s funding. Note that the proposed changes would increase the expected County contribution rate and decrease the Funded Ratio of the system.

The financial impact was evaluated by performing additional valuations with the June 30, 2010 valuation data and reflecting the proposed assumption changes. The actual financial impact will vary somewhat for the June 30, 2011 valuation due to year-to-year changes in the member population.

	County Contribution Rate	**Funded Ratio**
June 30, 2010 Actuarial Valuation	**31.40%**	**70.3%**
Demographic Assumptions		
Termination Rates/Probability of Refund	0.10%	0.0%
Rates of Retirement	-0.13%	0.1%
Rates of Disability	0.08%	0.0%
Reciprocity Assumption	-0.03%	0.0%
Rates of Mortality	0.58%	-0.5%
Subtotal Demographic Change	0.60%	-0.4%
Economic Changes- Proposed		
No Changes Proposed	0.00%	0.0%
Combined Change	**0.60%**	**-0.4%**
June 30, 2010 Valuation with Changes	**32.00%**	**69.9%**

Impact of the Recommended Assumptions on Member Contribution Rates

If adopted, the recommended assumptions would result in a small increase in the member contribution rates. The relative increase would be less than 1%. The following are sample rates for entry age 35:

Sample Changes in Member Rates due to Mortality Change (Rates Shown Include Cost Sharing)

	Age	Current	Proposed	Increase
General Members - County				
Plans 1 & 2	35	10.22%	10.25%	0.03%
Plan 4	35	9.91%	9.94%	0.03%
Probation Members (Reflects Employer Pick-up)				
Plans 1 & 2	35	11.33%	11.38%	0.05%
Plan 4	35	10.99%	11.04%	0.05%
Safety Members - Other than Deputy Sheriff*				
Plans 1 & 2	35	14.78%	14.85%	0.07%
Plan 4	35	14.37%	14.43%	0.06%

** Cost Sharing varies for Deputy Sheriffs as follows:*

3.0% if employee is less than 45 and has less than 5 years of service.

3.5% if employee is less than 45 and has between 5 and 15 years of service.

4.5% if employee is older than 45 or has at least 15 years of service.

Revised Assumptions and Methods

Appendix A illustrates the Summary of Actuarial Assumptions as it will appear in the June 30, 2011 valuation report, if all recommended assumptions and methods are adopted. Proposed changes in assumptions are highlighted in yellow.

Section 2: Economic Assumptions

Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans. Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent experience.

Recognizing that there is not one "right answer", the standard calls for the actuary to develop a best estimate range for each economic assumption, and then recommend a specific point within that range. Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

In our opinion, the economic assumptions recommended in this report have been developed in accordance with ASOP No. 27. The following table shows our recommendations.

This section will discuss the economic assumptions. In brief, they are as follows (changes are shown in bold):

Economic Assumption	Current Assumption (Annual Rate)	Proposed (Annual Rate)	Alternative (Annual Rate)
Consumer Price Inflation	3.50%	3.50%	**3.25%**
Investment Return[(1)]	7.75%	7.75%	**7.50%**
Wage Growth (includes inflation and productivity)	4.00%	4.00%	**3.75%**
Real Wage Inflation (wage growth less price inflation)	0.50%	0.50%	0.50%
Payroll Growth	Assumed to be the same as Wage Growth		

(1) Net of investment expenses.

1. Price Inflation

Use in the Valuation

When we refer to inflation in this report, we are referring to price inflation. The inflation assumption has an indirect impact on the results of the actuarial valuation through the development of the assumptions for investment return, general wage increases and the payroll increase assumption. It also has a direct impact on the valuation results as it will be used to determine the expected future COLA payments.

The long-term relationship between inflation and investment return has long been recognized by economists. The basic principle is that the investors demand a "real return" – the excess of actual investment returns over inflation. If inflation rates are expected to be high, investors will demand investment returns that are also expected to be high enough to exceed inflation, while lower inflation rates will result in lower demanded expected investment returns, at least in the long run.

The current assumption for inflation is 3.50% per year.

Historical Perspective

The data for inflation shown below is based on the national Consumer Price Index, US City Average, All Urban Consumers (CPI-U) as published by the Bureau of Labor Statistics. The data for periods ending in December of each year is documented in Exhibit 1 at the end of this section.

Although economic activities in general and inflation in particular, do not lend themselves to prediction on the basis of historical analysis, historical patterns and long term trends are a factor to be considered in developing the inflation assumption.

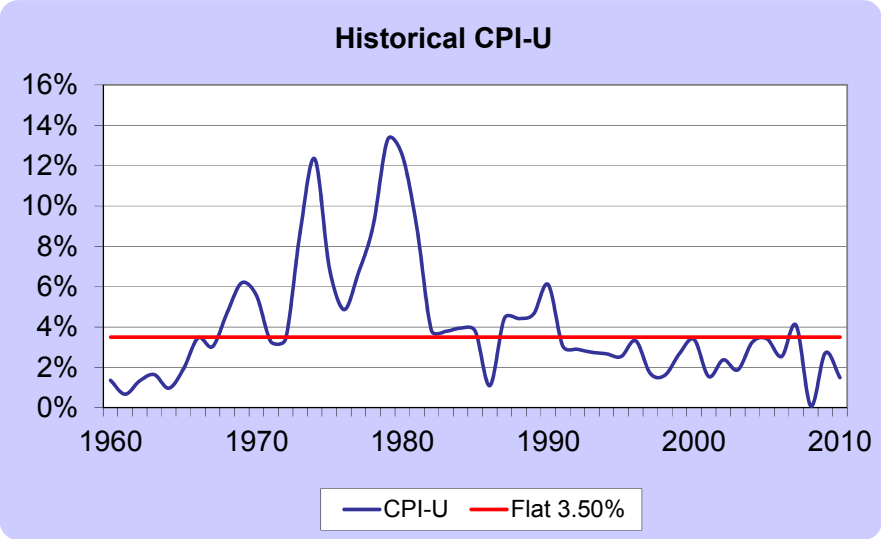
There are numerous ways to review historical data, with significantly differing results. The tables below show the compounded annual inflation rate for various 10-year periods, and for the 75-year period ended in December 2010.

Decade	CPI Increase
2001-2010	2.5%
1991-2000	2.9%
1981-1990	5.1%
1971-1980	7.4%
1961-1970	2.5%
Prior 75 Years	
1936-2010	3.8%

These are national statistics. For comparison, the average CPI increase for the Bay Area has been 4.0% for the same 75-year period.

Historical Perspective (Continued)

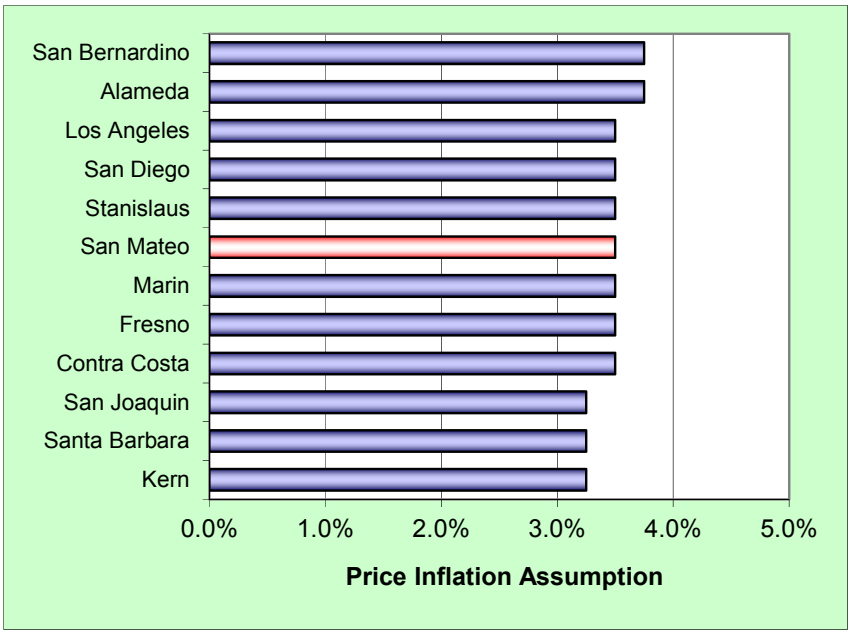
The following graph shows historical national CPI increases. Note that the actual CPI increase has been less than 3.50% during the most recent 15 years.



Peer System Comparison

According to the *Public Fund Survey* (a survey of approximately 100 statewide systems), the average inflation assumption for statewide systems has been steadily declining. As of the most recent study, the two most common assumptions are 3.00% and 3.50%.

Looking at other selected '37 Act systems, the current inflation assumption is in the mainstream.



Forecasts of Inflation

Since the U.S. Treasury started issuing inflation indexed bonds, it is possible to determine the approximate rate of inflation anticipated by the financial markets by comparing the yields on inflation indexed bonds with traditional fixed government bonds. Current market prices as of July 2011 suggest investors expect inflation to be about 2.6% over the next 30 years. This rate is close to the amount forecast by Strategic Investment Solutions (SIS), *SamCERA*'s investment consultant.

Many economists have been forecasting inflation lower than the current assumption of 3.50% for several years. Economists are generally considering shorter time periods (10 years or less) than may be appropriate for a pension valuation. To find an economic forecast with a time frame long enough to suit our purposes, we looked at the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the 2010 Trustees Report, the projected average annual increase in the CPI over the next 75 years under the intermediate cost assumptions was 2.80%. The reasonable range was stated as 1.80% to 3.80%.

Best Estimate Range and Recommendation

The consumer price inflation assumption impacts *SamCERA*'s funding as it is used to project the COLA payments. It is also used to determine both the investment return assumption and the wage growth assumptions. We believe that the current assumption of 3.50% per year is somewhat on the high side, although we believe it is still reasonable and are recommending making no change. Given the future expectations of inflation, the Board might consider lowering the assumption as shown in the alternative assumptions. If the assumption were lowered, we would recommend a small adjustment to 3.25% (and a corresponding decrease in the general wage growth and investment return assumptions, as discussed later).

CONSUMER PRICE INFLATION	
Current Assumption	3.50%
Best Estimate Range	2.00% - 3.75%
Recommended Assumption	Proposed = 3.50%
	Alternative = 3.25%

Exhibit 2-1 US City Average, All Urban Consumers (CPI-U) - December

December of:	Index	Increase	December of:	Index	Increase
1928	**17.1**				
1929	17.2	0.6%	**1969**	37.7	6.2%
1930	16.1	-6.4	**1970**	39.8	5.6
1931	14.6	-9.3	**1971**	41.1	3.3
1932	13.1	-10.3	**1972**	42.5	3.4
1933	13.2	0.8	**1973**	46.2	8.7
1934	13.4	1.5	**1974**	51.9	12.3
1935	13.8	3.0	**1975**	55.5	6.9
1936	14.0	1.4	**1976**	58.2	4.9
1937	14.4	2.9	**1977**	62.1	6.7
1938	14.0	-2.8	**1978**	67.7	9.0
1939	14.0	0.0	**1979**	76.7	13.3
1940	14.1	0.7	**1980**	86.3	12.5
1941	15.5	9.9	**1981**	94.0	8.9
1942	16.9	9.0	**1982**	97.6	3.8
1943	17.4	3.0	**1983**	101.3	3.8
1944	17.8	2.3	**1984**	105.3	3.9
1945	18.2	2.2	**1985**	109.3	3.8
1946	21.5	18.1	**1986**	110.5	1.1
1947	23.4	8.8	**1987**	115.4	4.4
1948	24.1	3.0	**1988**	120.5	4.4
1949	23.6	-2.1	**1989**	126.1	4.6
1950	25.0	5.9	**1990**	133.8	6.1
1951	26.5	6.0	**1991**	137.9	3.1
1952	26.7	0.8	**1992**	141.9	2.9
1953	26.9	0.7	**1993**	145.8	2.7
1954	26.7	-0.7	**1994**	149.7	2.7
1955	26.8	0.4	**1995**	153.5	2.5
1956	27.6	3.0	**1996**	158.6	3.3
1957	28.4	2.9	**1997**	161.3	1.7
1958	28.9	1.8	**1998**	163.9	1.6
1959	29.4	1.7	**1999**	168.3	2.7
1960	29.8	1.4	**2000**	174.0	3.4
1961	30.0	0.7	**2001**	176.7	1.6
1962	30.4	1.3	**2002**	180.9	2.4
1963	30.9	1.6	**2003**	184.3	1.9
1964	31.2	1.0	**2004**	190.3	3.3
1965	31.8	1.9	**2005**	196.8	3.4
1966	32.9	3.5	**2006**	201.8	2.5
1967	33.9	3.0	**2007**	210.0	4.1
1968	35.5	4.7	**2008**	210.2	0.1
			2009	215.9	2.7
			2010	219.2	1.5

2. Wage Growth

Use in the Valuation

Estimates of future salaries are based on two types of assumptions: 1) general wage increase and 2) merit increase. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salary increases due to promotion and longevity occur even in the absence of inflation. The promotion and longevity assumptions, referred to as the merit scale, will be reviewed with the other demographic assumptions.

The current assumption is for 0.50% wage growth above the inflation assumption.

Historical Perspective

We have used statistics from the Social Security Administration on the National Average Wage back to 1951. For years prior to 1951, we studied the Total Private Nonagricultural Wages as published in *Historical Statistics of the U.S., Colonial Times to 1970*.

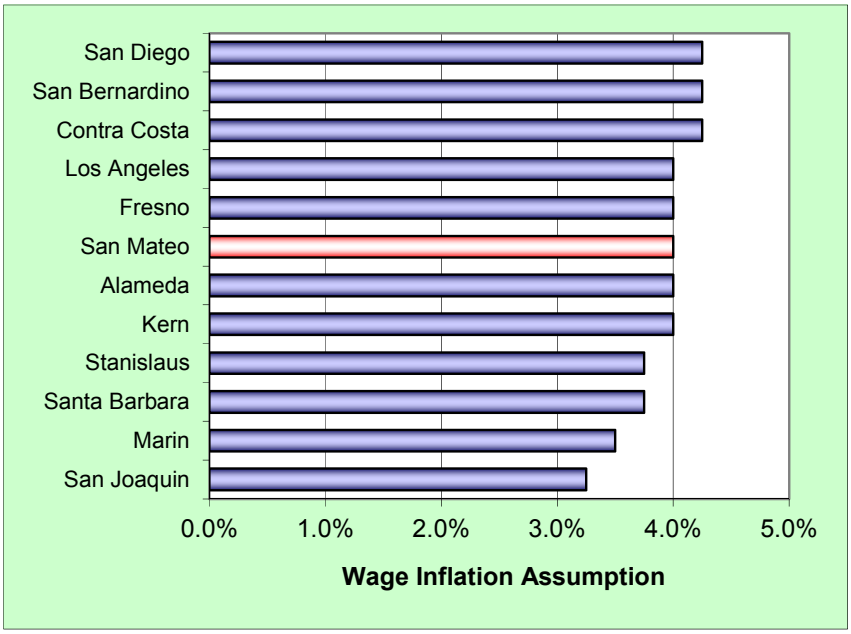
There are numerous ways to review this data. For consistency with our observations of other indices, the table below shows the compounded annual rates of wage growth for various 10-year periods and for the 75-year period ended in 2010. The excess of wage growth over price inflation represents "productivity" (or the increase in the standard of living, also called the real wage inflation rate).

Decade	Wage Growth	CPI Increase	Real Wage Inflation
2001-2010	2.6%	2.5%	0.1%
1991-2000	4.3%	2.9%	1.4%
1981-1990	5.3%	5.1%	0.2%
1971-1980	7.3%	7.4%	-0.1%
1961-1970	4.4%	2.5%	1.9%
Prior 75 Years			
1936-2010	5.3%	3.8%	1.5%

Peer System Comparison

The *Public Fund Survey* does not report the average wage growth assumption. Based on our experience with other systems, we believe the average for this group would be approximately equal to *SamCERA*'s assumption of 4.0%.

Looking at other selected '37 Act systems, the current wage growth assumption is in the mainstream.



Forecasts of Future Wages

Wage inflation has been projected by the Office of the Chief Actuary of the Social Security Administration. In the 2010 Trustees Report, the long-term annual increase in the National Average Wage is estimated to be 1.2% higher than the Social Security intermediate inflation assumption of 2.8% per year. The range of the assumed real wage growth in the 2010 Trustees Report was from 0.8% to 1.8% per year.

Reasonable Range and Recommendation

We believe that a range between 0.25% and 1.25% is reasonable for the actuarial valuation. Real wage inflation rate in recent years has been very low or negative; however, in each of the three prior decades, the actual experience was close to or less than the current assumption. We recommend that the long-term assumed real wage inflation rate remain at 0.50% per year.

REAL WAGE INFLATION RATE	
Current Assumption	0.50%
Best Estimate Range	0.25% - 1.25%
Recommended Assumption	0.50%

The wage growth assumption is the total of the consumer price inflation assumption and the real wage inflation rate. If the real wage inflation assumption remains 0.50% and the price inflation assumption remains at 3.50%, this would result in a total wage growth assumption of 4.00%.

Payroll Increase Assumption

In addition to setting salary assumptions for individual members, the aggregate payroll of *SamCERA* is expected to increase, without accounting for the possibility of an increase in membership (our current and recommended assumption is that no growth in membership will occur).

The current payroll increase assumption is equal to the general wage growth assumption of 4.00%. It is our general recommendation to continue to set these two assumptions to be equal, unless there is a specific circumstance that would call for an alternative assumption. We are recommending that the payroll increase assumption remain at 4.0% if the inflation rate remains at 3.50%.

3. Investment Return

Use in the Valuation

The investment return assumption is one of the primary determinants in the calculation of the expected cost of the System's benefits, providing a discount of the future benefit payments that reflects the time value of money. This assumption has a direct impact on the calculation of liabilities, normal costs, member contribution rates, and the factors for optional forms of benefits. The current investment return assumption for *SamCERA* is 7.75% per year, net of administrative and investment-related expenses.

Method to Determine Best-Estimate Range for Investment Return

We have determined the best-estimate range for the investment return assumption based upon a model developed by Milliman's investment practice. As input to this model, we have used the average capital market assumptions of a number of investment consultants and the target asset allocation adopted by the *SamCERA* Board. *SamCERA*'s target asset allocation is summarized in the following chart:

Asset Class	Target Allocation
Large Cap Equity	28%
Small Cap Equity	7
International Equity	18
Fixed Income	22
Real Estate	5
Private Equity	8
Risk Parity	6
Hedge Funds	3
Commodities	3
Total	100%

This model is used to provide the range of assumptions appropriate for compliance with Actuarial Standard of Practice No. 27, "Selection of Economic Assumptions for Measuring Pension Obligations." The Standard defines the Best-Estimate Range as "the narrowest range within which the actuary reasonably anticipates that the actual results, compounded over the measurement period, are more likely than not to fall."

By assuming the portfolio is re-balanced annually and that annual returns are lognormally distributed and independent from year to year, we can develop expected percentiles for the long-term distribution of annualized returns.

Using properties of the lognormal distribution, we calculate the 25^{th} and 75^{th} percentiles of the long-term total return distribution. This becomes our best-estimate range because 50% of the outcomes are expected to fall within this range and it is centered about the mean.

Method to Determine Best-Estimate Range for Investment Return (continued)

The capital market assumptions were combined with the target asset allocation policy to generate expected real rates of returns (total return less assumed inflation) which were then added to the current inflation assumption of 3.5%. The real rate of return is subject to significant year-to-year volatility as measured by the standard deviation. Volatility over time will lower the mean real rate of return but diversification by asset class will reduce the volatility and narrow the range of expected total returns for the entire portfolio. The results are summarized as follows:

Expected Investment Return with 3.50% Inflation
(after reflecting administrative and investment expenses)

Horizon	Percentile Results for Nominal Rate of Return				
In Years	5th	25th	50th	75th	95th
1	-9.7%	0.2%	7.7%	15.9%	28.6%
5	-0.5%	4.3%	7.7%	11.3%	16.6%
10	1.9%	5.3%	7.7%	10.2%	13.9%
20	3.6%	6.0%	7.7%	9.5%	12.1%
30	**4.3%**	**6.3%**	**7.7%**	**9.2%**	**11.3%**

The geometric mean return is 7.7%, but due to the volatility associated with the asset allocation, the range of probable outcomes is quite large. For example, in the first year there is a 5% chance the rate of return will be less than -9.7% and a 5% chance it will be greater than 28.6%. As the time horizon lengthens the range of the cumulative average results narrows. Note that these are net returns, after adjusting for investment expenses.

Over a 30-year time horizon, we estimate there is a 25% chance the nominal rate of return will be less than 6.3% and a 25% chance the return will be greater than 9.2% (bold numbers on the bottom line in the table above). Therefore, we can say the return is just as likely to be within the range from 6.3% to 9.2% as not.

Captital Market Assumptions

As previously noted, the capital market assumptions used in our analysis were the average of the capital market assumptions used by several investment consultants (SIS, Ennis Knupp, Cliffwater, Pension Consulting Alliance and Milliman).

Class	Expected Return	Standard Deviation
Large Cap Equity	9.09%	17.2%
Small Cap Equity	9.59%	19.6%
International Equity	9.38%	19.3%
Fixed Income	3.99%	5.2%
Real Estate	7.69%	12.5%
Private Equity	13.54%	28.7%
Risk Parity/Hedge Funds	7.31%	9.3%
Commodities	6.95%	21.6%

Investment and Administrative Expenses

The investment return used for the valuation is assumed to be net of all investment and administrative expenses. The following table shows the ratio of total expenses to the fair market value of *SamCERA* assets over the last eight fiscal years ending June 30. The expense ratio is calculated as the total expense divided by the ending asset balance at fair market value.

($ in millions where applicable)

Year	Market Assets	Inv. Expense	Adm. Expense	Expense Ratio
2003	$1,207.5	$3.6	$1.9	0.46 %
2004	$1,233.3	$4.2	$1.9	0.49
2005	$1,579.5	$7.3	$2.2	0.60
2006	$1,799.0	$8.5	$2.1	0.59
2007	$2,131.6	$10.7	$2.6	0.62
2008	$2,010.7	$10.9	$3.2	0.70
2009	$1,565.6	$11.1	$3.3	0.92
2010	$1,753.2	$8.9	$3.4	0.70

The ratio of expenses to market assets has increased over the last several years to about 0.75%. This amount does not have a direct impact on the actuarial valuation results, but it does provide a measure of gross return on investments that will be needed to meet the actuarial assumption used for the valuation. For example, if the investment return assumption is set equal to 7.75%, then *SamCERA* would need to earn a gross return on its assets of 8.50% in order to net the 7.75% for funding purposes.

Best Estimate Range and Recommendations Based on Current Market Expectations

Based on the ASOP No. 27 guidelines, we conclude that the best-estimate range is the expected real rates of return between the 25th and 75th percentile projected out 30 years, plus the assumed inflation rate, less investment-related expenses.

Based upon our model and the current inflation assumption, we have the following results:

Components of Return	Percentile Results 75th	50th	25th
Expected Real Rate of Return	3.6%	5.0%	6.4%
Valuation Inflation	3.5%	3.5%	3.5%
Total Expenses	-0.8%	-0.8%	-0.8%
Net Expected Return	**6.4%**	**7.7%**	**9.2%**

Best Estimate Range and Recommendations Based on Current Market Expectations (continued)

Based upon this model, there is approximately a 50% chance that the net return will be 7.75% or more over a 30-year period. Generally we like to allow some room for conservatism when recommending the investment return assumption to provide a buffer against future adverse experience. Since the expected return of 7.7% is approximately equal to the assumed investment return of 7.75%, there is currently no buffer.

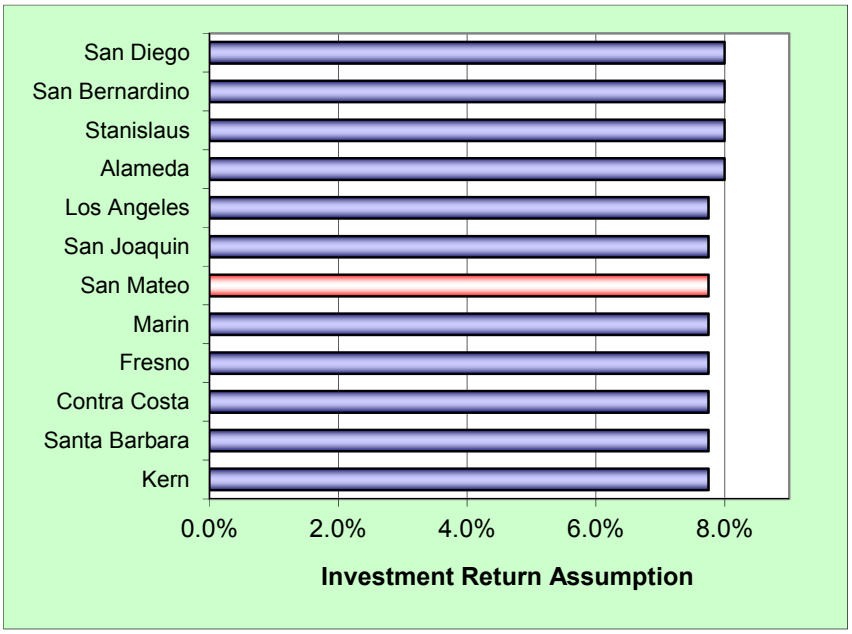
It should be noted that this analysis is based on a 3.50% inflation assumption. As discussed earlier, there is some argument for using a lower inflation assumption. If the inflation assumption were lowered to 3.25% (alternative assumption), the expected net investment return would be 7.45%, making the current assumption more aggressive (i.e., less likely to be met).

Accordingly, if the 3.25% inflation assumption is adopted, we would recommend lowering the investment return assumption to 7.50%. We would describe the current set of economic assumptions as middle-of-the-road (i.e., neither aggressive nor conservative). Moving to the alternate set of economic assumptions would provide slightly more conservatism.

Peer System Comparison

According to the *Public Fund Survey*, the average investment return assumption for statewide systems has been slowly declining. As of the most recent study, the average rate is just under 8.0%

Looking at other selected '37 Act systems, *SamCERA*'s current assumption of 7.75% is the most common.



Excess Earnings

Section 31592.2 of the 1937 Act provides the Retirement Board with the authority to set aside surplus earnings of the retirement fund which are in excess of the total interest credited to contributions, provided this surplus exceeds 1.00% of the total assets of the retirement system.

If the Board determines that the fund should share excess earnings with members when times are good, but the fund is not able to collect additional revenue when investment returns lag expectations, there will be a reduction in the investment return available to fund *SamCERA*'s regular pension benefits. Thus, if the Board adopts a policy, either formal or informal, to use excess earnings for anything other than the regular pension benefits, we would consider the impact on the investment return assumption and possibly recommend a reduction. As of this time, we are not recommending any adjustment.

Other Factors for Board Consideration

Since economic assumptions are subjective in nature, it is our recommendation that the Board be fully comfortable with the implications of the economic assumptions, particularly with the investment return assumption. There is an "actuarial risk" associated with the economic assumptions, just as there is an investment risk associated with a given portfolio mix.

Actuarial assumptions are used to measure and budget future costs. Changing assumptions will not change the actual cost of future benefits. Aggressive assumptions anticipate good future experience ahead of time and factor it into budget estimates. Conservative assumptions, on the other hand, tend to recognize good experience only after it happens.

The choice of assumptions depends on a system's risk tolerance. The final determination on whether or not a set of assumptions is either conservative or aggressive will only be born out by future experience. As discussed earlier, we believe the current economic assumptions are neither aggressive nor conservative.

All other things being equal, a lower investment return assumption provides stronger funding, and a higher investment return assumption results in weaker funding. Therefore, in our opinion, systems that are already funding at a low level (e.g., a rolling 30-year amortization of the UAAL) should consider incorporating conservatism in their investment return assumption. *SamCERA* has a strong contribution policy (15-year layered amortization of the UAAL), so we believe it is not as important to include a level of conservatism in the investment return assumption, although it should still be considered.

Other Factors for Board Consideration (continued)

The investment return assumption also impacts member contribution rates, as well as the costs of service purchases and other optional forms of payment. Therefore, although the investment return assumption does not directly impact the ultimate cost of benefits, it does impact the split between the employers and the members.

In particular, SamCERA has a fairly significant number of members who purchase additional retirement credit (ARC). If the actual rate of return earned in the long-term is less than the investment return assumption, the system will have charged the member less than the true cost, and the employer will ultimately have to make up this shortfall. Conversely, if the actual rate of return earned in the long-term is greater than the investment return assumption, the system will have charged the member more than the full cost, and the employer will have to contribute less in the future.

Conclusion

Based on portfolio analysis and the current inflation assumption, we believe the 7.75% investment return is a reasonable long-term assumption. Nonetheless, the expected returns for the portfolio will still have a certain amount of volatility.

According to the economists and investment advisors, a decrease in the price inflation assumption to 3.0% or lower would be reasonable. If such low inflation is experienced over time, then it is likely *SamCERA*'s investment return will be lower than the current assumption of 7.75%.

As discussed in the inflation section, we are not recommending a change in the inflation assumption. Based on the 3.50%, we believe the 7.75% investment return assumption is appropriate and we are recommending the Board adopt it. However, we believe there is some justification to lower the inflation. If the inflation assumption were lowered, we would recommend lowering the investment return assumption to avoid increasing the net rate of return assumption. Therefore, we have also shown a lower investment return with the alternative assumptions.

INVESTMENT RETURN (NET OF INVESTMENT EXPENSES)	
Current Assumption	7.75%
Best Estimate Range*	6.4% - 9.2%
Recommended Assumption	Proposed = 7.75%*
	Alternative = 7.50%**

* *Based on a 3.5% inflation assumption.*

** *Based on a 3.25% inflation assumption.*

Section 3: Actuarial Methods and Miscellaneous Assumptions

Valuation Methods

As part of the triennial investigation, we have reviewed the valuation methods and other issues related to the actuarial assumptions.

- **Cost Method:** The actuarial valuation is prepared using the entry age actuarial cost method (CERL 31453.5). We believe that this cost method is appropriate for *SamCERA*'s valuation. We recommend no change.
- **Funding Method (amortization of UAAL):** The current method uses a layered approach. We recommend no change.
- **Valuation of Assets:** We believe that the current asset valuation method which smoothes gains and losses over five years (actually 10 six-month periods) is appropriate for *SamCERA*'s valuation. We recommend no change.
- **Adjustment to Plan 3 Normal Cost Rate:** The current method increases the Plan 3 Normal Cost rate to account for Plan 3 members being eligible to transfer to Plan 2 or Plan 4 (depending on entry date) after five years of service. Under this method, the Plan 3 Normal Cost rate is 50% of the unadjusted Plan 3 Normal Cost rate and 50% of the Plan 4 Normal Cost rate. We believe this method continues to be appropriate and recommend no change.

Miscellaneous Assumptions

- **Reciprocity:** Members who terminate may go to work for a reciprocal employer. This can result in an increase in the member's final compensation used in the calculation of their *SamCERA* benefit. We currently assume that 40% of future terminated vested members retire with a reciprocal employer. We reviewed this assumption and are recommending a change to 35% for General members, and 45% for Safety members. The results of the study are as follows:

Probability of Reciprocal Employer					
Class	All Terms >= 5 Years	Recip.	Actual	Expected	Proposed
General	20	11	32%	40%	35%
Safety	6	0	47%	40%	45%

Valuation Methods (continued)

- **Probability of Eligible Survivor:** Eligible surviving beneficiaries (spouses or qualified domestic partners of members) generally receive a 60% continuance of the member's benefit (100% continuance for service-connected disabilities and 50% for Plan 3 members). The valuation assumes a certain percentage of members will have an eligible survivor at retirement. We studied this assumption and are recommending no change. The results of the study are as follows:

Retirees with Eligible Survivor			
Gender	**Actual**	**Expected**	**Act / Exp**
Male	74%	80%	93%
Female	52%	55%	95%

Non-Valuation Methods

- **Operating Tables:** We are recommending changes in the retired and disabled mortality assumptions. If these changes are adopted, the operating tables need to be updated to reflect the altered life expectancies.

- **Member Contribution Rates:** The proposed changes to the retired mortality assumptions will impact the basic member contribution rates. If the investment return assumption is changed, this will also impact the member rates. New member rates were calculated as of June 30, 2010 based on the new assumptions, and were included in the cost analysis of the new assumptions. A sample of the changes to the member rates due to the new mortality assumption is shown in the chart below.

Sample Changes in Member Rates due to Mortality Change (Rates Shown Include Cost Sharing)				
	Age	**Current**	**Proposed**	**Increase**
General Members - County				
Plans 1 & 2	35	10.22%	10.25%	0.03%
Plan 4	35	9.91%	9.94%	0.03%
Probation Members (Reflects Employer Pick-up)				
Plans 1 & 2	35	11.33%	11.38%	0.05%
Plan 4	35	10.99%	11.04%	0.05%
Safety Members - Other than Deputy Sheriff*				
Plans 1 & 2	35	14.78%	14.85%	0.07%
Plan 4	35	14.37%	14.43%	0.06%

** Cost Sharing varies for Deputy Sheriffs as follows:*

3.0% if employee is less than 45 and has less than 5 years of service.

3.5% if employee is less than 45 and has between 5 and 15 years of service.

4.5% if employee is older than 45 or has at least 15 years of service.

Section 4: Salary Increases Due to Promotion and Longevity (Merit)

Estimates of future salaries are based on assumptions for two types of increases:

1) Increases in each individual's salary due to promotion or longevity, which occur even in the absence of inflation (merit increases); and
2) Increases in the general wage level of the membership, which are directly related to inflation and increases in productivity.

Results

In Section 2 we recommend that the second of these rates, the general wage inflation, remain at 4.00%.

Exhibit 4-1 shows the actual merit increases, plus the general wage growth assumption, over the period July 1, 2008 – June 30, 2010. Increases were higher earlier in a member's career (lower service) and then decreased over time, consistent with the current assumptions. Overall, the actual increases were less than that predicted by the current assumptions.

Note that this period is slightly shorter than the period over which all other assumptions were studied. We felt that studying salary increases for a partial final year (ending April 30, 2011) would result in a less accurate analysis of salary increase patterns over the study period.

The recent current experience study was likely influenced by the recession that occurred during the study period. Our goal in recommending assumptions is to predict the long-term expectations for the system, not to alter assumptions based on temporary, short-term patterns. Therefore, we looked at both the 2011 and previous 2008 experience study in making our determinations.

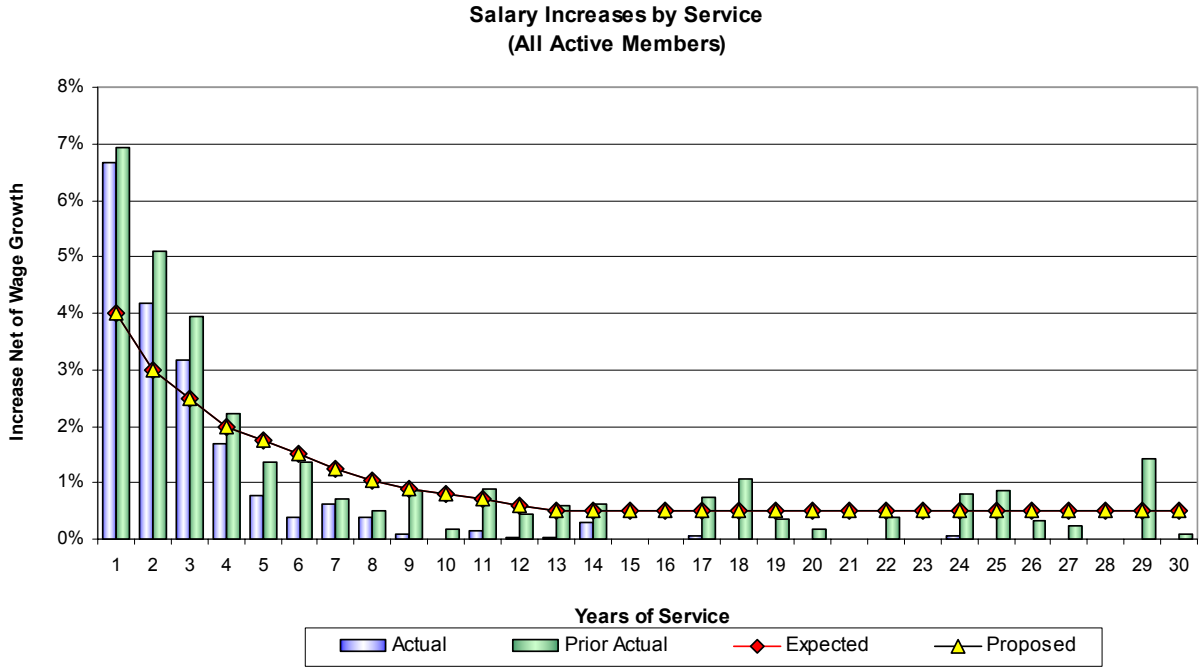
We also studied the merit patterns of Safety and General members separately, as we have seen differences between the two groups in other systems. There were some differences for *SamCERA*; however, it is not clear at this time whether this is a long-term trend or a short-term fluctuation. We will continue to monitor this in future studies.

Recommendation

Based on the results of the prior two experience studies, we are not recommending a change in the merit component of the salary increase assumptions.

Exhibit 4-1 Total Annual Rates of Increase in Salary Due to Merit and Longevity

(Excluding the General Wage Growth Assumption)



Section 5: Mortality

Results

In this section we look at the results of the study of actual and expected death rates of retired members. We studied rates of mortality among healthy and disabled retired members. Valuation mortality is a critical assumption, since, if members live longer than expected, we will be understating the true cost of the future plan obligations.

Overall, we found there were slightly more deaths than the current rates predicted: 269 actual to 243 expected for a total ratio of 111%. We generally like to see some margin for future improvements in mortality (i.e., actual number greater than expected by about 10% or so). Note that under the current assumptions, there is no margin at all for General or Safety males under Service Retirement. We are therefore recommending strengthening the mortality assumption for males under Service Retirement (i.e., increasing life expectancies).

Additionally, we have made adjustments to the General male and General female mortality rates under Disability Retirement in order to better fit experience (note that the recommended change did not alter the A/E ratio for General females).

The following is a comparison of the actual-to-expected deaths of retired members by class and gender for the study period.

Retiree Mortality

Service Retirement

	Deaths			Actual to	Actual to
Group	Actual	Expected	Proposed	Expected	Proposed
General Male	76	76	68	100%	112%
General Female	149	133	133	112%	112%
Safety Male	11	11	10	100%	110%
Safety Female	2	1	1	200%	200%
Total Svc Ret	**238**	**221**	**212**	**108%**	**112%**

Disability Retirement

	Deaths			Actual to	Actual to
Group	Actual	Expected	Proposed	Expected	Proposed
General Male	11	6	7	183%	157%
General Female	16	11	11	145%	145%
Safety Male	3	4	4	75%	75%
Safety Female	1	1	1	100%	100%
Total Dis Ret	**31**	**22**	**23**	**141%**	**135%**
Grand Total	**269**	**243**	**235**	**111%**	**114%**

Results (continued)

Results are shown graphically on the following pages. Note that analysis of Safety females is not shown in graph form due to the small number of actual and expected deaths.

Recommendation

We are recommending strengthening the mortality assumption (i.e., increasing life expectancies). Note that this brings the total A/E ratio to 114%, which allows for some increases in life expectancies. The recommended new mortality tables are based on standard mortality tables for annuitants with adjustments to fit *SamCERA*'s experience and are described in Appendix A.

For active mortality (the probability of death while actively employed), we are recommending using a standard mortality table for active employees, with adjustments similar to those made to the mortality for *SamCERA*'s retired members.

Similarly, there was not enough experience for service-related death to perform a valid statistical analysis. We are recommending retaining the current assumption.

Exhibit 5-1 Mortality for Service Retirees General Males

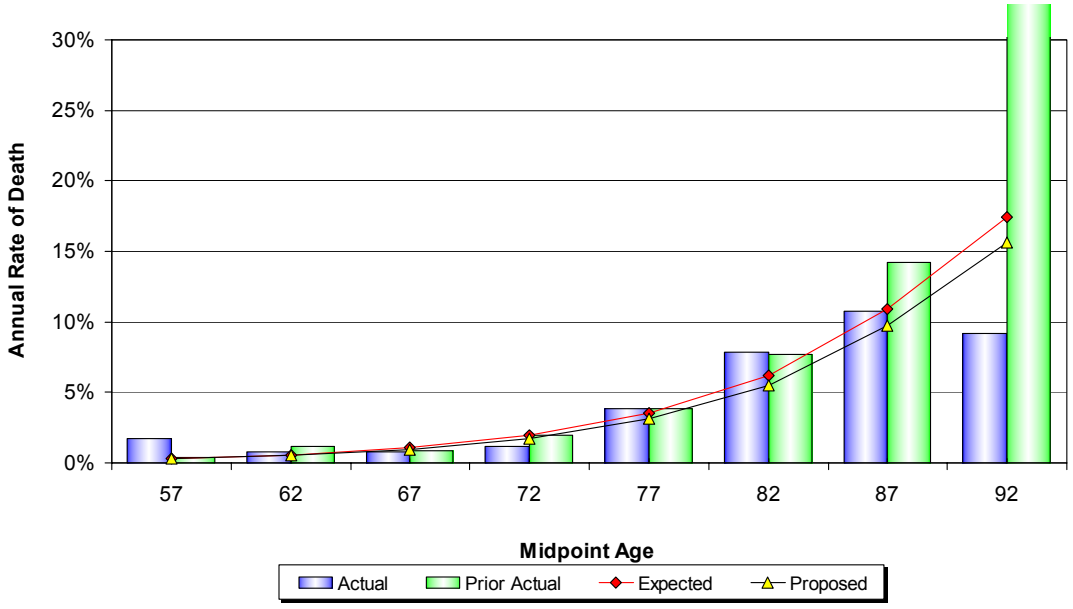


Exhibit 5-2 Mortality for Service Retirees General Females

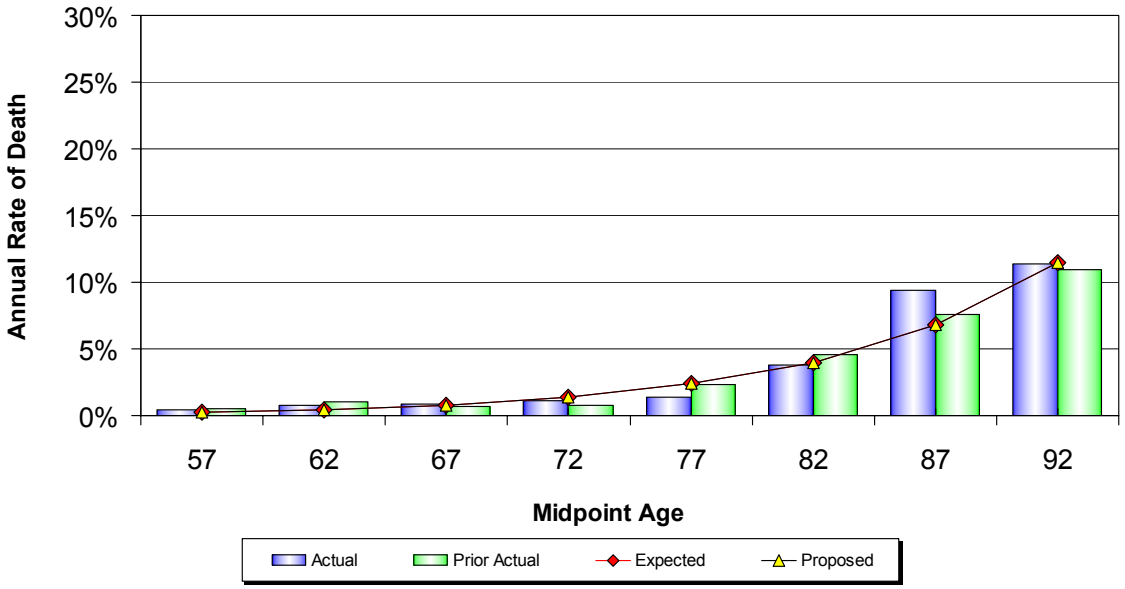


Exhibit 5-3 Mortality for Service Retirees Safety Males

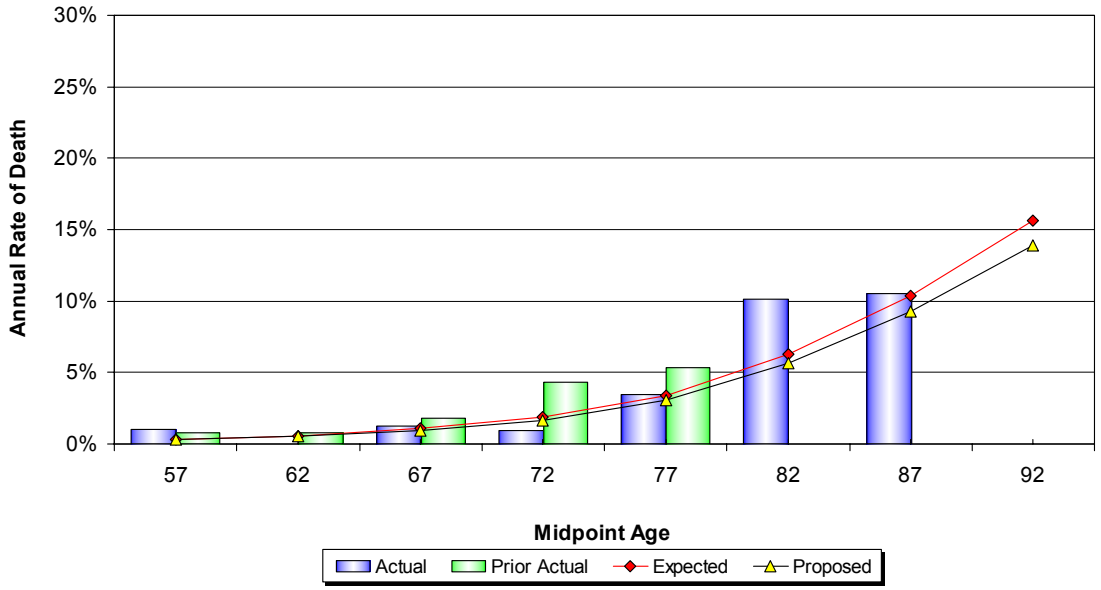


Exhibit 5-4 Mortality for Disabled Retirees General Males

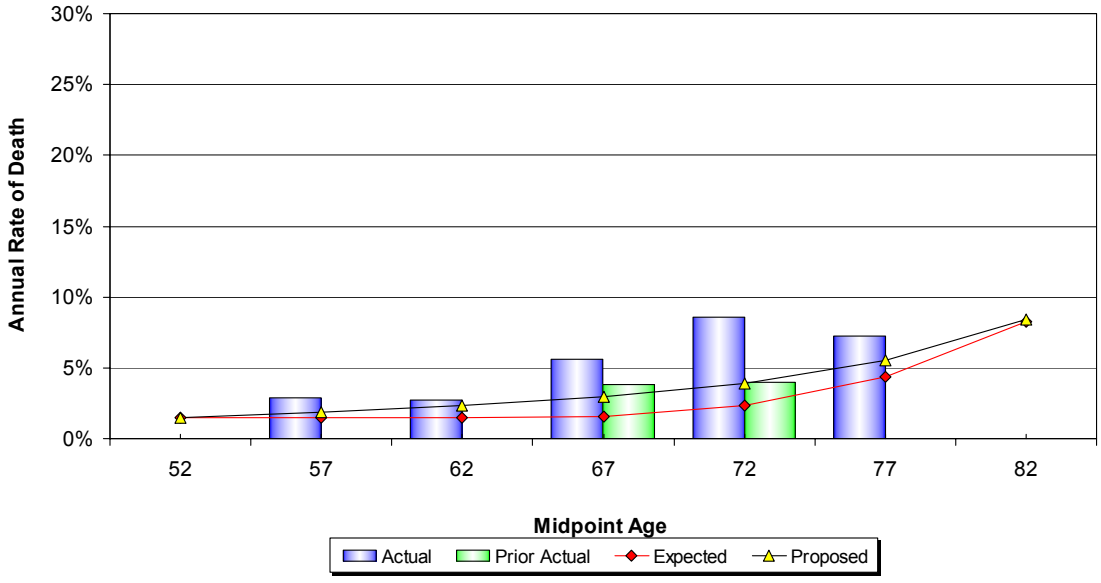


Exhibit 5-5 Mortality for Disabled Retirees General Females

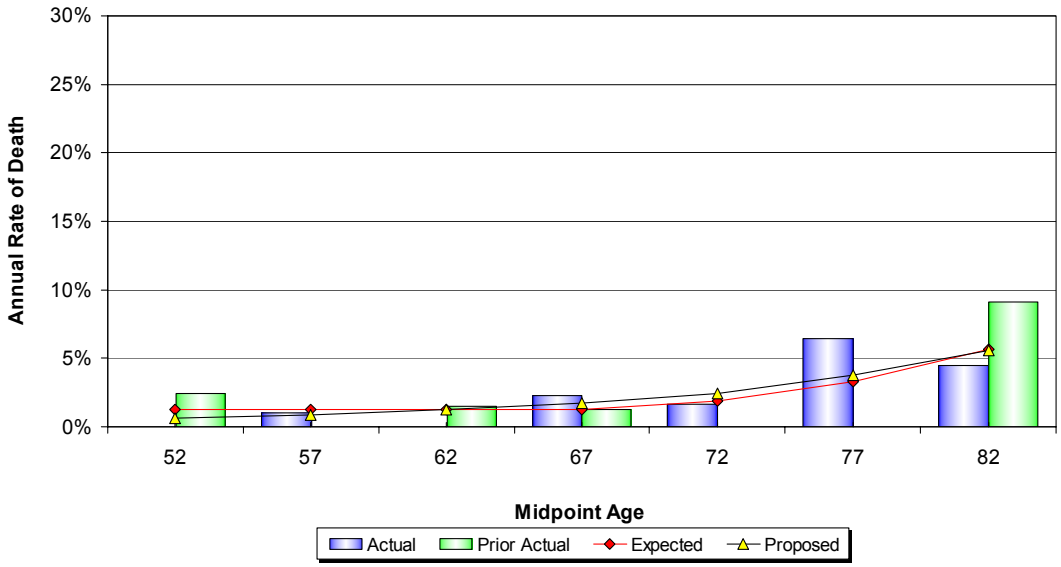
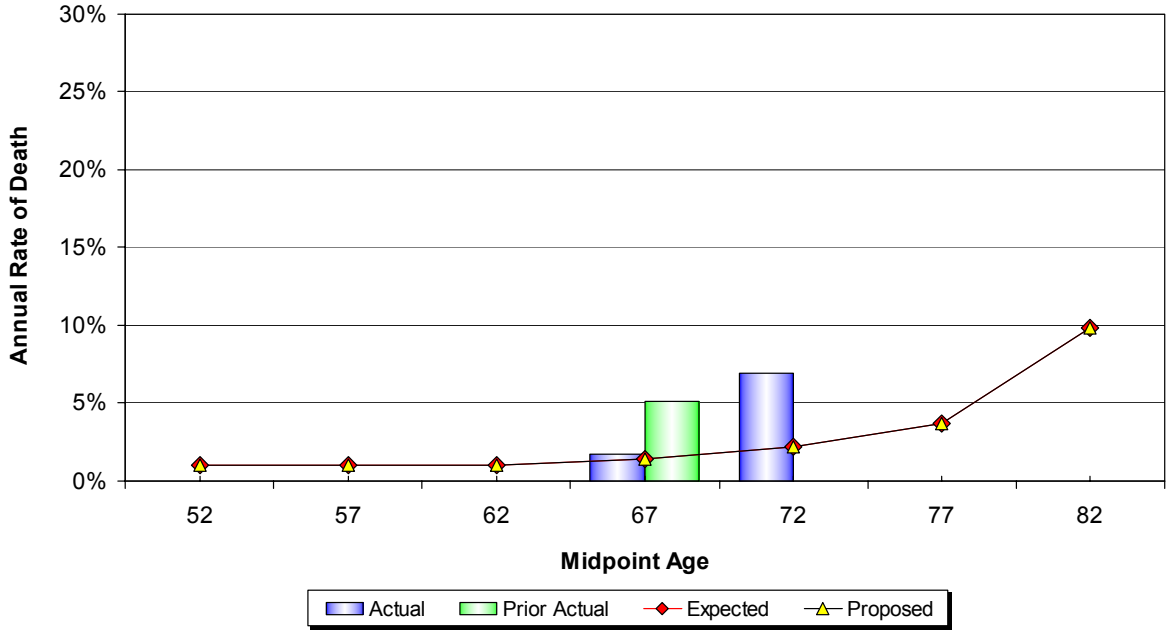


Exhibit 5-6 Mortality for Disabled Retirees Safety Males



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Section 6: Service Retirements

Exhibits 6-1 through 6-3 show the actual and expected rates of service retirement. Our analysis of rates of service retirement was by attained age.

Exhibits 6-1 through 6-3 study retirements for the following groups:

- Exhibit 6-1: General Members – Males
- Exhibit 6-2: General Members – Females
- Exhibit 6-3: Safety Members – Males and Females

Results

For General and Safety/Probation members, the total actual retirements from active service were less than the assumptions predicted.

As shown below, the total number of retirements (339) was only 76% of the total number expected (444).

Service Retirements			
Class	**Actual**	**Expected**	**Act / Exp**
General	296	376	79%
Safety	43	68	63%
Total	339	444	76%

Recommendation

As mentioned in Section 1 of this report, we believe the recessionary economic environment has resulted in lower rates of retirement and termination. We have seen a slight long-term downward trend in retirement rates among public systems, but the current experience study period is likely heavily influenced by the recession.

Actuarial assumptions are used to predict long-term expected behavior, and therefore in cases of significant deviation from previous recent experience, our recommendation is usually to make only a partial adjustment to reflect the most recent experience.

We are recommending reduced retirement rates for General and Safety/Probation members. Note that, as illustrated in the graphs below, we have reflected only part of the recent experience. Additionally, we have taken the previous experience study into account to give more of a long-term picture of the recent retirement rates.

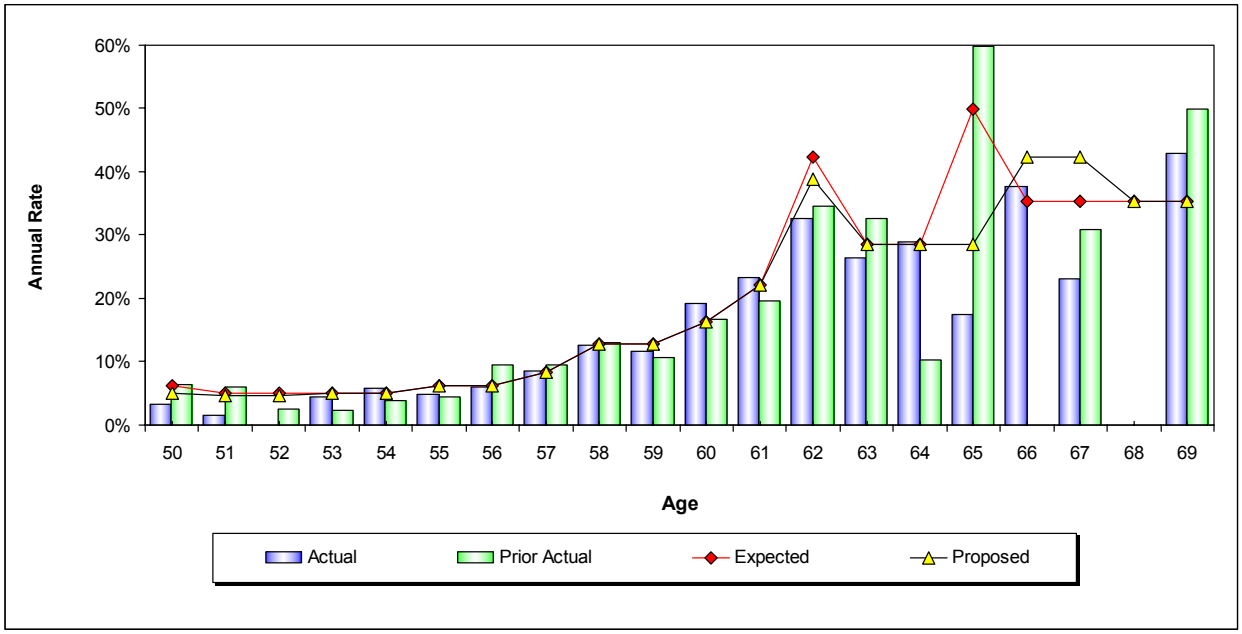
Recommendation (continued)

A comparison of the actual and expected retirements under the recommended assumptions is shown in the table below.

Service Retirements -- Proposed			
Class	**Actual**	**Proposed**	**Act / Prop**
General	296	358	83%
Safety	43	57	75%
Total	339	415	82%

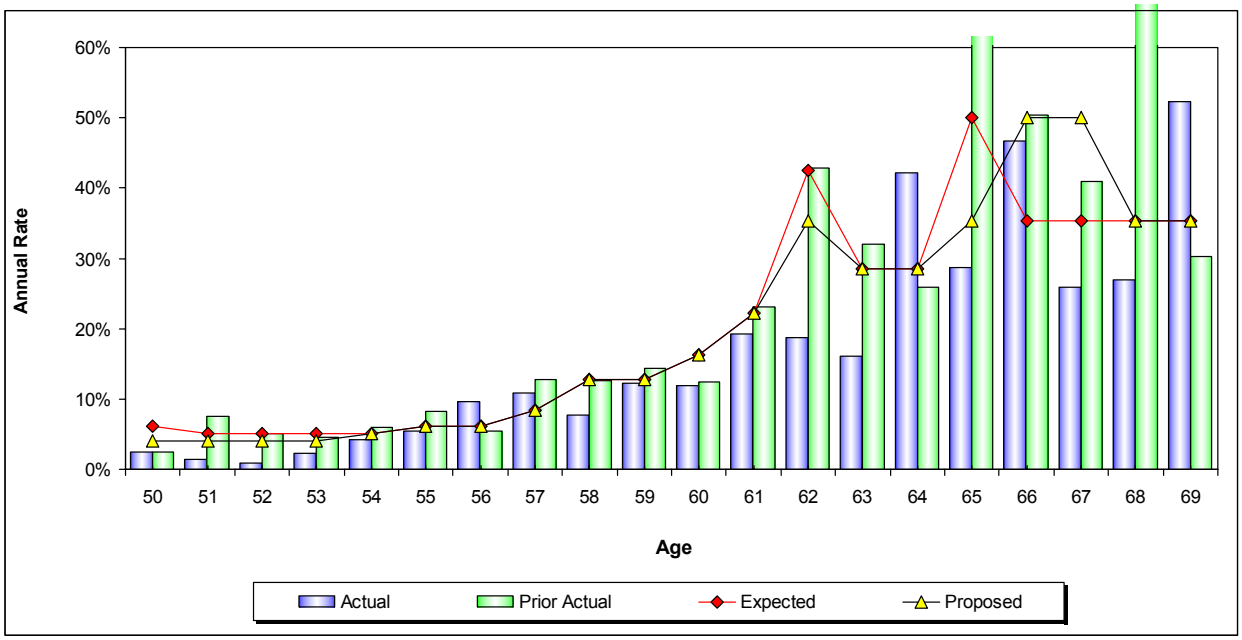
There were not enough Plan 3 service retirements to perform a statistically meaningful study; therefore we are recommending no change to these rates.

Exhibit 6-1 Retirement Rates
General Males



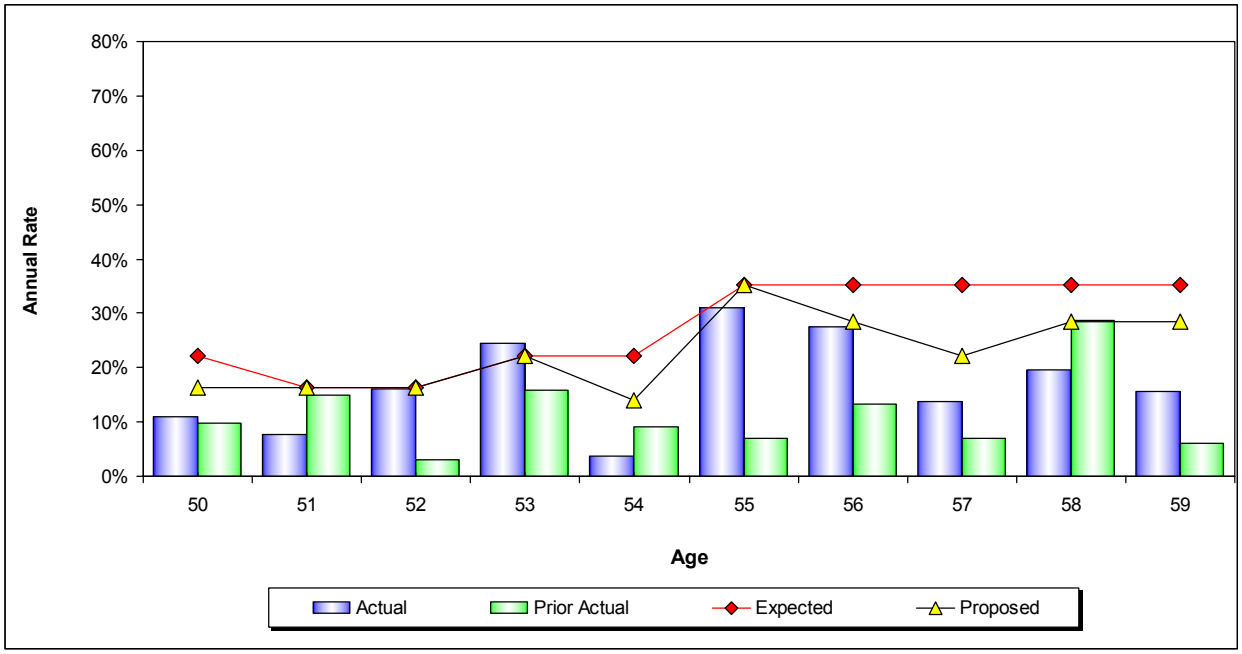
Ages 50-69	Expected	Actual	Proposed
Total Count	133	111	127
Actual / Expected	83%		87%

Exhibit 6-2 Retirement Rates
General Females



Ages 50-69	Expected	Actual	Proposed
Total Count	243	185	231
Actual / Expected	76%		80%

Exhibit 6-3 Retirement Rates
Safety Males/Females



Ages 50-59	Expected	Actual	Proposed
Total Count	68	43	57
Actual / Expected	63%		75%

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Section 7: Disability Retirement

Results

SamCERA allows a member to start receiving benefits prior to eligibility for service retirement if they become disabled. There are two types of disability:

- Nonservice-Connected Disability: This is available to a disabled member only if he has satisfied the vesting requirement.
- Service-Connected Disability: This is available only to members who are disabled for the performance of duty. There is no service requirement, and the service-connected disability benefit generally pays a larger benefit than nonservice-connected disability.

We have found that in many systems, including *SamCERA*, there is generally at least a 6-month lag between the actual occurrence of a disability retirement and the subsequent approval and reporting of that same retirement. To account for this, we adjusted our final data to include eight disability retirements that occurred in the 6-month period preceding our study.

After taking this 6-month lag into account, the total adjusted number of disability retirements (service-connected and nonservice-connected combined) was greater than expected for General members (Actual/Expected ratio of 124%). There were 6 actual Safety disabilities, compared to 8 expected disabilities.

Disability Retirements			
Class	**Actual**	**Expected**	**Act / Exp**
General	31	25	124%
Safety	6	8	75%
Total	37	33	112%

Results – Comparison of Service and Ordinary Disability

The total disability rates are split between ordinary and service disability in accordance with the approximate relative number of each reported in the experience data for General and Safety members. The proportions of disabilities attributable to each cause in the study period are shown in the following chart.

Split between Service and Ordinary Disability					
Class	**Svc**	**Ordinary**	**Total**	**Svc/Total**	**% Svc**
General	20	11	31	65%	60%
Safety	6	0	6	100%	80%

Recommendation

We are recommending increasing the rates of disability retirement for General members. We are recommending no change to the rates of disability retirement for Safety members.

We recommend continuing to use a 60%/40% split between service disability and ordinary disability for General members. For Safety members, we recommend changing the assumption so that 100% of disabilities are assumed to be service connected.

Disability Retirements					
Class	**Actual**	**Expected**	**Act / Exp**	**Proposed**	**Act / Prop**
General	31	25	124%	29	107%
Safety	6	8	75%	8	75%
Total	37	33	112%	37	100%

Section 8: Other Terminations of Employment

This section of the report summarizes the results of our study of terminations of employment for reasons other than death, service retirement, or disability. Rates of termination vary by years of service – the greater the years of service, the less likely a member is to terminate employment.

The current assumptions also vary by gender for General members, with females having a slightly higher probability of terminating than males.

Results

Overall, the actual number of terminations was lower than expected for both General and Safety members.

Termination -- General Members			
Gender	**Actual**	**Expected**	**Act / Exp**
Male	203	228	89%
Female	379	518	73%
Total	582	746	78%

Termination - Safety Members			
Gender	**Actual**	**Expected**	**Act / Exp**
Male/Female	31	47	66%

Recommendation

As mentioned in Section 1 of this report, we believe the recessionary economic environment has resulted in lower rates of retirement and termination. The current termination study results are likely influenced by the recession.

Actuarial assumptions are used to predict long-term expected behavior, and therefore in cases of significant deviation from previous recent experience, our recommendation is usually to make only a partial adjustment to reflect the most recent experience.

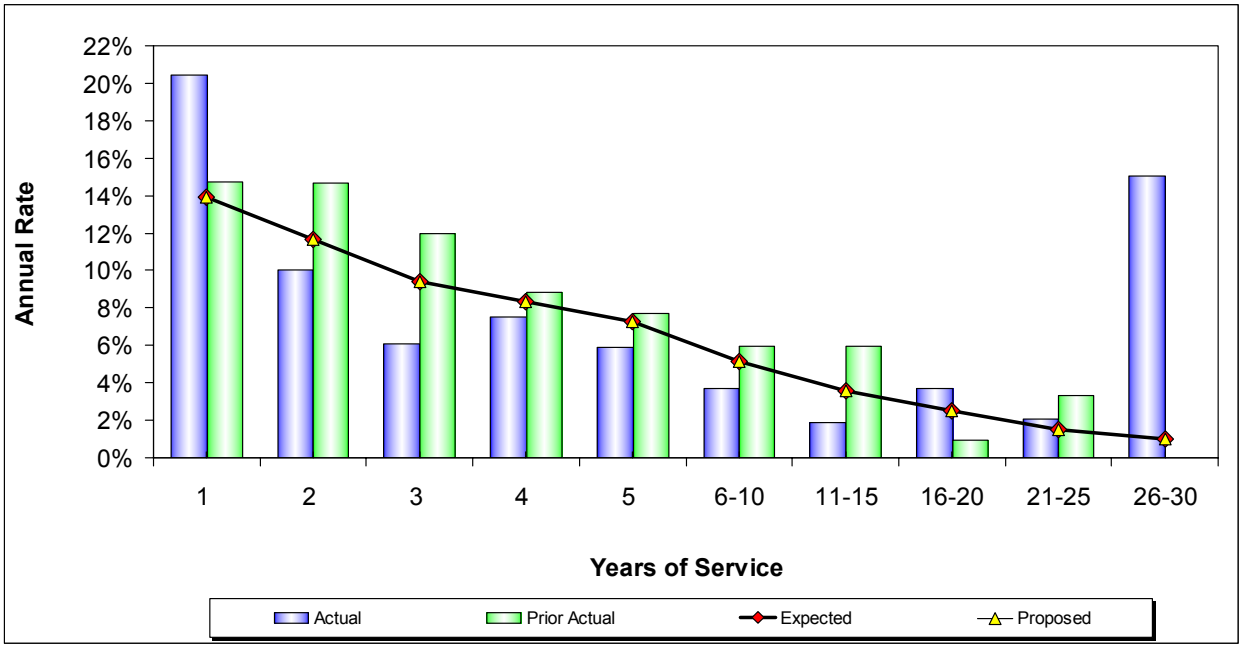
Recommendation (continued)

In this case, we are recommending reduced rates of termination for General females and for Safety members. Since the General male actual/expected ratio is almost 90%, we are not recommending a change to those rates at this time. The results of the study are shown in Exhibits 8-1 through 8-3. A summary of the revised results under the recommended assumptions is shown in the following table.

Termination -- General Members			
Gender	**Actual**	**Proposed**	**Act / Prop**
Male	203	228	89%
Female	379	490	77%
Total	582	718	81%

Safety Termination - All Years of Service			
Gender	**Actual**	**Proposed**	**Act / Prop**
Male/Female	31	44	70%

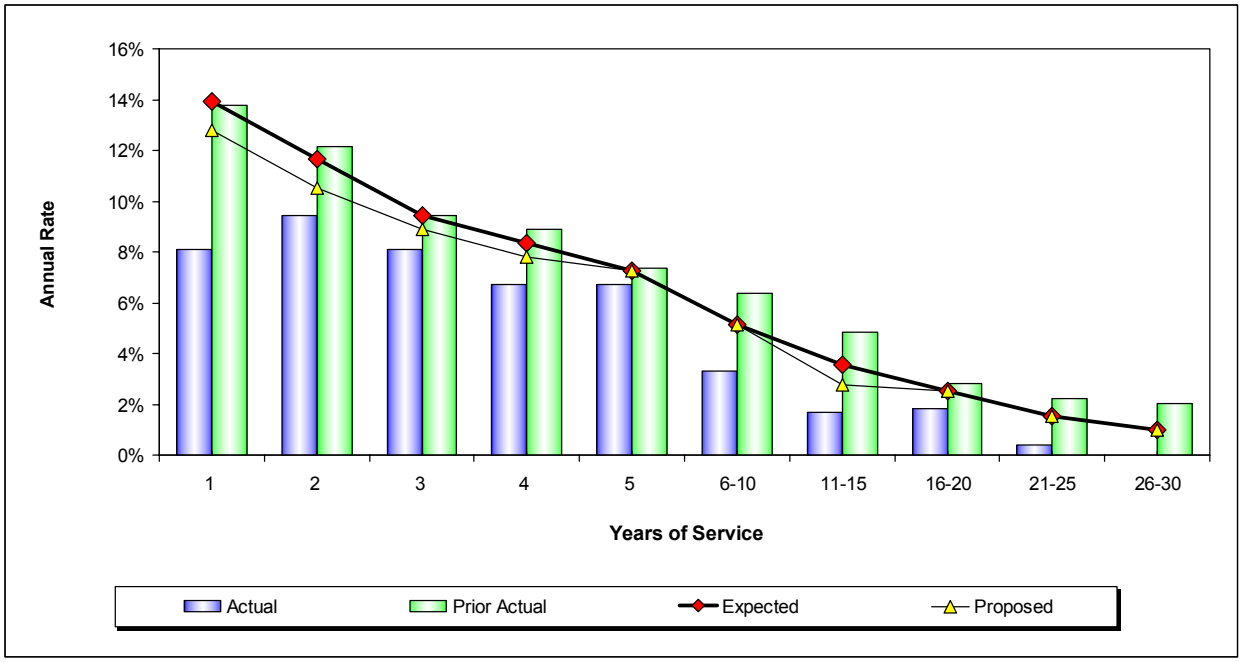
Exhibit 8-1 Termination by Years of Service* – General Males



	2008 - 2011 Data		
	Expected	Actual	Proposed
Total Count	228	203	228
Actual / Expected	89%		89%

**Excludes retirement-eligible members.*

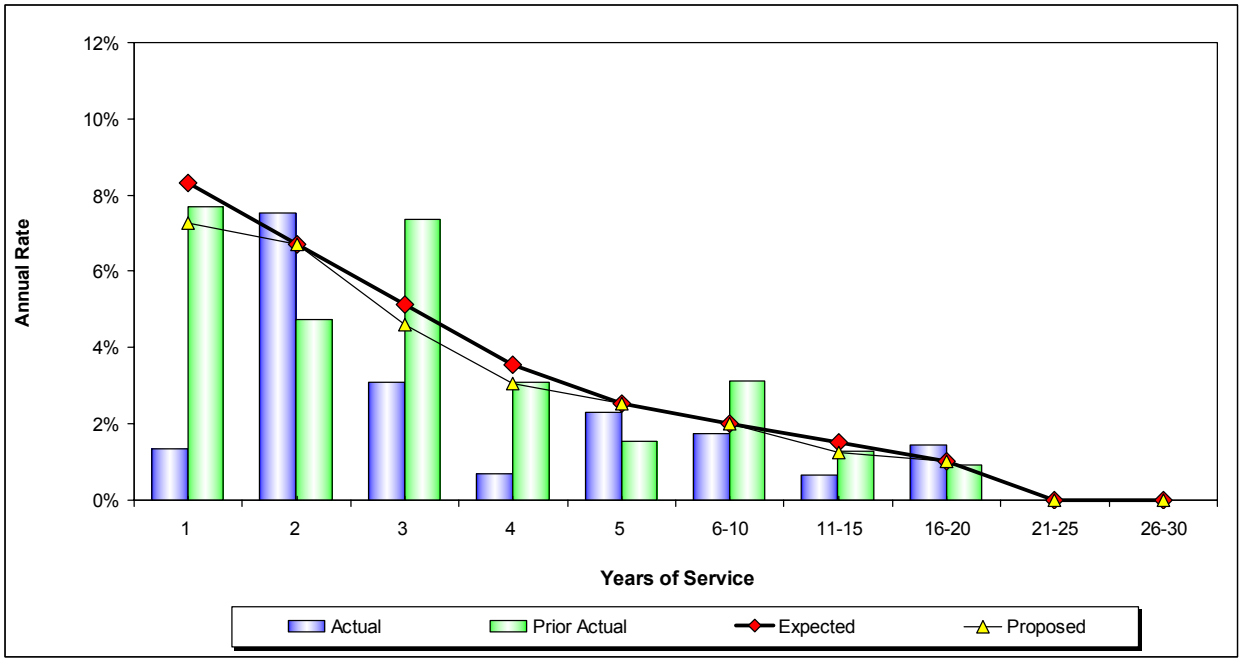
Exhibit 8-2 Termination by Years of Service* – General Females



	2008 - 2011 Data		
	Expected	Actual	Proposed
Total Count	518	379	490
Actual / Expected	73%		77%

**Excludes retirement-eligible members.*

Exhibit 8-3 Termination by Years of Service* – Safety



	2008 - 2011 Data		
	Expected	Actual	Proposed
Total Count	47	31	44
Actual / Expected	66%		70%

**Excludes retirement-eligible members.*

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Section 9: Probability of Refund Upon Vested Termination

This section of the report deals with the rates at which employees elect a refund of their contributions upon termination of service. It only considers vested members who are not yet eligible for service retirement. Under the current assumptions, members who terminate with fewer years of service have a greater probability of electing to withdraw their contributions. All non-vested members are assumed to take a refund at termination.

Results

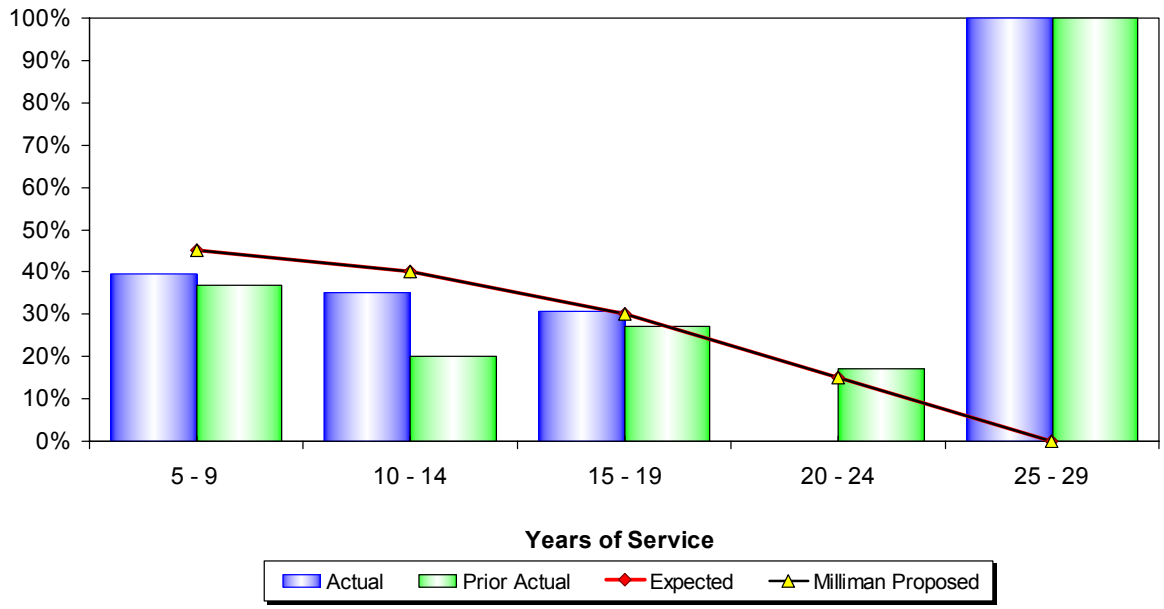
Exhibit 9-1 summarizes the results of our study. The results are consistent with our assumptions in that members have a higher likelihood of electing a refund at lower years of service; however, the actual total number of refunds was less than the assumptions predicted for Safety members (although this group has a very small amount of experience). The actual number of refunds taken by General members was close to what the assumptions predicted.

Probability of Refund					
Class	**Actual**	**Expected**	**Act / Exp**	**Proposed**	**Act / Prop**
General	59	66	90%	66	90%
Safety	2	6	33%	5	40%
Total	61	72	85%	71	86%

Recommendation

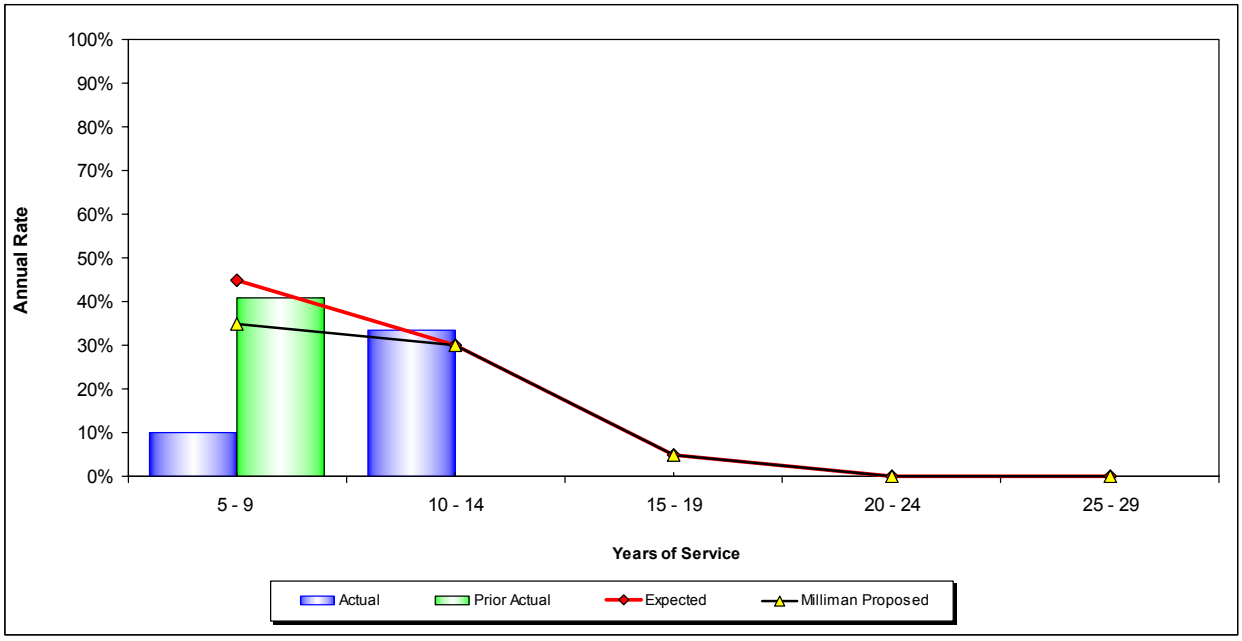
Based on the experience, we are recommending a slight decrease in the assumed rates at which Safety members at low levels of service withdraw their contributions from *SamCERA*. We are recommending no change to the rates of refund for General members. The lower rates of refund are likely reflective of an increased awareness of the value of saving for retirement. This trend towards a higher probability of leaving the contributions with the system is consistent with what we have observed with other retirement systems.

Exhibit 9-1 Probability of Refund upon Vested Termination – General



	2008 - 2011 Data		
	Expected	Actual	Proposed
Total Count	66	59	66
Actual / Expected	90%		90%

Exhibit 9-2 Probability of Refund upon Vested Termination – Safety



	2008 - 2011 Data		
	Expected	Actual	Proposed
Total Count	6	2	5
Actual / Expected	36%		44%

Appendix A: Summary of Proposed Assumptions

The actuarial procedures and assumptions to be used in the June 30, 2011 valuation are described in this section. The assumptions were reviewed and changed as a result of the 2011 Investigation of Experience Study. Assumptions that have been changed since the June 30, 2010 valuation as a result of this study are highlighted in yellow in the section that follows.

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 based on these assumptions will result in corresponding changes in the estimated costs of *SamCERA*'s benefits.

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

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

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

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

Tables A-6 to A-11 present the probabilities a member will leave the system 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.

As of the June 30, 2010 actuarial valuation, the San Mateo County Mosquito and Vector Control District has adopted the same "enhanced" benefit formula that applies to County General members and the same member rates currently being paid by County General members. However, because the Mosquito and Vector Control District does not participate in cost sharing on the member rates, it will have a separate normal cost rate and expected member contribution rate from the County General group.

As of the June 30, 2010 actuarial valuation, the normal cost rate will be calculated separately for County General and for the Mosquito and Vector Control District. These normal cost rates will differ from each other for two reasons:

1) The demographics within the two groups will vary (specifically, the groups will have different average entry ages), and
2) The expected refund of contributions, which is a component of the normal cost, will differ between the County and the Mosquito and Vector Control District, since the District does not participate in cost sharing on the member rates.

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.
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.
County Contributions	The County contribution rate is set by the Retirement Board based on actuarial valuations.
Member Contributions	The member contribution rates vary by entry age 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 five-year smoothed method based on the difference between the expected market value and the actual market value of the assets as of the valuation date. The expected market value is the prior year's market value increased with the net increase in the cash flow of funds, all increased with interest during the past fiscal year at the expected investment return rate assumption.

Investment Earnings and Expenses

The future investment earnings of the assets of *SamCERA* are assumed to accrue at an annual rate of 7.75% compounded annually, net of both investment and administrative expenses. This rate was adopted June 30, 2005.

Postretirement Benefit Increases

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

	General	Safety	Probation
Plan 1	3.50%	3.50%	3.00%
Plan 2	2.75%	2.75%	2.75%
Plan 3	0.00%	N/A	N/A
Plan 4	2.00%	2.00%	2.00%

Assumed Plan 1 General and Safety COLAs are set at the inflation (CPI) assumption of 3.5% 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 7.75% compounded semi-annually for an annualized rate of 7.90%. This rate was adopted June 30, 2005.

Future Salaries

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table A-5. In addition to increases in salary due to promotions and longevity, this scale includes an assumed 4.00% per annum rate of increase in the general wage level of the membership.

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

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 3.5% per year. Note, statutory provisions describe how to compute a member's offset amount at time of termination or retirement.

Retirement

The retirement rates vary by age and are shown by plan in Tables A-6 through A-11.

All General members who attain or who have attained age 70 and all Safety members who have attained age 60 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, except Plan 3)
- Any age with 33 years of service (Safety & Probation)

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

- Age 55 (General Members, except Plan 3)
- Age 65 (General Plan 3 Members)
- Age 50 (Probation and Safety members)

The retirement rates were adopted June 30, 2011.

Disablement

The rates of disablement used in the valuation are also illustrated in Tables A-6 through A-11.

The disability rates were adopted June 30, 2011.

Mortality – Other Than Disabled Members

The same postretirement mortality rates are used in the valuation for active members, members retired for service, and beneficiaries. These rates are illustrated in Table 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.

General Males	RP-2000 Healthy Annuitant Mortality Table for Males with adjustment for White Collar workers. Ages are set back three years.
Safety Males	Same as General.
General Females	RP-2000 Healthy Annuitant Mortality Table for Females with adjustment for White Collar workers. Ages are set back three years.
Safety Females	Same as General.

The rates of retired mortality were adopted June 30, 2011.

Mortality – Disabled Members

For disabled members, the mortality rates used in the valuation rates are illustrated in Table A-3.

General Males	Average of RP-2000 Healthy Annuitant Mortality Table for Males with adjustment for White Collar workers and the RP-2000 Disabled Annuitant Mortality Table for Males, both set back three years.
Safety Males	RP-2000 Healthy Annuitant Mortality Table for Males with adjustment for White Collar workers (minimum is 1.0%).
General Females	Average of RP-2000 Healthy Annuitant Mortality Table for Females with adjustment for White Collar workers and the RP-2000 Disabled Annuitant Mortality Table for Females, both set back three years.
Safety Females	RP-2000 Healthy Annuitant Mortality Table for Females with adjustment for White Collar workers (minimum is 1.0%).

The rates of mortality were adopted June 30, 2011.

Other Employment Terminations

Tables A-6 to A-11 show, for all ages, the rates assumed in this valuation 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 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 June 30, 2011.

Probability of Refund

Table A-4 gives 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 June 30, 2011.

Probability of Eligible Survivor

For members not currently in pay status, 80% 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 three 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.

Reciprocal Benefits

35% of future deferred vested General members and 45% of future deferred vested Safety members are assumed to immediately join a reciprocal agency. For current and future reciprocal members, salaries are assumed to 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*.

Adjustment to Plan 3 Normal Cost Rate

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

Part-Time Employees

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

Member Contribution Rate Assumptions

The following assumptions summarize the procedures used to compute member contribution rates based on entry age:

In general, 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 an 83% / 17% blend of the male and female annuity factors using current valuation assumptions.

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 7.75%.

Member Contribution Rate Assumptions (continued)

C. The Final Compensation is based on the salary paid in the year prior to attaining the retirement age.

   Example: For a Plan 4 Member who enters at age 54 or earlier, the Final Compensation at retirement (age 55) will be the monthly average of the annual salary for age 54.

D. For purposes of calculating the value of the member's future contribution, interest is assumed to be credited at 7.75% semiannually (7.90% annual rate).

E. 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.

For purposes of determining cost-sharing, 85% of Safety members (excluding Probation members) were assumed to be deputy sheriffs.

San Mateo County Employees' Retirement Association
Investigation of Experience (2008-2011)

Table A-1: Summary of Valuation Assumptions as of June 30, 2011

I.	Economic assumptions	
	A. General wage increases	4.00%
	B. Investment earnings	7.75%
	C. Growth in active membership	0.00%
	D. CPI inflation assumption	3.50%
II.	Demographic assumptions	
	A. Salary increases due to service	Table A-5
	B. Retirement	Tables A-6 to A-11
	C. Disablement	Tables A-6 to A-11
	D. Mortality for active members after termination and service retired members	Table A-2

Basis – RP-2000 Healthy Annuitant Mortality Table with adjustment for White Collar workers:

Class of Members	Age Adjustment
General – Males	-3 years
General – Females	-3 years
Safety – Males	-3 years
Safety – Females	-3 years

E. Mortality among disabled members — Table A-3

Basis – Average of RP-2000 Healthy Annuitant Mortality Table with adjustment for White Collar workers and RP-2000 Disabled Annuitant Mortality Table:

Class of Members	Age Adjustment	Minimum Rate
General – Males	-3 years	None
General – Females	-3 years	None

Basis – RP-2000 Healthy Annuitant Mortality Table with adjustment for White Collar workers:

Class of Members	Age Adjustment	Minimum Rate
Safety – Males	none	1.00%
Safety – Females	none	0.40%

F. Mortality for beneficiaries — Table A-2

Basis – Beneficiaries are assumed to be of the opposite sex and have the same mortality as General members.

G. Other terminations of employment — Tables A-6 to A-11

H. Refund of contributions on vested termination — Table A-4

Table A-2: Mortality for Members Retired for Service

Age	General Male	General Female	Safety Male	Safety Female
20	0.030%	0.018%	0.030%	0.018%
25	0.037%	0.019%	0.037%	0.019%
30	0.038%	0.022%	0.038%	0.022%
35	0.043%	0.036%	0.043%	0.036%
40	0.071%	0.053%	0.071%	0.053%
45	0.103%	0.076%	0.103%	0.076%
50	0.158%	0.123%	0.158%	0.123%
55	0.250%	0.192%	0.250%	0.192%
60	0.409%	0.332%	0.409%	0.332%
65	0.731%	0.599%	0.731%	0.599%
70	1.404%	1.094%	1.404%	1.094%
75	2.387%	1.878%	2.387%	1.878%
80	4.236%	3.155%	4.236%	3.155%
85	7.493%	5.337%	7.493%	5.337%
90	13.019%	9.248%	13.019%	9.248%

Table A-3: Mortality for Members Retired for Disability

Age	General Male	General Female	Safety Male	Safety Female
20	1.144%	0.382%	1.000%	0.400%
25	1.147%	0.382%	1.000%	0.400%
30	1.148%	0.384%	1.000%	0.400%
35	1.150%	0.391%	1.000%	0.400%
40	1.164%	0.399%	1.000%	0.400%
45	1.180%	0.411%	1.000%	0.400%
50	1.335%	0.509%	1.000%	0.400%
55	1.703%	0.769%	1.000%	0.400%
60	2.106%	1.099%	1.000%	0.468%
65	2.615%	1.503%	1.106%	0.865%
70	3.424%	2.114%	1.928%	1.519%
75	4.664%	3.082%	3.363%	2.572%
80	6.725%	4.555%	5.941%	4.308%
85	9.840%	6.783%	10.467%	7.419%
90	14.271%	10.350%	17.827%	12.615%

Table A-4: Immediate Refund of Contributions Upon Termination of Employment (Excludes Plan 3)

Years of Service	General	Safety
0	100%	100%
1	100%	100%
2	100%	100%
3	100%	100%
4	100%	100%
5	45%	35%
6	45%	35%
7	45%	35%
8	44%	34%
9	43%	33%
10	42%	32%
11	41%	31%
12	40%	30%
13	38%	25%
14	36%	20%
15	34%	15%
16	32%	10%
17	30%	5%
18	27%	4%
19	24%	3%
20	21%	0%
21	18%	0%
22	15%	0%
23	12%	0%
24	9%	0%
25	6%	0%
26	3%	0%
27	0%	0%
28	0%	0%
29	0%	0%
30 & Up	0%	0%

Table A-5: Annual Increase in Salary

Years of Service	Due to Promotion and Longevity	Total Annual Increase*
<1	6.00%	10.24%
1	4.00%	8.16%
2	3.00%	7.12%
3	2.50%	6.60%
4	2.00%	6.08%
5	1.75%	5.82%
6	1.50%	5.56%
7	1.25%	5.30%
8	1.05%	5.09%
9	0.90%	4.94%
10	0.80%	4.83%
11	0.70%	4.73%
12	0.60%	4.62%
13	0.50%	4.52%
14	0.50%	4.52%
15	0.50%	4.52%
16	0.50%	4.52%
17	0.50%	4.52%
18	0.50%	4.52%
19	0.50%	4.52%
20 or More	0.50%	4.52%

** The total expected increase in salary is the increase due to promotions and longevity, adjusted for an assumed 4.00% per annum increase in the general wage level of the membership. The total result is compounded rather than additive.*

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Appendix A: Rates of Separation From Active Service
Tables 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 vested 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 table represents the detailed rates needed for each *SamCERA* plan by sex:

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

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Table A-6: Rate of Separation From Active Service
General Plans 1, 2 & 4 – Male

Age	Service Retirement*	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.0000	0.0004	0.0002	N/A	0.0003	0	0.1300
19	0.0000	0.0004	0.0002	N/A	0.0003	1	0.1100
20	0.0000	0.0004	0.0002	N/A	0.0003	2	0.0900
21	0.0000	0.0004	0.0002	N/A	0.0003	3	0.0800
22	0.0000	0.0004	0.0002	N/A	0.0003	4	0.0700
23	0.0000	0.0004	0.0002	N/A	0.0003	5	0.0633
24	0.0000	0.0004	0.0002	N/A	0.0004	6	0.0567
25	0.0000	0.0004	0.0002	N/A	0.0004	7	0.0500
26	0.0000	0.0004	0.0002	N/A	0.0004	8	0.0470
27	0.0000	0.0004	0.0002	N/A	0.0004	9	0.0440
28	0.0000	0.0004	0.0002	N/A	0.0004	10	0.0410
29	0.0000	0.0004	0.0003	N/A	0.0004	11	0.0380
30	0.0000	0.0004	0.0003	N/A	0.0004	12	0.0350
31	0.0000	0.0005	0.0003	N/A	0.0004	13	0.0330
32	0.0000	0.0005	0.0003	N/A	0.0004	14	0.0310
33	0.0000	0.0005	0.0004	N/A	0.0004	15	0.0290
34	0.0000	0.0006	0.0004	N/A	0.0005	16	0.0270
35	0.0000	0.0006	0.0004	N/A	0.0006	17	0.0250
36	0.0000	0.0007	0.0004	N/A	0.0006	18	0.0230
37	0.0000	0.0007	0.0005	N/A	0.0007	19	0.0210
38	0.0000	0.0008	0.0005	N/A	0.0008	20	0.0190
39	0.0000	0.0008	0.0006	N/A	0.0008	21	0.0170
40	0.0000	0.0010	0.0006	N/A	0.0009	22	0.0150
41	0.0000	0.0010	0.0007	N/A	0.0010	23	0.0140
42	0.0000	0.0011	0.0007	N/A	0.0010	24	0.0130
43	0.0000	0.0011	0.0008	N/A	0.0011	25	0.0120
44	0.0000	0.0012	0.0008	N/A	0.0011	26	0.0110
45	0.0000	0.0013	0.0009	N/A	0.0012	27	0.0100
46	0.0000	0.0014	0.0009	N/A	0.0013	28	0.0100
47	0.0000	0.0014	0.0010	N/A	0.0014	29	0.0100
48	0.0000	0.0015	0.0010	N/A	0.0015	30 & Above	0.0000
49	0.0000	0.0016	0.0010	N/A	0.0016		
50	0.0500	0.0016	0.0010	N/A	0.0017		
51	0.0450	0.0016	0.0011	N/A	0.0019		
52	0.0450	0.0017	0.0011	N/A	0.0020		
53	0.0500	0.0017	0.0012	N/A	0.0021		
54	0.0500	0.0018	0.0012	N/A	0.0023		
55	0.0600	0.0018	0.0012	N/A	0.0024		
56	0.0600	0.0019	0.0012	N/A	0.0026		
57	0.0800	0.0019	0.0013	N/A	0.0028		
58	0.1200	0.0020	0.0014	N/A	0.0030		
59	0.1200	0.0021	0.0014	N/A	0.0033		
60	0.1500	0.0022	0.0015	N/A	0.0036		
61	0.2000	0.0023	0.0015	N/A	0.0040		
62	0.3250	0.0024	0.0016	N/A	0.0044		
63	0.2500	0.0025	0.0017	N/A	0.0049		
64	0.2500	0.0026	0.0018	N/A	0.0054		
65	0.2500	0.0028	0.0018	N/A	0.0059		
66	0.3500	0.0029	0.0019	N/A	0.0065		
67	0.3500	0.0030	0.0020	N/A	0.0070		
68	0.3000	0.0031	0.0021	N/A	0.0076		
69	0.3000	0.0032	0.0022	N/A	0.0081		
70	1.0000	0.0000	0.0000	N/A	0.0000		

** 100% probability of retirement is assumed at ages 62 and above with 38 or more years of service.*

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Table A-7: Rate of Separation From Active Service
General Plans 1, 2 & 4 – Female

Age	Service Retirement*	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.0000	0.0003	0.0002	N/A	0.0002	0	0.1200
19	0.0000	0.0003	0.0002	N/A	0.0002	1	0.1000
20	0.0000	0.0003	0.0002	N/A	0.0002	2	0.0850
21	0.0000	0.0003	0.0002	N/A	0.0002	3	0.0750
22	0.0000	0.0003	0.0002	N/A	0.0002	4	0.0700
23	0.0000	0.0003	0.0002	N/A	0.0002	5	0.0633
24	0.0000	0.0003	0.0002	N/A	0.0002	6	0.0567
25	0.0000	0.0003	0.0002	N/A	0.0002	7	0.0500
26	0.0000	0.0003	0.0002	N/A	0.0002	8	0.0455
27	0.0000	0.0003	0.0002	N/A	0.0002	9	0.0410
28	0.0000	0.0003	0.0002	N/A	0.0002	10	0.0365
29	0.0000	0.0003	0.0002	N/A	0.0002	11	0.0320
30	0.0000	0.0004	0.0002	N/A	0.0002	12	0.0275
31	0.0000	0.0004	0.0002	N/A	0.0002	13	0.0270
32	0.0000	0.0004	0.0002	N/A	0.0002	14	0.0265
33	0.0000	0.0004	0.0003	N/A	0.0002	15	0.0260
34	0.0000	0.0004	0.0003	N/A	0.0003	16	0.0255
35	0.0000	0.0005	0.0003	N/A	0.0003	17	0.0250
36	0.0000	0.0005	0.0003	N/A	0.0004	18	0.0230
37	0.0000	0.0005	0.0004	N/A	0.0004	19	0.0210
38	0.0000	0.0006	0.0004	N/A	0.0004	20	0.0190
39	0.0000	0.0006	0.0004	N/A	0.0005	21	0.0170
40	0.0000	0.0007	0.0004	N/A	0.0005	22	0.0150
41	0.0000	0.0007	0.0004	N/A	0.0006	23	0.0140
42	0.0000	0.0007	0.0005	N/A	0.0006	24	0.0130
43	0.0000	0.0008	0.0005	N/A	0.0006	25	0.0120
44	0.0000	0.0008	0.0006	N/A	0.0007	26	0.0110
45	0.0000	0.0010	0.0006	N/A	0.0008	27	0.0100
46	0.0000	0.0010	0.0007	N/A	0.0009	28	0.0100
47	0.0000	0.0011	0.0007	N/A	0.0009	29	0.0100
48	0.0000	0.0013	0.0009	N/A	0.0010	30 & Above	0.0000
49	0.0000	0.0015	0.0010	N/A	0.0011		
50	0.0400	0.0017	0.0012	N/A	0.0012		
51	0.0400	0.0019	0.0013	N/A	0.0013		
52	0.0400	0.0022	0.0014	N/A	0.0014		
53	0.0400	0.0023	0.0015	N/A	0.0016		
54	0.0500	0.0023	0.0016	N/A	0.0017		
55	0.0600	0.0025	0.0016	N/A	0.0018		
56	0.0600	0.0025	0.0017	N/A	0.0020		
57	0.0800	0.0026	0.0018	N/A	0.0021		
58	0.1200	0.0027	0.0018	N/A	0.0023		
59	0.1200	0.0028	0.0018	N/A	0.0025		
60	0.1500	0.0029	0.0019	N/A	0.0028		
61	0.2000	0.0029	0.0020	N/A	0.0030		
62	0.3000	0.0030	0.0020	N/A	0.0033		
63	0.2500	0.0030	0.0020	N/A	0.0036		
64	0.2500	0.0030	0.0020	N/A	0.0039		
65	0.3000	0.0030	0.0020	N/A	0.0043		
66	0.4000	0.0030	0.0020	N/A	0.0047		
67	0.4000	0.0030	0.0020	N/A	0.0050		
68	0.3000	0.0030	0.0020	N/A	0.0054		
69	0.3000	0.0030	0.0020	N/A	0.0058		
70	1.0000	0.0000	0.0000	N/A	0.0000		

** 100% probability of retirement is assumed at ages 62 and above with 38 or more years of service.*

Table A-8: Rate of Separation From Active Service
General Plan 3 – Male

Age	Service Retirement	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.0000	N/A	N/A	N/A	0.0003	0	0.1300
19	0.0000	N/A	N/A	N/A	0.0003	1	0.1100
20	0.0000	N/A	N/A	N/A	0.0003	2	0.0900
21	0.0000	N/A	N/A	N/A	0.0003	3	0.0800
22	0.0000	N/A	N/A	N/A	0.0003	4	0.0700
23	0.0000	N/A	N/A	N/A	0.0003	5	0.0633
24	0.0000	N/A	N/A	N/A	0.0004	6	0.0567
25	0.0000	N/A	N/A	N/A	0.0004	7	0.0500
26	0.0000	N/A	N/A	N/A	0.0004	8	0.0470
27	0.0000	N/A	N/A	N/A	0.0004	9	0.0440
28	0.0000	N/A	N/A	N/A	0.0004	10	0.0410
29	0.0000	N/A	N/A	N/A	0.0004	11	0.0380
30	0.0000	N/A	N/A	N/A	0.0004	12	0.0350
31	0.0000	N/A	N/A	N/A	0.0004	13	0.0330
32	0.0000	N/A	N/A	N/A	0.0004	14	0.0310
33	0.0000	N/A	N/A	N/A	0.0004	15	0.0290
34	0.0000	N/A	N/A	N/A	0.0005	16	0.0270
35	0.0000	N/A	N/A	N/A	0.0006	17	0.0250
36	0.0000	N/A	N/A	N/A	0.0006	18	0.0230
37	0.0000	N/A	N/A	N/A	0.0007	19	0.0210
38	0.0000	N/A	N/A	N/A	0.0008	20	0.0190
39	0.0000	N/A	N/A	N/A	0.0008	21	0.0170
40	0.0000	N/A	N/A	N/A	0.0009	22	0.0150
41	0.0000	N/A	N/A	N/A	0.0010	23	0.0140
42	0.0000	N/A	N/A	N/A	0.0010	24	0.0130
43	0.0000	N/A	N/A	N/A	0.0011	25	0.0120
44	0.0000	N/A	N/A	N/A	0.0011	26	0.0110
45	0.0000	N/A	N/A	N/A	0.0012	27	0.0100
46	0.0000	N/A	N/A	N/A	0.0013	28	0.0100
47	0.0000	N/A	N/A	N/A	0.0014	29	0.0100
48	0.0000	N/A	N/A	N/A	0.0015	30 & Above	0.0100
49	0.0000	N/A	N/A	N/A	0.0016		
50	0.0000	N/A	N/A	N/A	0.0017		
51	0.0000	N/A	N/A	N/A	0.0019		
52	0.0000	N/A	N/A	N/A	0.0020		
53	0.0000	N/A	N/A	N/A	0.0021		
54	0.0000	N/A	N/A	N/A	0.0023		
55	0.0300	N/A	N/A	N/A	0.0024		
56	0.0300	N/A	N/A	N/A	0.0026		
57	0.0300	N/A	N/A	N/A	0.0028		
58	0.0300	N/A	N/A	N/A	0.0030		
59	0.0300	N/A	N/A	N/A	0.0033		
60	0.0300	N/A	N/A	N/A	0.0036		
61	0.0600	N/A	N/A	N/A	0.0040		
62	0.1500	N/A	N/A	N/A	0.0044		
63	0.1000	N/A	N/A	N/A	0.0049		
64	0.1500	N/A	N/A	N/A	0.0054		
65	0.3000	N/A	N/A	N/A	0.0059		
66	0.3000	N/A	N/A	N/A	0.0065		
67	0.3000	N/A	N/A	N/A	0.0070		
68	0.3000	N/A	N/A	N/A	0.0076		
69	0.3000	N/A	N/A	N/A	0.0081		
70	1.0000	N/A	N/A	N/A	0.0000		

Table A-9: Rate of Separation From Active Service
General Plan 3 – Female

Age	Service Retirement	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.0000	N/A	N/A	N/A	0.0002	0	0.1200
19	0.0000	N/A	N/A	N/A	0.0002	1	0.1000
20	0.0000	N/A	N/A	N/A	0.0002	2	0.0850
21	0.0000	N/A	N/A	N/A	0.0002	3	0.0750
22	0.0000	N/A	N/A	N/A	0.0002	4	0.0700
23	0.0000	N/A	N/A	N/A	0.0002	5	0.0633
24	0.0000	N/A	N/A	N/A	0.0002	6	0.0567
25	0.0000	N/A	N/A	N/A	0.0002	7	0.0500
26	0.0000	N/A	N/A	N/A	0.0002	8	0.0455
27	0.0000	N/A	N/A	N/A	0.0002	9	0.0410
28	0.0000	N/A	N/A	N/A	0.0002	10	0.0365
29	0.0000	N/A	N/A	N/A	0.0002	11	0.0320
30	0.0000	N/A	N/A	N/A	0.0002	12	0.0275
31	0.0000	N/A	N/A	N/A	0.0002	13	0.0270
32	0.0000	N/A	N/A	N/A	0.0002	14	0.0265
33	0.0000	N/A	N/A	N/A	0.0002	15	0.0260
34	0.0000	N/A	N/A	N/A	0.0003	16	0.0255
35	0.0000	N/A	N/A	N/A	0.0003	17	0.0250
36	0.0000	N/A	N/A	N/A	0.0004	18	0.0230
37	0.0000	N/A	N/A	N/A	0.0004	19	0.0210
38	0.0000	N/A	N/A	N/A	0.0004	20	0.0190
39	0.0000	N/A	N/A	N/A	0.0005	21	0.0170
40	0.0000	N/A	N/A	N/A	0.0005	22	0.0150
41	0.0000	N/A	N/A	N/A	0.0006	23	0.0140
42	0.0000	N/A	N/A	N/A	0.0006	24	0.0130
43	0.0000	N/A	N/A	N/A	0.0006	25	0.0120
44	0.0000	N/A	N/A	N/A	0.0007	26	0.0110
45	0.0000	N/A	N/A	N/A	0.0008	27	0.0100
46	0.0000	N/A	N/A	N/A	0.0009	28	0.0100
47	0.0000	N/A	N/A	N/A	0.0009	29	0.0100
48	0.0000	N/A	N/A	N/A	0.0010	30 & Above	0.0100
49	0.0000	N/A	N/A	N/A	0.0011		
50	0.0000	N/A	N/A	N/A	0.0012		
51	0.0000	N/A	N/A	N/A	0.0013		
52	0.0000	N/A	N/A	N/A	0.0014		
53	0.0000	N/A	N/A	N/A	0.0016		
54	0.0000	N/A	N/A	N/A	0.0017		
55	0.0400	N/A	N/A	N/A	0.0018		
56	0.0400	N/A	N/A	N/A	0.0020		
57	0.0400	N/A	N/A	N/A	0.0021		
58	0.0400	N/A	N/A	N/A	0.0023		
59	0.0400	N/A	N/A	N/A	0.0025		
60	0.0400	N/A	N/A	N/A	0.0028		
61	0.0600	N/A	N/A	N/A	0.0030		
62	0.1500	N/A	N/A	N/A	0.0033		
63	0.1000	N/A	N/A	N/A	0.0036		
64	0.1500	N/A	N/A	N/A	0.0039		
65	0.3000	N/A	N/A	N/A	0.0043		
66	0.3000	N/A	N/A	N/A	0.0047		
67	0.3000	N/A	N/A	N/A	0.0050		
68	0.3000	N/A	N/A	N/A	0.0054		
69	0.3000	N/A	N/A	N/A	0.0058		
70	1.0000	N/A	N/A	N/A	0.0000		

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Table A-10: Rate of Separation From Active Service
Safety & Probation Plans – Male

Age	Service Retirement*	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.0000	0.0015	0.0000	0.0010	0.0003	0	0.0700
19	0.0000	0.0015	0.0000	0.0010	0.0003	1	0.0650
20	0.0000	0.0015	0.0000	0.0010	0.0003	2	0.0450
21	0.0000	0.0015	0.0000	0.0010	0.0003	3	0.0300
22	0.0000	0.0015	0.0000	0.0010	0.0003	4	0.0250
23	0.0000	0.0015	0.0000	0.0010	0.0003	5	0.0233
24	0.0000	0.0015	0.0000	0.0010	0.0004	6	0.0217
25	0.0000	0.0015	0.0000	0.0010	0.0004	7	0.0200
26	0.0000	0.0015	0.0000	0.0010	0.0004	8	0.0185
27	0.0000	0.0015	0.0000	0.0010	0.0004	9	0.0170
28	0.0000	0.0016	0.0000	0.0010	0.0004	10	0.0155
29	0.0000	0.0017	0.0000	0.0010	0.0004	11	0.0140
30	0.0000	0.0018	0.0000	0.0010	0.0004	12	0.0125
31	0.0000	0.0019	0.0000	0.0010	0.0004	13	0.0120
32	0.0000	0.0020	0.0000	0.0010	0.0004	14	0.0115
33	0.0000	0.0021	0.0000	0.0010	0.0004	15	0.0110
34	0.0000	0.0022	0.0000	0.0010	0.0005	16	0.0105
35	0.0000	0.0023	0.0000	0.0010	0.0006	17	0.0100
36	0.0000	0.0024	0.0000	0.0010	0.0006	18	0.0080
37	0.0000	0.0025	0.0000	0.0010	0.0007	19	0.0060
38	0.0000	0.0026	0.0000	0.0010	0.0008	20 & Above	0.0000
39	0.0000	0.0027	0.0000	0.0010	0.0008		
40	0.0000	0.0028	0.0000	0.0010	0.0009		
41	0.0000	0.0029	0.0000	0.0010	0.0010		
42	0.0000	0.0030	0.0000	0.0010	0.0010		
43	0.0000	0.0031	0.0000	0.0010	0.0011		
44	0.0000	0.0032	0.0000	0.0010	0.0011		
45	0.0000	0.0033	0.0000	0.0010	0.0012		
46	0.0000	0.0034	0.0000	0.0010	0.0013		
47	0.0000	0.0035	0.0000	0.0010	0.0014		
48	0.0000	0.0038	0.0000	0.0010	0.0015		
49	0.0000	0.0041	0.0000	0.0010	0.0016		
50	0.1500	0.0044	0.0000	0.0010	0.0017		
51	0.1500	0.0047	0.0000	0.0010	0.0019		
52	0.1500	0.0050	0.0000	0.0010	0.0020		
53	0.2000	0.0064	0.0000	0.0010	0.0021		
54	0.1300	0.0078	0.0000	0.0010	0.0023		
55	0.3000	0.0092	0.0000	0.0010	0.0024		
56	0.2500	0.0106	0.0000	0.0010	0.0026		
57	0.2000	0.0120	0.0000	0.0010	0.0028		
58	0.2500	0.0108	0.0000	0.0010	0.0030		
59	0.2500	0.0096	0.0000	0.0010	0.0033		
60	1.0000	0.0000	0.0000	0.0010	0.0000		

** 100% probability of retirement is assumed at ages 50 and above with 33 or more years of service.*

San Mateo County Employees' Retirement Association
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Table A-11: Rate of Separation From Active Service
Safety & Probation Plans – Female

Age	Service Retirement*	Service Disability	Ordinary Disability	Service Death	Ordinary Death
18	0.0000	0.0015	0.0000	0.0010	0.0002
19	0.0000	0.0015	0.0000	0.0010	0.0002
20	0.0000	0.0015	0.0000	0.0010	0.0002
21	0.0000	0.0015	0.0000	0.0010	0.0002
22	0.0000	0.0015	0.0000	0.0010	0.0002
23	0.0000	0.0015	0.0000	0.0010	0.0002
24	0.0000	0.0015	0.0000	0.0010	0.0002
25	0.0000	0.0015	0.0000	0.0010	0.0002
26	0.0000	0.0015	0.0000	0.0010	0.0002
27	0.0000	0.0015	0.0000	0.0010	0.0002
28	0.0000	0.0016	0.0000	0.0010	0.0002
29	0.0000	0.0017	0.0000	0.0010	0.0002
30	0.0000	0.0018	0.0000	0.0010	0.0002
31	0.0000	0.0019	0.0000	0.0010	0.0002
32	0.0000	0.0020	0.0000	0.0010	0.0002
33	0.0000	0.0021	0.0000	0.0010	0.0002
34	0.0000	0.0022	0.0000	0.0010	0.0003
35	0.0000	0.0023	0.0000	0.0010	0.0003
36	0.0000	0.0024	0.0000	0.0010	0.0004
37	0.0000	0.0025	0.0000	0.0010	0.0004
38	0.0000	0.0026	0.0000	0.0010	0.0004
39	0.0000	0.0027	0.0000	0.0010	0.0005
40	0.0000	0.0028	0.0000	0.0010	0.0005
41	0.0000	0.0029	0.0000	0.0010	0.0006
42	0.0000	0.0030	0.0000	0.0010	0.0006
43	0.0000	0.0031	0.0000	0.0010	0.0006
44	0.0000	0.0032	0.0000	0.0010	0.0007
45	0.0000	0.0033	0.0000	0.0010	0.0008
46	0.0000	0.0034	0.0000	0.0010	0.0009
47	0.0000	0.0035	0.0000	0.0010	0.0009
48	0.0000	0.0038	0.0000	0.0010	0.0010
49	0.0000	0.0041	0.0000	0.0010	0.0011
50	0.1500	0.0044	0.0000	0.0010	0.0012
51	0.1500	0.0047	0.0000	0.0010	0.0013
52	0.1500	0.0050	0.0000	0.0010	0.0014
53	0.2000	0.0064	0.0000	0.0010	0.0016
54	0.1300	0.0078	0.0000	0.0010	0.0017
55	0.3000	0.0092	0.0000	0.0010	0.0018
56	0.2500	0.0106	0.0000	0.0010	0.0020
57	0.2000	0.0120	0.0000	0.0010	0.0021
58	0.2500	0.0108	0.0000	0.0010	0.0023
59	0.2500	0.0096	0.0000	0.0010	0.0025
60	1.0000	0.0000	0.0000	0.0010	0.0000

Years of Service	Other Terminations
0	0.0700
1	0.0650
2	0.0450
3	0.0300
4	0.0250
5	0.0233
6	0.0217
7	0.0200
8	0.0185
9	0.0170
10	0.0155
11	0.0140
12	0.0125
13	0.0120
14	0.0115
15	0.0110
16	0.0105
17	0.0100
18	0.0080
19	0.0060
20 & Above	0.0000

** 100% probability of retirement is assumed at ages 50 and above with 33 or more years of service.*