# San Mateo County Employees' Retirement Association

# INVESTIGATION OF EXPERIENCE
# July 1, 2005 – April 30, 2008

**August 18, 2008**


By

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August 18, 2008

Board of Retirement
San Mateo County Employees' Retirement Association
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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, 2005 through April 30, 2008. 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, 2008.

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, 2007 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.

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 which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions, and supporting Recommendations of the American Academy of Actuaries.

We further certify that the assumptions developed in this report satisfy ASB Standards of Practice, in particular, No. 27 (Selection of Economic Assumptions for Measuring Pension Obligations) and No. 35 (Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations).

Milliman has been engaged by SamCERA as an independent actuary. Any distribution of this report must be in its entirety, including this cover letter, unless prior written consent is obtained from Milliman. Milliman's work product was prepared exclusively for SamCERA for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning SamCERA's operations, and uses SamCERA's data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

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, Karen Steffen, am a member of the American Academy of Actuaries and a Fellow of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

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,

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KIS/NJC/nlo

# SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
# INVESTIGATION OF EXPERIENCE (2005-2008)

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## 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 these 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 for the period July 1, 2005 through April 30, 2008. We are recommending several changes to the demographic assumptions. For the economic assumptions, we are recommending they remain the same. We will refer to our recommended assumptions as the "proposed" assumptions.

Note that in addition to these 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.

We discussed both sets of economic assumptions with the Board at the May 27, 2008 meeting. Based on this discussion, the Board elected to retain the current set of economic assumptions.

Our two key recommended changes are:

- **Mortality**: Adopt revised mortality assumptions that reflect increased life expectancies.
- **Funding**: Revise method used to amortize the Unfunded Actuarial Accrued Liability (UAAL). The current method amortizes the UAAL and all future gains and losses over a closed period (15 years as of June 30, 2007). The proposed method would amortize the current UAAL over a closed 15-year period, with future gains and losses amortized over new 15-year periods ("layers").

These two recommendations are discussed in further detail later in this section.

**Summary (continued)**

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

| Assumption | Recommendation |
|---|---|
| Inflation | No Change |
| Investment Return | No Change |
| Wage Growth | No Change |
| Funding Method | Use layered amortization |
| Merit Salary Scale | No Change |
| Death while Active | Reduce rates |
| Retirement | Reduce rates for safety and probation members |
| Disability | Reduce rates |
| Termination | Increase rates for short service general members; reduce rates for long service general members |
| Probability of Refund | Reduce rates for general members |
| Mortality | Reduce rates (increase life expectancies) |
| Prob. Elig. Survivor | No Change |
| Reciprocity | No Change |

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 recommended that the Board retain the current economic assumptions. As mentioned earlier, the Board has previously adopted this recommendation.

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**

Section 3 discusses the actuarial methods used in the valuation. We are recommending a change to how the UAAL is amortized. We believe the proposed method would still provide for steady progress toward a funded ratio of 100% (i.e., assets equal to accrued liabilities), but would not have as much contribution rate volatility as the current method.

Under both methods the current UAAL is amortized over a closed period. That is the contribution rate is set such that the UAAL will be paid off over a declining fixed period, currently 15 years.

The difference is in the treatment of future gains and losses (changes in the assets or liabilities that are different than the assumptions predict). Under the current method, the amortization period for gains and losses continues to decline; under the proposed method, the amortization period for gains and losses is set each year at 15 years and then declines. This creates layers of UAAL contributions.

The reason we are recommending this change is that under the current method the amortization period will continue to decline, which could create significant contribution volatility. For example, if in 10 years there were a large investment loss, this would have to be amortized over the remaining period of five years. This short amortization period would cause a significant increase in the contribution rate; whereas, this volatility would be somewhat mitigated under the 15-year period used in the proposed method.

There is one other change that we are recommending for the actuarial methods. If the recommended new mortality assumption is adopted, a corresponding change to the member contribution rates should be made. The impact of this is discussed later in this section.

**Demographic Assumptions**

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

Based on this study, the actual demographic experience was generally close to what the assumptions predicted. Accordingly, in cases where we have recommended changes, the changes have been small. The most significant change that we have recommended is strengthening the mortality assumption (i.e., increased life expectancies). Although the change appears 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 120%, it indicates that there were 20% more service retirements than expected, and that we should consider increasing the assumption. By increasing the expected rates, this results in a lower ratio, in this case closer to 100%.

- Due to scheduling considerations, the data provided to us by SamCERA was as of April 30, 2008. This was necessary to complete both the experience investigation and the valuation in time for inclusion in the 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 salary study show increases in line with what the current rates predicted. We are not recommending any changes to this assumption.

**Mortality**

The retired mortality assumption is used to predict the life expectancy of both members currently in pay status and those expected to receive a benefit in the future.

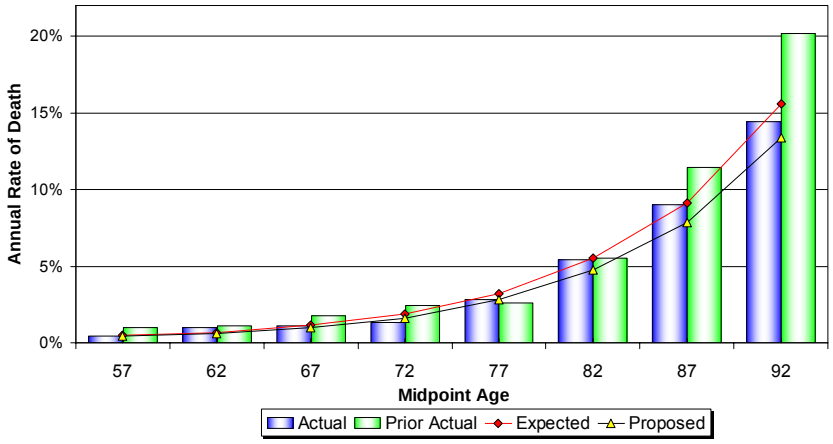
Overall, the actual number of deaths for the current group of retirees (both service and disabled) was very close to the assumptions. This is indicated by an actual-to-expected (A/E) ratio of 97%. That is, there were 3% fewer deaths than the current assumptions would have predicted. Since fewer deaths are occurring, this means that people are living longer.

**Mortality (continued)**

For most assumptions, an A/E of 97% would lead us to recommend no change; however, we believe that some additional margin should be built in to account for the trend of increasing life expectancies.

In SamCERA's case, the results of this study show that retirees appear to be living longer, as compared to the results of the prior study done in 2005. Although this may be partly due to statistical fluctuation, this result in generally consistent with what we have found in other large plans.

We are recommending a reduction in the mortality rates for service retirees, disabilities and beneficiaries to reflect that people are living longer. 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 decrease in the mortality rates since the prior study.




Under the current assumptions, the Actual-to-Expected (A/E) ratio is 97% for all service and disability retirees combined, indicating that there were slightly fewer deaths than predicted. Under the revised assumptions, the A/E ratio is 110%, providing some margin for future improvements in mortality. Further analysis is shown in Section 5 of this report.

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 close to what the assumptions predicted for General members, and less than the assumptions predicted for 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 | 354 | 351 | 101% | 351 | 101% |
| Safety | 29 | 92 | 32% | 68 | 43% |
| Total | 383 | 443 | 86% | 419 | 91% |

We are recommending decreased rates of retirement for Safety members, and no change to the rates of retirement for General members. Further analysis is shown in Section 6 of this report.

**Disability Retirement**

Overall, the actual number of disability retirements was lower than the assumptions predicted for all categories. The following chart shows the results for General and Safety disability retirements.

| Disability Retirements | | | | | |
|---|---|---|---|---|---|
| **Class** | **Actual** | **Expected** | **Act / Exp** | **Proposed** | **Act / Prop** |
| General | 30 | 63 | 48% | 41 | 73% |
| Safety | 11 | 18 | 61% | 13 | 82% |
| Total | 41 | 81 | 51% | 54 | 76% |

As indicated by the decreased number of expected disabilities under the proposed rates (54 proposed versus 81 expected under the current assumptions), we are recommending lower rates of disability retirement in all categories. Further analysis is shown in Section 7 of this report.

**Termination**

The actual number of terminations for General members was slightly higher than the assumptions predicted, and the actual number of terminations for Safety members was close to what the assumptions predicted. The following chart shows the results for the two groups.

| Termination | | | | | |
|---|---|---|---|---|---|
| **Class** | **Actual** | **Expected** | **Act / Exp** | **Proposed** | **Act / Prop** |
| General | 915 | 815 | 112% | 828 | 111% |
| Safety | 59 | 55 | 107% | 55 | 107% |
| Total | 974 | 870 | 112% | 883 | 110% |

We are recommending slightly higher rates of termination for General members early in their careers and slightly lower rates later in their careers. We are not recommending any changes to the rates of termination for Safety members. 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 less than the assumptions predicted for General members, and was in line with the assumptions for Safety members.

| Probability of Refund | | | | | |
|---|---|---|---|---|---|
| **Class** | **Actual** | **Expected** | **Act / Exp** | **Proposed** | **Act / Prop** |
| General | 90 | 128 | 70% | 114 | 79% |
| Safety | 9 | 11 | 82% | 11 | 82% |
| Total | 99 | 139 | 71% | 125 | 79% |

We are recommending lowering the rates of refund for General members and no change for Safety 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, 2007 valuation data and reflecting the proposed assumption changes. The actual financial impact will vary somewhat for the June 30, 2008 valuation due to year-to-year changes in the member population. All proposed demographic changes were grouped together into the total "Active Decrement Rate Changes" category below for cost analysis purposes.

| | **County Contribution Rate** | **Funded Ratio** |
|---|---|---|
| **June 30, 2007 Actuarial Valuation** | **23.76%** | **77.4%** |
| Active Decrement Rate Changes | -0.35% | 0.0% |
| Retired Mortality Change | 1.69% | -1.9% |
| Total Change | 1.34% | -1.9% |
| **June 30, 2007 Valuation with Changes** | **25.10%** | **75.5%** |

Note that if the proposed funding method change is adopted for the June 30, 2008 valuation, and the UAAL as of that date is funded over 15 years, this will result in a decrease in the County contribution rate. This is because the amortization method under the current method will decline to 14 years as of June 30, 2008. Thus, using a 15-year period would result in smaller contribution rate by about 0.70%. This would bring the estimated total increase to 0.64% (1.34% shown in the chart above less the 0.70% for the funding method change).

**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:

| Member Rates at Entry Age 35 | | | |
|---|---|---|---|
| | **Current** | **Proposed** | **Increase** |
| ***General Members - County*** | | | |
| **Plans 1 & 2** | 10.15% | 10.22% | 0.07% |
| **Plan 4** | 9.85% | 9.91% | 0.06% |
| ***Probation Members (Reflects Employer Pick-up)*** | | | |
| **Plans 1 & 2** | 11.27% | 11.33% | 0.06% |
| **Plan 4** | 10.93% | 10.99% | 0.06% |
| ***Safety Members (Excluding Cost Sharing)*** | | | |
| **Plans 1 & 2** | 14.71% | 14.78% | 0.07% |
| **Plan 4** | 14.29% | 14.37% | 0.08% |

**Revised Assumptions and Methods**

Appendix A illustrates the Summary of Actuarial Assumptions as it will appear in the June 30, 2008 valuation report, if all recommended assumptions and methods are adopted. Proposed changes in assumptions are highlighted in yellow.

## Section 2: Economic Assumptions

**The proposed economic assumptions shown in this section (pages 9-23) were previously reviewed by the Board and adopted at the May 27, 2008 meeting.**

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 expected 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.

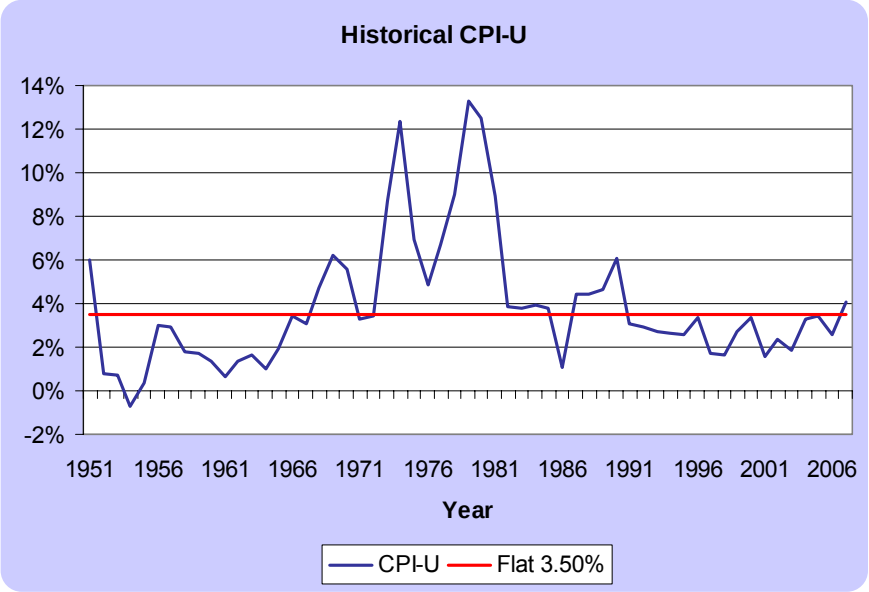
There are numerous ways to review historical data, with significantly differing results. The tables below show the compounded annual inflation rate for various 10-year periods, and for longer periods ended in December 2007.

| Decade | CPI Increase |
|---|---|
| 1998-2007 | 2.7% |
| 1988-1997 | 3.4% |
| 1978-1987 | 6.4% |
| 1968-1977 | 6.2% |
| 1958-1967 | 1.8% |
| **Prior 75 Years** | |
| 1933-2007 | 3.8% |

These are national statistics. For comparison, the average CPI increase for the Bay Area has been 3.9% for the same 75-year period.

**Historical Perspective (Continued)**

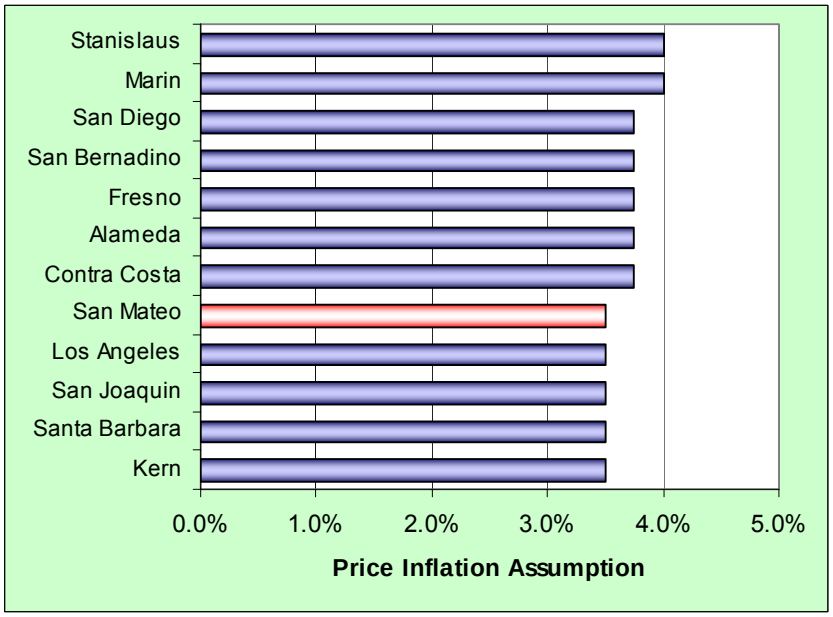
The following graph shows historical national CPI increases. Note that the actual CPI increase has been less than 3.50% during the most recent 15 years.




**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 average rate is approximately 3.50%

Looking at other selected '37 Act systems, the current inflation assumption is on the low side of 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 March 2008 suggest investors expect inflation to be about 2.6% over the next ten 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 (ten 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 2008 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% - 4.00% |
| 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 | | | |

## 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 longer periods ended in 2007. 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).

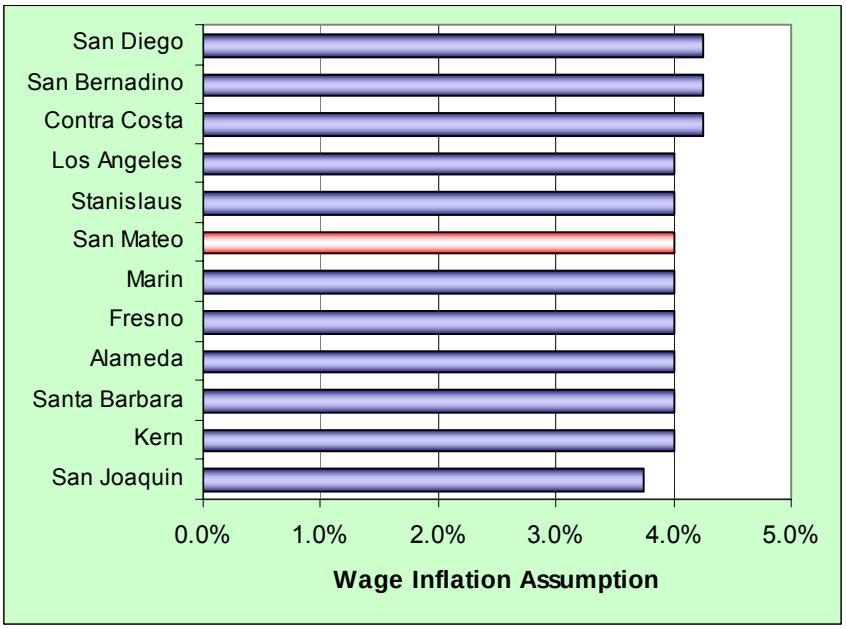
| Decade | Wage Growth | CPI Increase | Real Wage Inflation |
|---|---|---|---|
| 1998-2007 | 3.9% | 2.7% | 1.2% |
| 1988-1997 | 4.1% | 3.4% | 0.7% |
| 1978-1987 | 6.5% | 6.4% | 0.1% |
| 1968-1977 | 6.5% | 6.2% | 0.3% |
| 1958-1967 | 3.7% | 1.8% | 1.9% |
| **Prior 75 Years** | | | |
| 1933-2007 | 5.5% | 3.8% | 1.7% |

The excess of wage growth over price inflation represents the increase in the standard of living, also called the real wage inflation rate.

**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 slightly greater than 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 2007 Trustees Report, the long-term annual increase in the National Average Wage is estimated to be 1.1% higher than the Social Security intermediate inflation assumption of 2.8% per year. The range of the assumed real wage growth in the 2008 Trustees Report was from 0.6% to 1.6% per year.

**Reasonable Range and Recommendation**

We believe that a range between 0.50% and 1.50% is reasonable for the actuarial valuation. There has been a spike in the real wage inflation rate over the last ten years; however, in each of the three prior decades, the actual experience was right about 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 | 0.50% - 1.50% |
| 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 is assumed).

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 Milliman's assumptions for capital markets 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 |
|---|---|
| US Large Cap Equity | 37% |
| US Small Cap Equity | 9 |
| International Equity | 21 |
| US Core Fixed Income | 27 |
| Real Estate | 6 |
| Cash | 0 |
| 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 25th and 75th 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**
(before reflecting administrative and investment expenses)

| Horizon | Percentile Results for Nominal Rate of Return | | | | |
|---|---|---|---|---|---|
| In Years | 5th | 25th | 50th | 75th | 95th |
| 1 | -10.1% | 0.2% | 8.1% | 16.6% | 30.0% |
| 5 | -0.5% | 4.5% | 8.1% | 11.8% | 17.4% |
| 10 | 2.0% | 5.5% | 8.1% | 10.7% | 14.6% |
| 20 | 3.7% | 6.3% | 8.1% | 9.9% | 12.7% |
| **50** | **5.3%** | **6.9%** | **8.1%** | **9.3%** | **11.0%** |

The geometric mean return is 8.1%, 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 -10.1% and a 5% chance it will be greater than 30.0%. As the time horizon lengthens the range of the cumulative average results narrows. Note that these are gross returns, prior to adjusting for investment expenses.

Over a 50-year time horizon, we estimate there is a 25% chance the nominal rate of return will be less than 6.9% and a 25% chance the return will be greater than 9.3% (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 6.9% to 9.3% as not.

We also used the model with the preliminary (unpublished) capital market assumptions from SIS and the 3.50% inflation assumption. This produced a median return of 8.4% compared to our result of 8.1%. The difference in these results is that SIS is projecting higher returns for equities and fixed income than Milliman.

**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.

| ($million) Year | Market Assets | Inv. Expense | Adm. Expense | Expense Ratio |
|---|---|---|---|---|
| 2000 | $1,308 | $6.57 | $1.22 | 0.50% |
| 2001 | 1,381 | 3.16 | 1.49 | 0.23 |
| 2002 | 1,207 | 3.69 | 1.51 | 0.31 |
| 2003 | 1,233 | 3.57 | 1.89 | 0.29 |
| 2004 | 1,435 | 4.16 | 1.91 | 0.29 |
| 2005 | 1,599 | 7.28 | 2.23 | 0.46 |
| 2006 | 1,790 | 8.52 | 2.09 | 0.48 |
| 2007 | 2,132 | 10.68 | 2.58 | 0.50 |

The ratio of expenses to market assets has increased over the last several years to about 0.50%. 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 8.25% 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 reasonable range is the expected real rates of return between the 25th and 75th percentile projected out 50 years, plus the assumed inflation rate, less investment-related expenses.

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

| | Percentile Results | | |
|---|---|---|---|
| **Components of Return** | **25th** | **50th** | **75th** |
| Real Rate of Return | 3.4% | 4.6% | 5.8% |
| Assumed Inflation | 3.5% | 3.5% | 3.5% |
| Total Expenses | -0.5% | -0.5% | -0.5% |
| **Net Investment Return** | **6.4%** | **7.6%** | **8.8%** |

Based upon this model, there is a 46% chance that the net return will be 7.75% or more over a 50-year period. In other words, a net return of 7.75% is at the 54th percentile for a 50-year investment horizon.

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 7.6% is slightly less than the assumed investment return of 7.75%, there is currently no buffer.

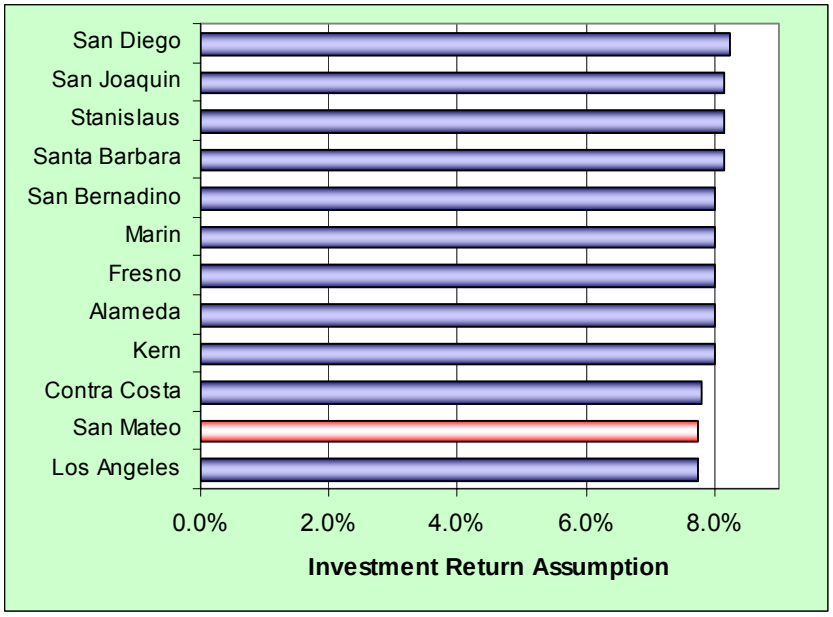
It should be noted that this analysis is based on a 3.50% inflation assumption. As discussed earlier, there is some argument for using a lower inflation assumption. If the inflation assumption were lowered to 3.25% (alternative assumption), the expected net investment return would be 7.35%, making the 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 is on the low side, although the return assumptions are bunched tightly around 8.0%, so the difference is relatively small.




**Excess Earnings**

Section 31592.2 of the 1937 Act provides the Retirement Board with the authority to set aside earnings of the retirement fund during any year in excess of the total interest credited to contributions when such 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 the same 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 was 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.

**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.

In 2005 the Board adopted a change in the economic assumptions from an 8.00% investment return rate assumption with a 4.00% price inflation assumption to the current assumptions. The prior assumptions assumed a 4.00% net rate of return (investment return minus inflation) on the portfolio. Although the current assumptions have a more conservative (i.e., lower) investment return assumption, the net rate of return assumed is slightly higher at 4.25% (7.75% - 3.50%).

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%.

**Conclusion (continued)**

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* | 6.8% - 9.0% |
| 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

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

### Valuation Methods

- **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 declining period to amortize the current UAAL and any future changes in the UAAL different from what the assumptions predicted. This approach can result in significant contribution rate volatility. We are recommending using a layered approach as discussed in Section 1 (Actuarial Methods) to mitigate this volatility.

- **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.

- **Contribution Rate for San Mateo County Mosquito and Vector Control District:** We believe that the current method which charges the District a smaller contribution than the County based on the relative values of the benefits earned (Normal Cost) is appropriate for SamCERA's valuation. The current proportion is 82%. 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.

- **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. The valuation assumes that 40% of future terminated vested members retire with a reciprocal employer. We reviewed this assumption and are recommending no change.

- **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 | 76% | 80% | 95% |
| Female | 53% | 55% | 96% |

## 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, 2007 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 | | | | |
|---|---|---|---|---|
| | **Age** | **Current** | **Proposed** | **Increase** |
| ***General Members - County*** | | | | |
| **Plans 1 & 2** | 35 | 10.15% | 10.22% | 0.07% |
| **Plan 4** | 35 | 9.85% | 9.91% | 0.06% |
| ***Probation Members (Reflects Employer Pick-up)*** | | | | |
| **Plans 1 & 2** | 35 | 11.27% | 11.33% | 0.06% |
| **Plan 4** | 35 | 10.93% | 10.99% | 0.06% |
| ***Safety Members - Other than Deputy Sheriff**** | | | | |
| **Plans 1 & 2** | 35 | 14.71% | 14.78% | 0.07% |
| **Plan 4** | 35 | 14.29% | 14.37% | 0.08% |

** 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 3-1 shows the actual merit increases, plus the general wage growth assumption, over the period July 1, 2005 – June 30, 2008. 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 in line with the predictions made by the current assumptions.

Note that this period is slightly longer than the period over which all other assumptions were studied. Since the salary increase assumption was studied last, data as of June 30, 2008 was available for this purpose. We felt that studying salary increases for a full final year, rather than using the April 30, 2008 data referenced elsewhere in this report, would result in a more accurate analysis of salary increase patterns over the study period.

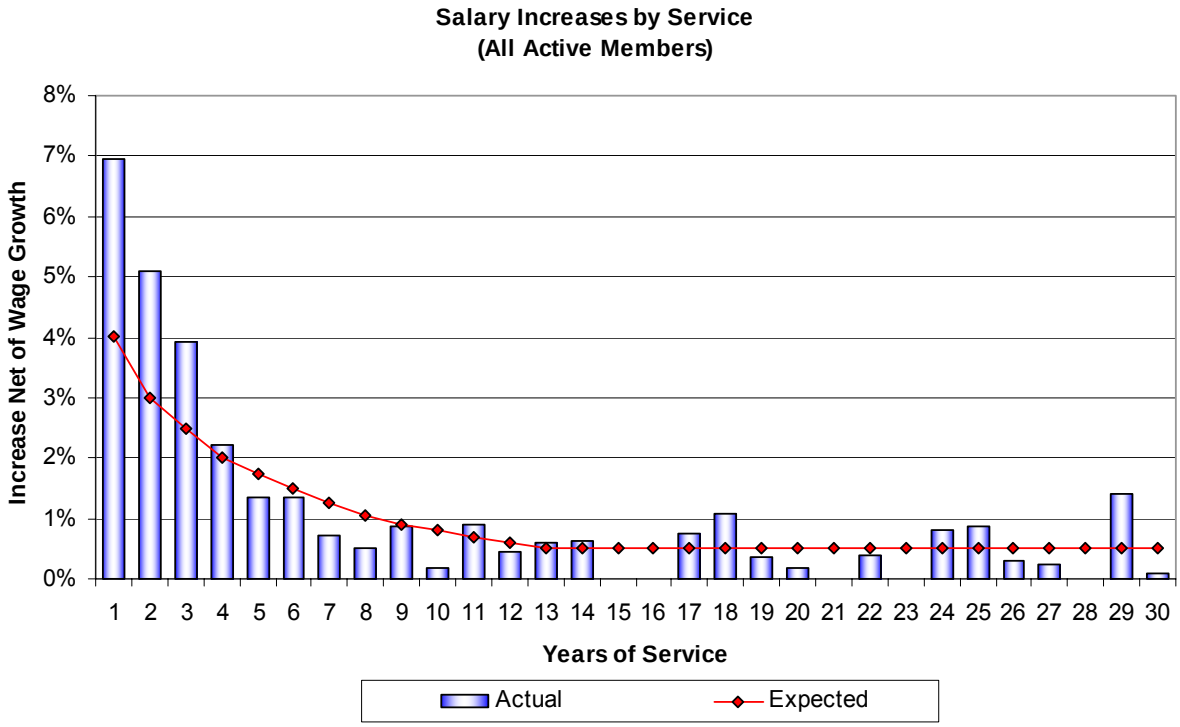
### Recommendation

We are not recommending a change in the assumptions.

# SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
# INVESTIGATION OF EXPERIENCE (2005-2008)

## Exhibit 4-1

## Total Annual Rates of Increase in Salary
## Due to Merit and Longevity
(Excluding the General Wage Growth Assumption)



## Section 5: Mortality

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.

### Results

Overall, we found there were slightly fewer deaths than the current rates predicted: 254 actual to 263 expected for a total ratio of 97%. We generally like to see some margin for future improvements in mortality (i.e., actual number greater than expected by about 10% or so). We are recommending strengthening the mortality assumption (i.e., increasing life expectancies).

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***

| Group | Deaths Actual | Deaths Expected | Deaths Proposed | Actual to Expected | Actual to Proposed |
|---|---|---|---|---|---|
| General Male | 90 | 79 | 71 | 114% | 127% |
| General Female | 133 | 138 | 124 | 96% | 107% |
| Safety Male | 10 | 11 | 10 | 91% | 100% |
| Safety Female | 1 | 1 | 1 | 100% | 100% |
| **Total Svc Ret** | **234** | **229** | **206** | **102%** | **114%** |

***Disability Retirement***

| Group | Deaths Actual | Deaths Expected | Deaths Proposed | Actual to Expected | Actual to Proposed |
|---|---|---|---|---|---|
| General Male | 5 | 10 | 7 | 50% | 71% |
| General Female | 12 | 19 | 12 | 63% | 100% |
| Safety Male | 3 | 4 | 4 | 75% | 75% |
| Safety Female | - | 1 | 1 | 0% | 0% |
| **Total Dis Ret** | **20** | **34** | **24** | **59%** | **83%** |
| **Grand Total** | **254** | **263** | **230** | **97%** | **110%** |

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.

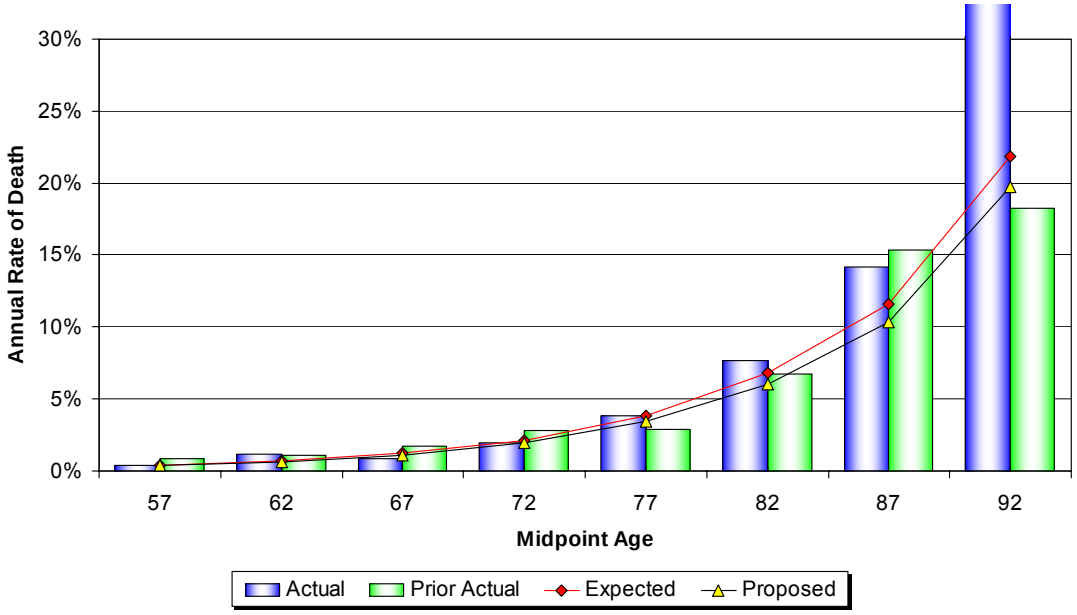
**Recommendation**

We are recommending strengthening the mortality assumption (i.e., increasing life expectancies). Note that this brings the A/E ratio to 110%, 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.

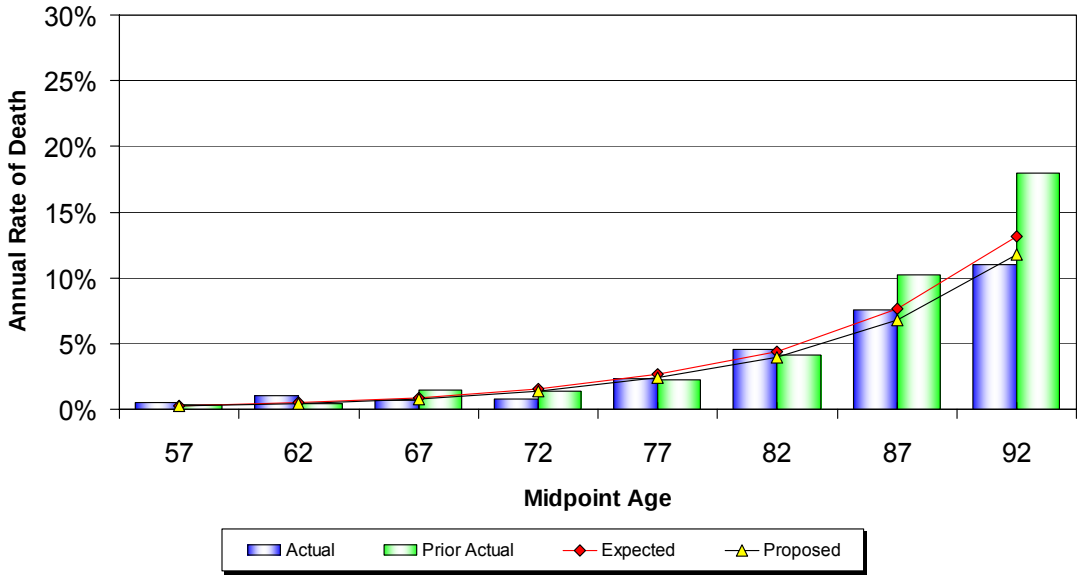
For active mortality (the probability of death while actively employed), we are recommending using a standard mortality table for active employees, with adjustments similar to those made to the mortality for SamCERA's retired members.

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

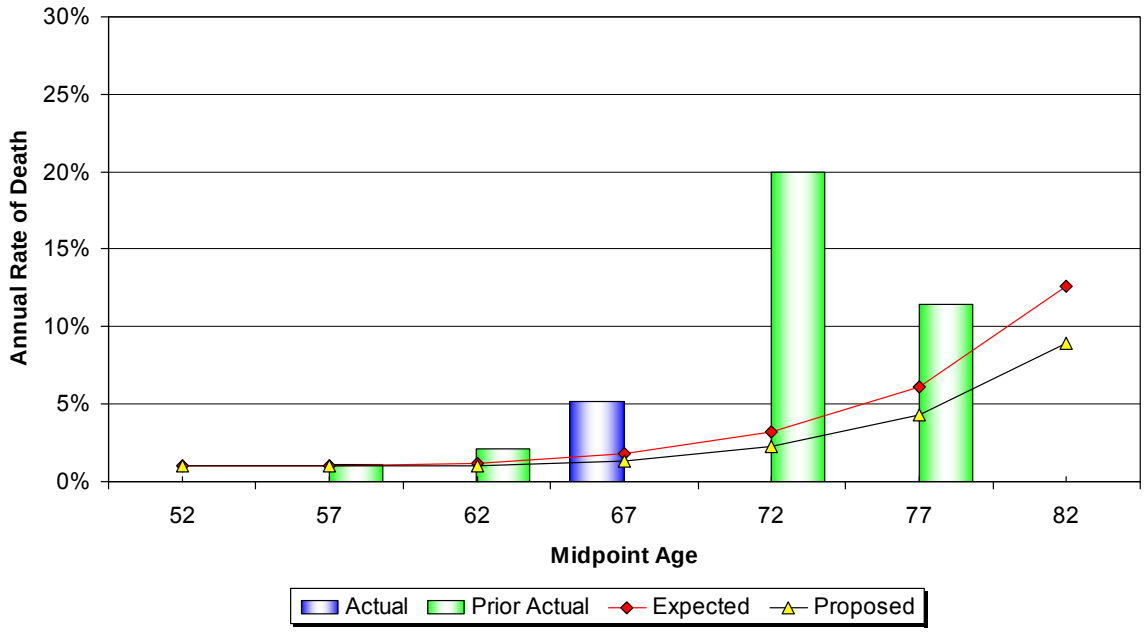
## Exhibit 5-1
## Mortality for Service Retirees
## General Males



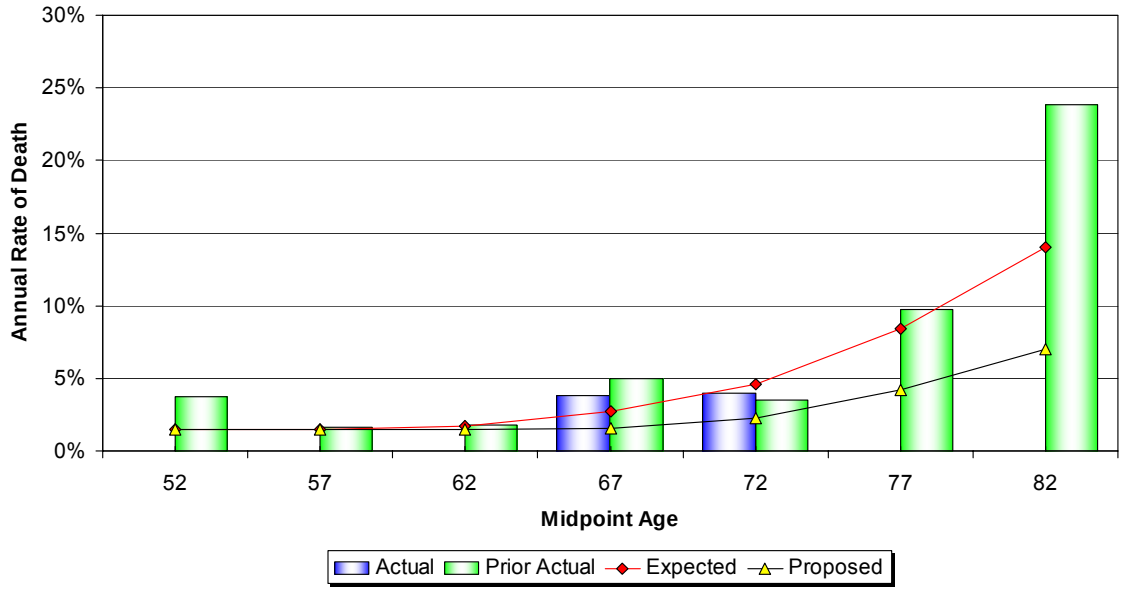

## Exhibit 5-2
## Mortality for Service Retirees
## General Females



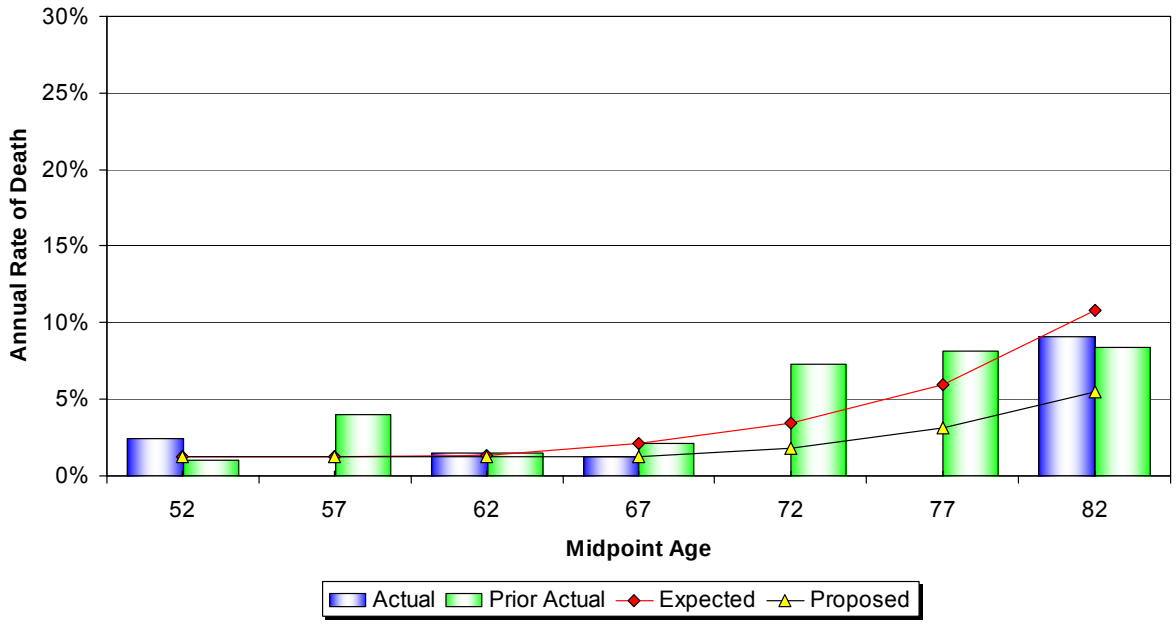
## Exhibit 5-3
## Mortality for Service Retirees
## Safety Males



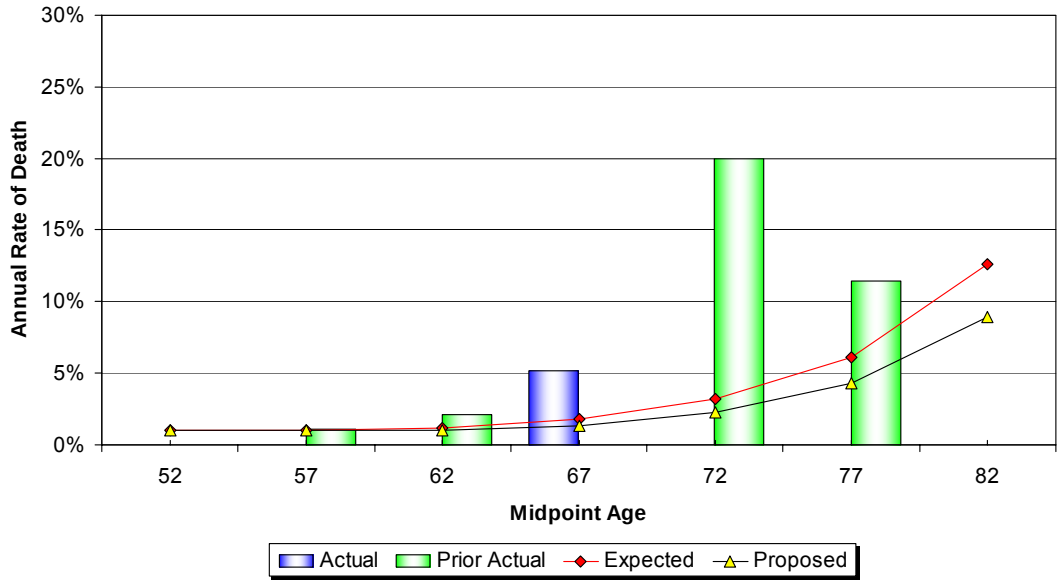

## Exhibit 5-4
## Mortality for Disabled Retirees
## General Males



## Exhibit 5-5
## Mortality for Disabled Retirees
## General Females




## Exhibit 5-6
## Mortality for Disabled Retirees
## Safety Males



## Section 6: Service Retirements

Exhibits 5-1 through 5-3 show the actual and expected rates of service retirement. Our analysis of rates of service retirement was by attained age.

Exhibits 5-1 through 5-3 study retirements for the following groups:

- Exhibit 5-1: General Members – Males
- Exhibit 5-2: General Members – Females
- Exhibit 5-3: Safety Members – Males and Females

**Results**

For General members, the total actual retirements from active service were in line with what the assumptions predicted.

For Safety members, the actual number of retirements was significantly less than the current assumptions predicted, with the total number of retirements (29) being only 32% of the number expected (92).

| Service Retirements | | | |
|---|---|---|---|
| **Class** | **Actual** | **Expected** | **Act / Exp** |
| General | 354 | 351 | 101% |
| Safety | 29 | 92 | 32% |
| Total | 383 | 443 | 86% |

**Recommendation**

We are recommending no change to the retirement rates for General members. We are recommending the rates of retirement be decreased for Safety members to partially reflect the experience. Note that in cases like this where there is a significant deviation from current experience and the prior experience the assumptions are based on, our recommendation is usually to only make a partial adjustment for current experience.

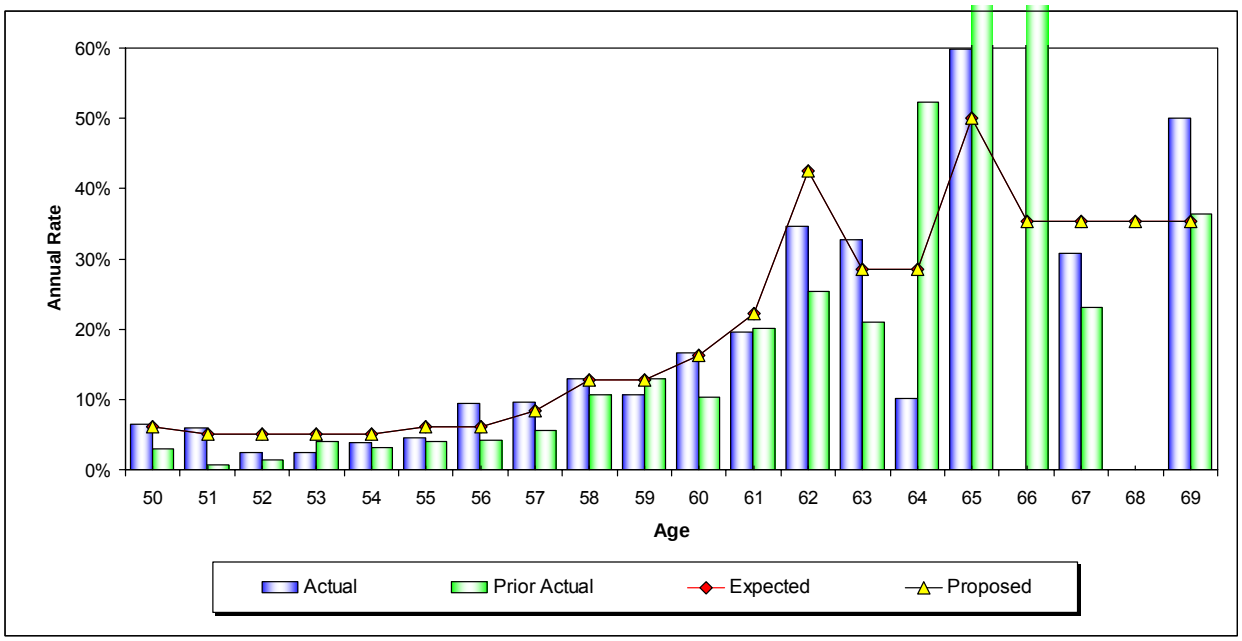
A comparison of the actual and expected retirements under the recommended assumptions for Safety members is shown in the table below.

| Service Retirements -- Proposed | | | |
|---|---|---|---|
| **Class** | **Actual** | **Expected** | **Act / Exp** |
| General | 354 | 351 | 101% |
| Safety | 29 | 68 | 43% |
| Total | 383 | 419 | 91% |

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

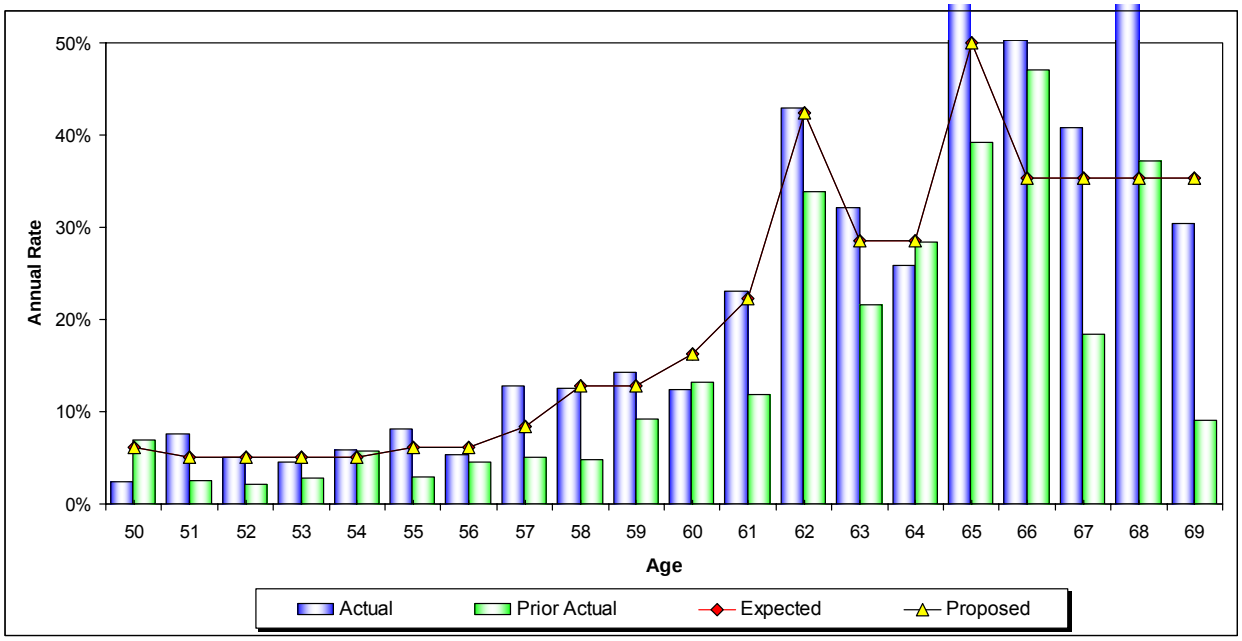
## Retirement Rates
## General Males




| Ages 50-69 | Expected | Actual | Proposed |
|---|---|---|---|
| Total Count | 119 | 108 | 119 |
| Actual / Expected | 91% | | 91% |

## Exhibit 6-2

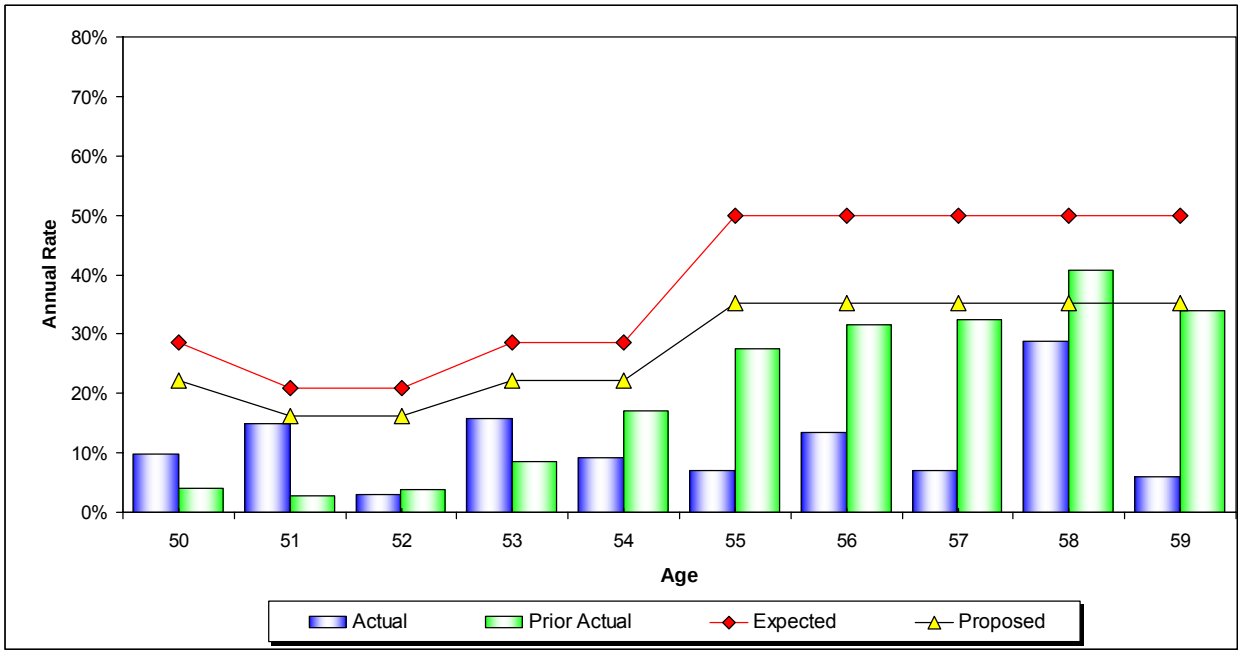
## Retirement Rates
## General Females




| Ages 50-69 | Expected | Actual | Proposed |
|---|---|---|---|
| Total Count | 232 | 246 | 232 |
| Actual / Expected | 106% | | 106% |

## Exhibit 6-3

### Retirement Rates
### Safety Males/Females




| Ages 50-59 | Expected | Actual | Proposed |
|---|---|---|---|
| Total Count | 92 | 29 | 68 |
| Actual / Expected | 32% | | 43% |

## 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 an approximate 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 five disability retirements that occurred in the 6-month period preceding our study.

Even taking this 6-month lag into account, the total adjusted number of disability retirements (service-connected and nonservice-connected combined) was lower than expected for all members.

| Disability Retirement- General Members | | | |
|---|---|---|---|
| **Group** | **Actual** | **Expected** | **Act / Exp** |
| Male | 10 | 21 | 48% |
| Female | 20 | 42 | 48% |
| Total | 30 | 63 | 48% |

| Disability Retirement- Safety Members | | | |
|---|---|---|---|
| **Group** | **Actual** | **Expected** | **Act / Exp** |
| Male/Female | 11 | 18 | 61% |

**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 | 16 | 14 | 30 | 53% | 60% |
| Safety | 11 | 0 | 11 | 100% | 80% |

**Recommendation**

We are recommending lowering the rates of disability retirement for all members. We recommend continuing to use a 60%/40% split between service disability and ordinary disability for General members, and an 80%/20% split for Safety members.

| Disability Retirement- General Members | | | |
|---|---|---|---|
| **Group** | **Actual** | **Proposed** | **Act / Prop** |
| Male | 10 | 13 | 74% |
| Female | 20 | 27 | 73% |
| Total | 30 | 41 | 73% |

| Disability Retirement- Safety Members | | | |
|---|---|---|---|
| **Group** | **Actual** | **Proposed** | **Act / Prop** |
| Male/Female | 11 | 13 | 82% |

## 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 slightly higher than expected for both General and Safety members.

| Termination -- General Members | | | |
|---|---|---|---|
| **Gender** | **Actual** | **Expected** | **Act / Exp** |
| Male | 293 | 233 | 126% |
| Female | 622 | 582 | 107% |
| Total | 915 | 815 | 112% |

| Termination - Safety Members | | | |
|---|---|---|---|
| **Gender** | **Actual** | **Expected** | **Act / Exp** |
| Male/Female | 59 | 55 | 107% |

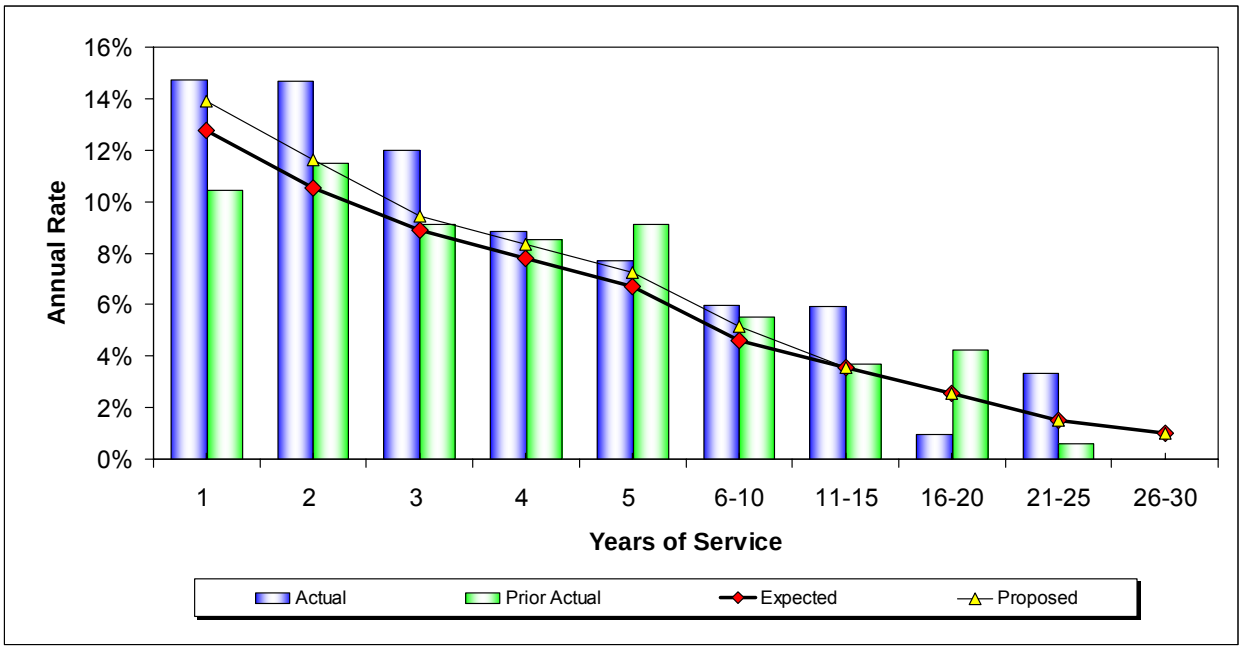
### Recommendation

We have recommended increasing the termination assumption for General males for service less than five years. We have recommended decreasing the termination assumption for General females for service greater than ten years. The results of the study are shown in Exhibits 8-1 through 8-3. We are recommending no change to the termination assumptions for Safety members. 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 | 293 | 253 | 116% |
| Female | 622 | 575 | 108% |
| Total | 915 | 828 | 111% |

## Exhibit 8-1

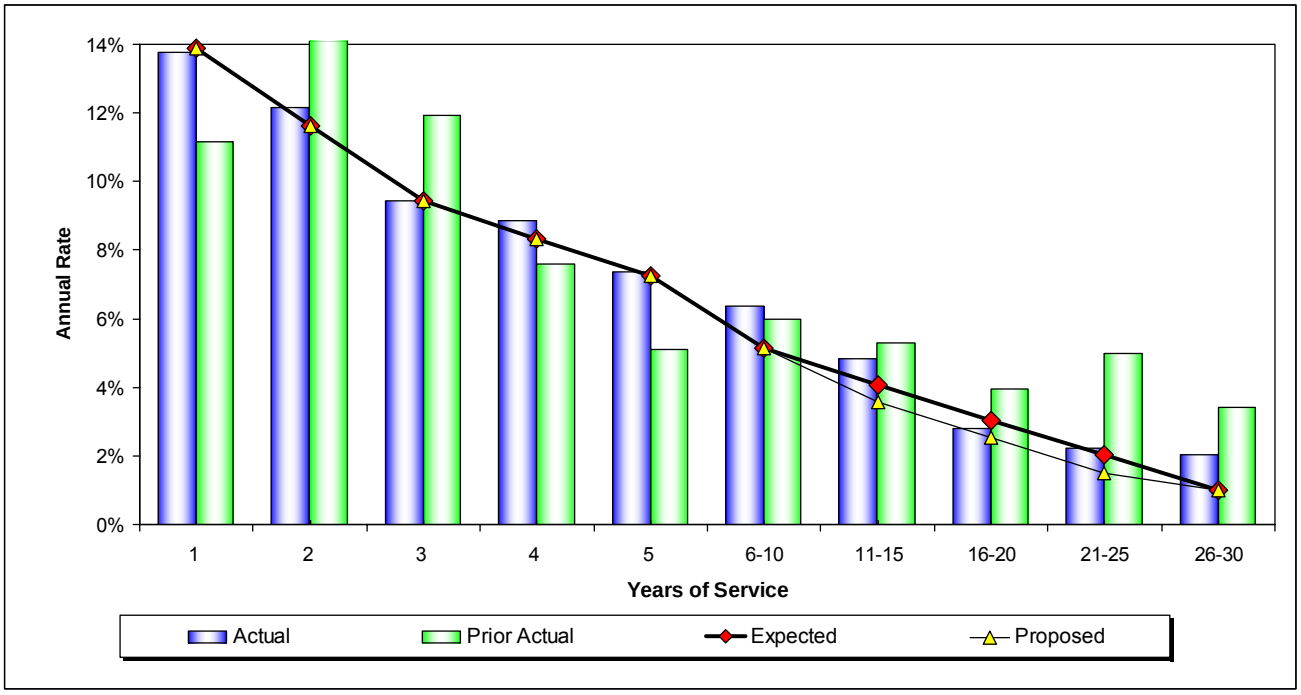
## Termination by Years of Service – General Males




| | 2005 - 2008 Data | | |
|---|---|---|---|
| | Expected | Actual | Proposed |
| Total Count | 233 | 293 | 253 |
| Actual / Expected | 126% | | 116% |

## Exhibit 8-2

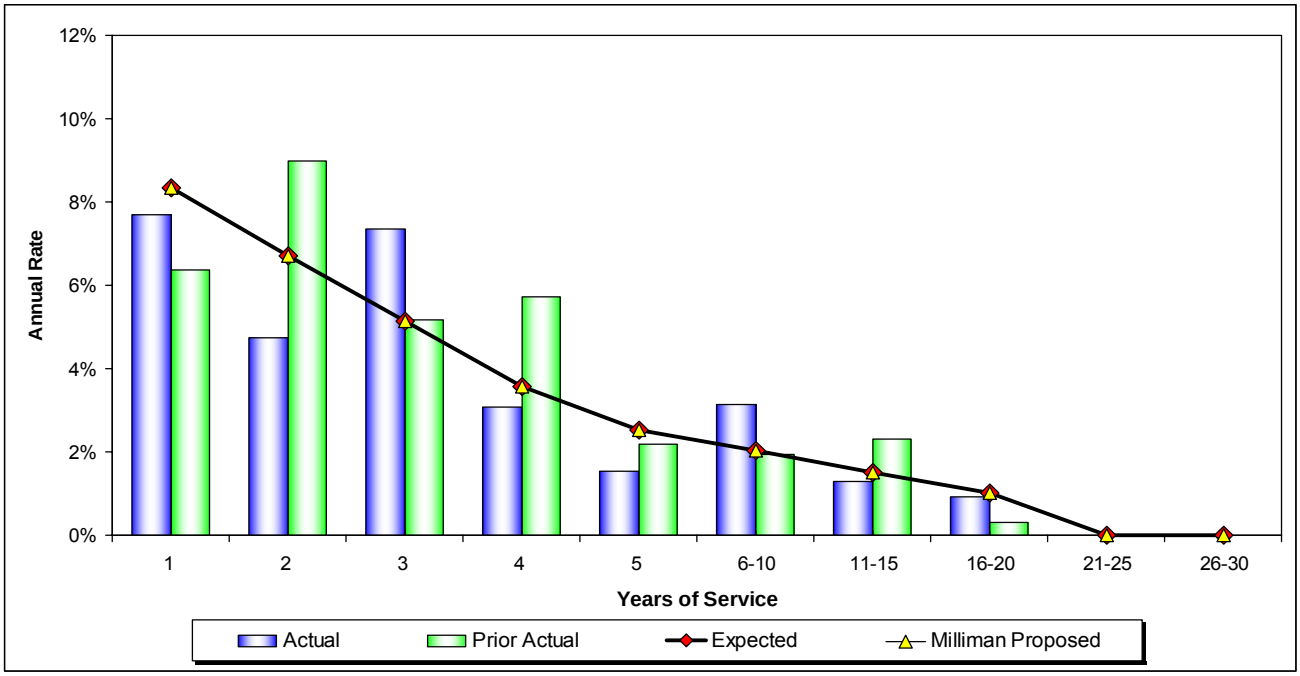
## Termination by Years of Service – General Females




| | 2005 - 2008 Data | | |
|---|---|---|---|
| | Expected | Actual | Proposed |
| Total Count | 582 | 622 | 575 |
| Actual / Expected | 107% | | 108% |

## Exhibit 8-3

## Termination by Years of Service – Safety




| | 2005 - 2008 Data | | |
|---|---|---|---|
| | Expected | Actual | Proposed |
| Total Count | 55 | 59 | 55 |
| Actual / Expected | 107% | | 107% |

## 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 8-1 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 General members. Overall, the number of refunds is approximately 70% of what the assumptions predicted for this group. The actual number of refunds taken by Safety members was close to what the assumptions predicted.

| Probability of Refund | | | | | |
|---|---|---|---|---|---|
| **Class** | **Actual** | **Expected** | **Act / Exp** | **Proposed** | **Act / Prop** |
| General | 90 | 128 | 70% | 114 | 79% |
| Safety | 9 | 11 | 82% | 11 | 82% |
| Total | 99 | 139 | 71% | 125 | 79% |

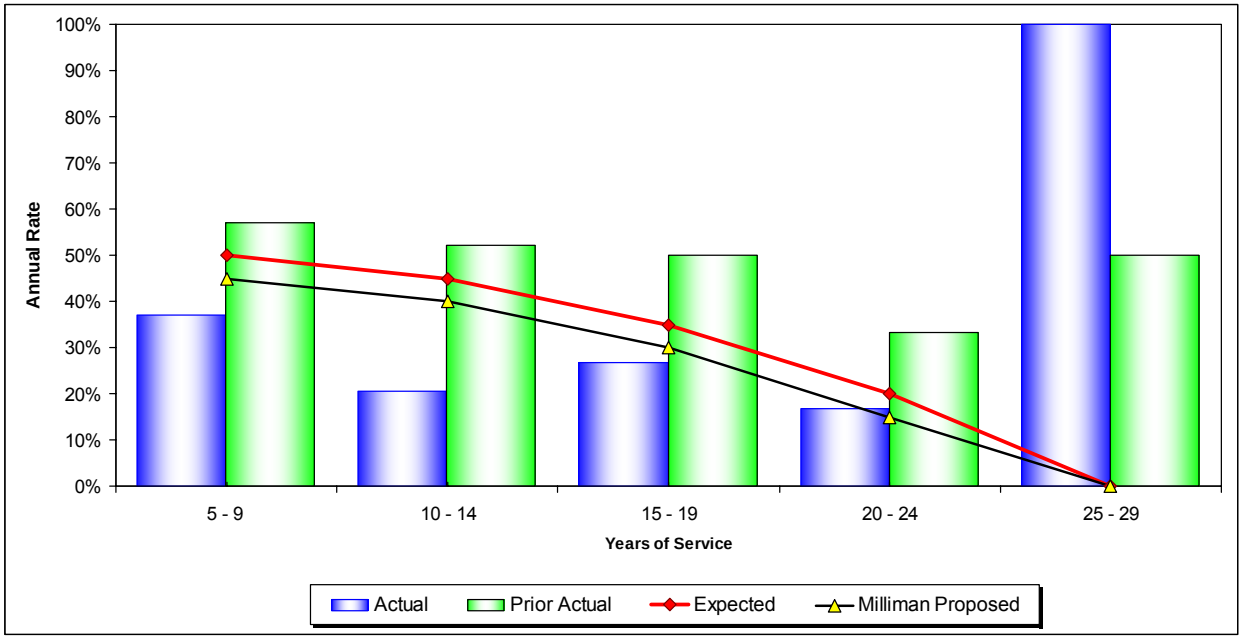
**Recommendation**

Based on the experience, we recommend decreases in the assumed rates at which General members withdraw their contributions from SamCERA. We are recommending no change to the rates of refund for Safety 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.

# SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
# INVESTIGATION OF EXPERIENCE (2005-2008)

## Exhibit 9-1

## Probability of Refund upon Vested Termination – General

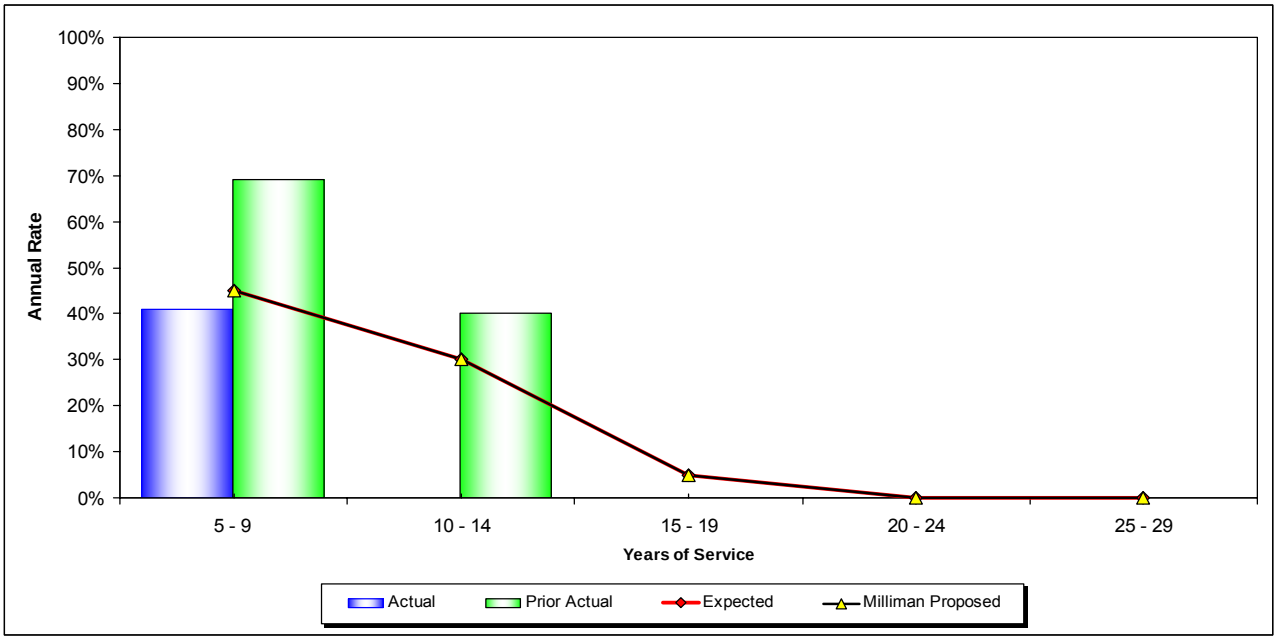



| | 2005 - 2008 Data | | |
|---|---|---|---|
| | Expected | Actual | Proposed |
| Total Count | 128 | 90 | 114 |
| Actual / Expected | 70% | | 79% |

# SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
# INVESTIGATION OF EXPERIENCE (2005-2008)

## Exhibit 9-2

## Probability of Refund upon Vested Termination – Safety




| | 2005 - 2008 Data | | |
|---|---|---|---|
| | Expected | Actual | Proposed |
| Total Count | 11 | 9 | 11 |
| Actual / Expected | 83% | | 83% |

## Appendix A: Summary of Proposed Assumptions

The actuarial procedures and assumptions to be used in the June 30, 2008 valuation are described in this section. The assumptions were reviewed and changed as a result of the 2008 Investigation of Experience Study. Assumptions that have been changed since the June 30, 2007 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 from 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 between plans, entry age is based on original entry into the system.

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 (or Surplus Funding) 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, 2022. This is commonly referred to as a "fixed amortization method".

Since the San Mateo County Mosquito and Vector Control District has a different formula than County General members, it is appropriate to calculate different contribution rates for both members and employers. The member rates are defined in the 37 Act; however, the method for determining employer contribution rates is not defined. The methodology adopted by the Board in 2006 is that the District contribute a percentage of the County contribution that is equal to:

District's Normal Cost Rate under their Current Formula
(31676.14)-2%@61.25
Divided by
District's Normal Cost Rate if Calculated under the County General Formula
(31676.1)-2%@55.5

This ratio is equal to approximately 82%. The District pays 82% of the County's contribution rate on a plan-by-plan basis. See exhibit 12 for further details.

**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.<br><br>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 exactly how to compute the offset for purposes of determining 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, 2008.

**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, 2008.

**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 assumption as 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 two 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, 2008.

**Mortality – Disabled Members**

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

| | |
|---|---|
| *General Males* | RP-2000 Healthy Annuitant Mortality Table for Males with adjustment for White Collar workers and minimum rate of 1.5%. |
| *Safety Males* | Same as General except minimum is 1.0%. |
| *General Females* | RP-2000 Healthy Annuitant Mortality Table for Females with adjustment for White Collar workers and minimum rate of 1.25%. |
| *Safety Females* | Same as General except minimum is 1.0%. |

The rates of disabled mortality were adopted June 30, 2008.

**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, 2008.

**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, 2008.

**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**

40% of future deferred vested members are assumed to immediately join a reciprocal agency. 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, the:

A. 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%.

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

### Table A-1: Summary of Valuation Assumptions as of June 30, 2008

| | | |
|---|---|---|
| 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 | -2 years |
| General – Females | -3 years |
| Safety – Males | -2 years |
| Safety – Females | -3 years |

E. Mortality among disabled members — Table A-3

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

| Class of Members | Age Adjustment | Minimum Rate |
|---|---|---|
| General – Males | none | 1.50% |
| General – Females | none | 1.25% |
| Safety – Males | none | 1.00% |
| Safety – Females | none | 1.00% |

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

## San Mateo County Employees' Retirement Association

### Table A-2: Mortality for Members Retired for Service

| Age | General Male | General Female | Safety Male | Safety Female |
|---|---|---|---|---|
| 20 | 0.032% | 0.018% | 0.032% | 0.018% |
| 25 | 0.037% | 0.019% | 0.037% | 0.019% |
| 30 | 0.039% | 0.022% | 0.039% | 0.022% |
| 35 | 0.048% | 0.036% | 0.048% | 0.036% |
| 40 | 0.077% | 0.053% | 0.077% | 0.053% |
| 45 | 0.112% | 0.076% | 0.112% | 0.076% |
| 50 | 0.171% | 0.123% | 0.171% | 0.123% |
| 55 | 0.271% | 0.192% | 0.271% | 0.192% |
| 60 | 0.449% | 0.332% | 0.449% | 0.332% |
| 65 | 0.848% | 0.599% | 0.848% | 0.599% |
| 70 | 1.557% | 1.094% | 1.557% | 1.094% |
| 75 | 2.671% | 1.878% | 2.671% | 1.878% |
| 80 | 4.748% | 3.155% | 4.748% | 3.155% |
| 85 | 8.398% | 5.337% | 8.398% | 5.337% |
| 90 | 14.487% | 9.248% | 14.487% | 9.248% |

## San Mateo County Employees' Retirement Association

### Table A-3: Mortality for Members Retired for Disability

| Age | General Male | General Female | Safety Male | Safety Female |
|---|---|---|---|---|
| 20 | 1.500% | 1.250% | 1.000% | 1.000% |
| 25 | 1.500% | 1.250% | 1.000% | 1.000% |
| 30 | 1.500% | 1.250% | 1.000% | 1.000% |
| 35 | 1.500% | 1.250% | 1.000% | 1.000% |
| 40 | 1.500% | 1.250% | 1.000% | 1.000% |
| 45 | 1.500% | 1.250% | 1.000% | 1.000% |
| 50 | 1.500% | 1.250% | 1.000% | 1.000% |
| 55 | 1.500% | 1.250% | 1.000% | 1.000% |
| 60 | 1.500% | 1.250% | 1.000% | 1.000% |
| 65 | 1.500% | 1.250% | 1.106% | 1.000% |
| 70 | 1.928% | 1.519% | 1.928% | 1.519% |
| 75 | 3.363% | 2.572% | 3.363% | 2.572% |
| 80 | 5.941% | 4.308% | 5.941% | 4.308% |
| 85 | 10.467% | 7.419% | 10.467% | 7.419% |
| 90 | 17.827% | 12.615% | 17.827% | 12.615% |

# San Mateo County Employees' Retirement Association

## 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% | 45% |
| 6 | 45% | 45% |
| 7 | 45% | 45% |
| 8 | 44% | 42% |
| 9 | 43% | 39% |
| 10 | 42% | 36% |
| 11 | 41% | 33% |
| 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% |

## San Mateo County Employees' Retirement Association

### 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.

## San Mateo County Employees' Retirement Association

### 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

# San Mateo County Employees' Retirement Association

## 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 | 0.0003 | 0.0002 | N/A | 0.0003 | 0 | 0.1300 |
| 19 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0003 | 1 | 0.1100 |
| 20 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0003 | 2 | 0.0900 |
| 21 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0003 | 3 | 0.0800 |
| 22 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0003 | 4 | 0.0700 |
| 23 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0004 | 5 | 0.0633 |
| 24 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0004 | 6 | 0.0567 |
| 25 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0004 | 7 | 0.0500 |
| 26 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0004 | 8 | 0.0470 |
| 27 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0004 | 9 | 0.0440 |
| 28 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0004 | 10 | 0.0410 |
| 29 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0004 | 11 | 0.0380 |
| 30 | 0.0000 | 0.0004 | 0.0002 | N/A | 0.0004 | 12 | 0.0350 |
| 31 | 0.0000 | 0.0004 | 0.0002 | N/A | 0.0004 | 13 | 0.0330 |
| 32 | 0.0000 | 0.0004 | 0.0002 | N/A | 0.0004 | 14 | 0.0310 |
| 33 | 0.0000 | 0.0004 | 0.0003 | N/A | 0.0005 | 15 | 0.0290 |
| 34 | 0.0000 | 0.0004 | 0.0003 | N/A | 0.0006 | 16 | 0.0270 |
| 35 | 0.0000 | 0.0005 | 0.0003 | N/A | 0.0006 | 17 | 0.0250 |
| 36 | 0.0000 | 0.0005 | 0.0003 | N/A | 0.0007 | 18 | 0.0230 |
| 37 | 0.0000 | 0.0005 | 0.0004 | N/A | 0.0008 | 19 | 0.0210 |
| 38 | 0.0000 | 0.0006 | 0.0004 | N/A | 0.0008 | 20 | 0.0190 |
| 39 | 0.0000 | 0.0006 | 0.0004 | N/A | 0.0009 | 21 | 0.0170 |
| 40 | 0.0000 | 0.0007 | 0.0004 | N/A | 0.0010 | 22 | 0.0150 |
| 41 | 0.0000 | 0.0007 | 0.0004 | N/A | 0.0010 | 23 | 0.0140 |
| 42 | 0.0000 | 0.0007 | 0.0005 | N/A | 0.0011 | 24 | 0.0130 |
| 43 | 0.0000 | 0.0008 | 0.0005 | N/A | 0.0011 | 25 | 0.0120 |
| 44 | 0.0000 | 0.0008 | 0.0006 | N/A | 0.0012 | 26 | 0.0110 |
| 45 | 0.0000 | 0.0010 | 0.0006 | N/A | 0.0013 | 27 | 0.0100 |
| 46 | 0.0000 | 0.0010 | 0.0007 | N/A | 0.0014 | 28 | 0.0100 |
| 47 | 0.0000 | 0.0011 | 0.0007 | N/A | 0.0015 | 29 | 0.0100 |
| 48 | 0.0000 | 0.0011 | 0.0008 | N/A | 0.0016 | 30 & Above | 0.0000 |
| 49 | 0.0000 | 0.0012 | 0.0008 | N/A | 0.0017 | | |
| 50 | 0.0600 | 0.0013 | 0.0009 | N/A | 0.0019 | | |
| 51 | 0.0500 | 0.0014 | 0.0009 | N/A | 0.0020 | | |
| 52 | 0.0500 | 0.0014 | 0.0010 | N/A | 0.0021 | | |
| 53 | 0.0500 | 0.0016 | 0.0010 | N/A | 0.0023 | | |
| 54 | 0.0500 | 0.0016 | 0.0011 | N/A | 0.0024 | | |
| 55 | 0.0600 | 0.0017 | 0.0012 | N/A | 0.0026 | | |
| 56 | 0.0600 | 0.0018 | 0.0012 | N/A | 0.0028 | | |
| 57 | 0.0800 | 0.0019 | 0.0013 | N/A | 0.0030 | | |
| 58 | 0.1200 | 0.0020 | 0.0014 | N/A | 0.0033 | | |
| 59 | 0.1200 | 0.0021 | 0.0014 | N/A | 0.0036 | | |
| 60 | 0.1500 | 0.0022 | 0.0015 | N/A | 0.0040 | | |
| 61 | 0.2000 | 0.0023 | 0.0015 | N/A | 0.0044 | | |
| 62 | 0.3500 | 0.0024 | 0.0016 | N/A | 0.0049 | | |
| 63 | 0.2500 | 0.0025 | 0.0017 | N/A | 0.0054 | | |
| 64 | 0.2500 | 0.0026 | 0.0018 | N/A | 0.0059 | | |
| 65 | 0.4000 | 0.0028 | 0.0018 | N/A | 0.0065 | | |
| 66 | 0.3000 | 0.0029 | 0.0019 | N/A | 0.0070 | | |
| 67 | 0.3000 | 0.0030 | 0.0020 | N/A | 0.0076 | | |
| 68 | 0.3000 | 0.0031 | 0.0021 | N/A | 0.0081 | | |
| 69 | 0.3000 | 0.0032 | 0.0022 | N/A | 0.0086 | | |
| 70 | 1.0000 | 0.0000 | 0.0000 | N/A | 0.0091 | | |

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

# San Mateo County Employees' Retirement Association

## 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 | 0.1300 |
| 19 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0002 | 1 | 0.1100 |
| 20 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0002 | 2 | 0.0900 |
| 21 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0002 | 3 | 0.0800 |
| 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 | 0.0470 |
| 27 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0002 | 9 | 0.0440 |
| 28 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0002 | 10 | 0.0410 |
| 29 | 0.0000 | 0.0003 | 0.0002 | N/A | 0.0002 | 11 | 0.0380 |
| 30 | 0.0000 | 0.0004 | 0.0002 | N/A | 0.0002 | 12 | 0.0350 |
| 31 | 0.0000 | 0.0004 | 0.0002 | N/A | 0.0002 | 13 | 0.0330 |
| 32 | 0.0000 | 0.0004 | 0.0002 | N/A | 0.0002 | 14 | 0.0310 |
| 33 | 0.0000 | 0.0004 | 0.0003 | N/A | 0.0003 | 15 | 0.0290 |
| 34 | 0.0000 | 0.0004 | 0.0003 | N/A | 0.0003 | 16 | 0.0270 |
| 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 | 0.0005 | 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 | 0.0006 | 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 | 0.0007 | 25 | 0.0120 |
| 44 | 0.0000 | 0.0008 | 0.0006 | N/A | 0.0008 | 26 | 0.0110 |
| 45 | 0.0000 | 0.0010 | 0.0006 | N/A | 0.0009 | 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 | 0.0010 | 29 | 0.0100 |
| 48 | 0.0000 | 0.0011 | 0.0008 | N/A | 0.0011 | 30 & Above | 0.0000 |
| 49 | 0.0000 | 0.0012 | 0.0008 | N/A | 0.0012 | | |
| 50 | 0.0600 | 0.0013 | 0.0009 | N/A | 0.0013 | | |
| 51 | 0.0500 | 0.0014 | 0.0009 | N/A | 0.0014 | | |
| 52 | 0.0500 | 0.0014 | 0.0010 | N/A | 0.0016 | | |
| 53 | 0.0500 | 0.0016 | 0.0010 | N/A | 0.0017 | | |
| 54 | 0.0500 | 0.0016 | 0.0011 | N/A | 0.0018 | | |
| 55 | 0.0600 | 0.0017 | 0.0012 | N/A | 0.0020 | | |
| 56 | 0.0600 | 0.0018 | 0.0012 | N/A | 0.0021 | | |
| 57 | 0.0800 | 0.0019 | 0.0013 | N/A | 0.0023 | | |
| 58 | 0.1200 | 0.0020 | 0.0014 | N/A | 0.0025 | | |
| 59 | 0.1200 | 0.0021 | 0.0014 | N/A | 0.0028 | | |
| 60 | 0.1500 | 0.0022 | 0.0015 | N/A | 0.0030 | | |
| 61 | 0.2000 | 0.0023 | 0.0015 | N/A | 0.0033 | | |
| 62 | 0.3500 | 0.0024 | 0.0016 | N/A | 0.0036 | | |
| 63 | 0.2500 | 0.0025 | 0.0017 | N/A | 0.0039 | | |
| 64 | 0.2500 | 0.0026 | 0.0018 | N/A | 0.0043 | | |
| 65 | 0.4000 | 0.0028 | 0.0018 | N/A | 0.0047 | | |
| 66 | 0.3000 | 0.0029 | 0.0019 | N/A | 0.0050 | | |
| 67 | 0.3000 | 0.0030 | 0.0020 | N/A | 0.0054 | | |
| 68 | 0.3000 | 0.0031 | 0.0021 | N/A | 0.0058 | | |
| 69 | 0.3000 | 0.0032 | 0.0022 | N/A | 0.0062 | | |
| 70 | 1.0000 | 0.0000 | 0.0000 | N/A | 0.0066 | | |

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

# San Mateo County Employees' Retirement Association

## 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 | 0.0004 | 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 | 0.0005 | 15 | 0.0290 |
| 34 | 0.0000 | N/A | N/A | N/A | 0.0006 | 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 | 0.0007 | 18 | 0.0230 |
| 37 | 0.0000 | N/A | N/A | N/A | 0.0008 | 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 | 0.0009 | 21 | 0.0170 |
| 40 | 0.0000 | N/A | N/A | N/A | 0.0010 | 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 | 0.0011 | 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 | 0.0012 | 26 | 0.0110 |
| 45 | 0.0000 | N/A | N/A | N/A | 0.0013 | 27 | 0.0100 |
| 46 | 0.0000 | N/A | N/A | N/A | 0.0014 | 28 | 0.0100 |
| 47 | 0.0000 | N/A | N/A | N/A | 0.0015 | 29 | 0.0100 |
| 48 | 0.0000 | N/A | N/A | N/A | 0.0016 | 30 & Above | 0.0100 |
| 49 | 0.0000 | N/A | N/A | N/A | 0.0017 | | |
| 50 | 0.0000 | N/A | N/A | N/A | 0.0019 | | |
| 51 | 0.0000 | N/A | N/A | N/A | 0.0020 | | |
| 52 | 0.0000 | N/A | N/A | N/A | 0.0021 | | |
| 53 | 0.0000 | N/A | N/A | N/A | 0.0023 | | |
| 54 | 0.0000 | N/A | N/A | N/A | 0.0024 | | |
| 55 | 0.0300 | N/A | N/A | N/A | 0.0026 | | |
| 56 | 0.0300 | N/A | N/A | N/A | 0.0028 | | |
| 57 | 0.0300 | N/A | N/A | N/A | 0.0030 | | |
| 58 | 0.0300 | N/A | N/A | N/A | 0.0033 | | |
| 59 | 0.0300 | N/A | N/A | N/A | 0.0036 | | |
| 60 | 0.0300 | N/A | N/A | N/A | 0.0040 | | |
| 61 | 0.0600 | N/A | N/A | N/A | 0.0044 | | |
| 62 | 0.1500 | N/A | N/A | N/A | 0.0049 | | |
| 63 | 0.1000 | N/A | N/A | N/A | 0.0054 | | |
| 64 | 0.1500 | N/A | N/A | N/A | 0.0059 | | |
| 65 | 0.3000 | N/A | N/A | N/A | 0.0065 | | |
| 66 | 0.3000 | N/A | N/A | N/A | 0.0070 | | |
| 67 | 0.3000 | N/A | N/A | N/A | 0.0076 | | |
| 68 | 0.3000 | N/A | N/A | N/A | 0.0081 | | |
| 69 | 0.3000 | N/A | N/A | N/A | 0.0086 | | |
| 70 | 1.0000 | N/A | N/A | N/A | 0.0091 | | |

# San Mateo County Employees' Retirement Association

## 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 | 0.1300 |
| 19 | 0.0000 | N/A | N/A | N/A | 0.0002 | 1 | 0.1100 |
| 20 | 0.0000 | N/A | N/A | N/A | 0.0002 | 2 | 0.0900 |
| 21 | 0.0000 | N/A | N/A | N/A | 0.0002 | 3 | 0.0800 |
| 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 | 0.0470 |
| 27 | 0.0000 | N/A | N/A | N/A | 0.0002 | 9 | 0.0440 |
| 28 | 0.0000 | N/A | N/A | N/A | 0.0002 | 10 | 0.0410 |
| 29 | 0.0000 | N/A | N/A | N/A | 0.0002 | 11 | 0.0380 |
| 30 | 0.0000 | N/A | N/A | N/A | 0.0002 | 12 | 0.0350 |
| 31 | 0.0000 | N/A | N/A | N/A | 0.0002 | 13 | 0.0330 |
| 32 | 0.0000 | N/A | N/A | N/A | 0.0002 | 14 | 0.0310 |
| 33 | 0.0000 | N/A | N/A | N/A | 0.0003 | 15 | 0.0290 |
| 34 | 0.0000 | N/A | N/A | N/A | 0.0003 | 16 | 0.0270 |
| 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 | 0.0005 | 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 | 0.0006 | 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 | 0.0007 | 25 | 0.0120 |
| 44 | 0.0000 | N/A | N/A | N/A | 0.0008 | 26 | 0.0110 |
| 45 | 0.0000 | N/A | N/A | N/A | 0.0009 | 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 | 0.0010 | 29 | 0.0100 |
| 48 | 0.0000 | N/A | N/A | N/A | 0.0011 | 30 & Above | 0.0100 |
| 49 | 0.0000 | N/A | N/A | N/A | 0.0012 | | |
| 50 | 0.0000 | N/A | N/A | N/A | 0.0013 | | |
| 51 | 0.0000 | N/A | N/A | N/A | 0.0014 | | |
| 52 | 0.0000 | N/A | N/A | N/A | 0.0016 | | |
| 53 | 0.0000 | N/A | N/A | N/A | 0.0017 | | |
| 54 | 0.0000 | N/A | N/A | N/A | 0.0018 | | |
| 55 | 0.0400 | N/A | N/A | N/A | 0.0020 | | |
| 56 | 0.0400 | N/A | N/A | N/A | 0.0021 | | |
| 57 | 0.0400 | N/A | N/A | N/A | 0.0023 | | |
| 58 | 0.0400 | N/A | N/A | N/A | 0.0025 | | |
| 59 | 0.0400 | N/A | N/A | N/A | 0.0028 | | |
| 60 | 0.0400 | N/A | N/A | N/A | 0.0030 | | |
| 61 | 0.0600 | N/A | N/A | N/A | 0.0033 | | |
| 62 | 0.1500 | N/A | N/A | N/A | 0.0036 | | |
| 63 | 0.1000 | N/A | N/A | N/A | 0.0039 | | |
| 64 | 0.1500 | N/A | N/A | N/A | 0.0043 | | |
| 65 | 0.3000 | N/A | N/A | N/A | 0.0047 | | |
| 66 | 0.3000 | N/A | N/A | N/A | 0.0050 | | |
| 67 | 0.3000 | N/A | N/A | N/A | 0.0054 | | |
| 68 | 0.3000 | N/A | N/A | N/A | 0.0058 | | |
| 69 | 0.3000 | N/A | N/A | N/A | 0.0062 | | |
| 70 | 1.0000 | N/A | N/A | N/A | 0.0066 | | |

# San Mateo County Employees' Retirement Association

## 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 | 0.0012 | 0.0003 | 0.0010 | 0.0003 | 0 | 0.0800 |
| 19 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0003 | 1 | 0.0650 |
| 20 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0003 | 2 | 0.0500 |
| 21 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0003 | 3 | 0.0350 |
| 22 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0003 | 4 | 0.0250 |
| 23 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0004 | 5 | 0.0233 |
| 24 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0004 | 6 | 0.0217 |
| 25 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0004 | 7 | 0.0200 |
| 26 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0004 | 8 | 0.0190 |
| 27 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0004 | 9 | 0.0180 |
| 28 | 0.0000 | 0.0013 | 0.0003 | 0.0010 | 0.0004 | 10 | 0.0170 |
| 29 | 0.0000 | 0.0014 | 0.0003 | 0.0010 | 0.0004 | 11 | 0.0160 |
| 30 | 0.0000 | 0.0014 | 0.0004 | 0.0010 | 0.0004 | 12 | 0.0150 |
| 31 | 0.0000 | 0.0015 | 0.0004 | 0.0010 | 0.0004 | 13 | 0.0140 |
| 32 | 0.0000 | 0.0016 | 0.0004 | 0.0010 | 0.0004 | 14 | 0.0130 |
| 33 | 0.0000 | 0.0017 | 0.0004 | 0.0010 | 0.0005 | 15 | 0.0120 |
| 34 | 0.0000 | 0.0018 | 0.0004 | 0.0010 | 0.0006 | 16 | 0.0110 |
| 35 | 0.0000 | 0.0018 | 0.0005 | 0.0010 | 0.0006 | 17 | 0.0100 |
| 36 | 0.0000 | 0.0019 | 0.0005 | 0.0010 | 0.0007 | 18 | 0.0080 |
| 37 | 0.0000 | 0.0020 | 0.0005 | 0.0010 | 0.0008 | 19 | 0.0060 |
| 38 | 0.0000 | 0.0021 | 0.0005 | 0.0010 | 0.0008 | 20 & Above | 0.0000 |
| 39 | 0.0000 | 0.0022 | 0.0005 | 0.0010 | 0.0009 | | |
| 40 | 0.0000 | 0.0022 | 0.0006 | 0.0010 | 0.0010 | | |
| 41 | 0.0000 | 0.0023 | 0.0006 | 0.0010 | 0.0010 | | |
| 42 | 0.0000 | 0.0024 | 0.0006 | 0.0010 | 0.0011 | | |
| 43 | 0.0000 | 0.0025 | 0.0006 | 0.0010 | 0.0011 | | |
| 44 | 0.0000 | 0.0026 | 0.0006 | 0.0010 | 0.0012 | | |
| 45 | 0.0000 | 0.0026 | 0.0007 | 0.0010 | 0.0013 | | |
| 46 | 0.0000 | 0.0027 | 0.0007 | 0.0010 | 0.0014 | | |
| 47 | 0.0000 | 0.0028 | 0.0007 | 0.0010 | 0.0015 | | |
| 48 | 0.0000 | 0.0030 | 0.0008 | 0.0010 | 0.0016 | | |
| 49 | 0.0000 | 0.0033 | 0.0008 | 0.0010 | 0.0017 | | |
| 50 | 0.2000 | 0.0035 | 0.0009 | 0.0010 | 0.0019 | | |
| 51 | 0.1500 | 0.0038 | 0.0009 | 0.0010 | 0.0020 | | |
| 52 | 0.1500 | 0.0040 | 0.0010 | 0.0010 | 0.0021 | | |
| 53 | 0.2000 | 0.0051 | 0.0013 | 0.0010 | 0.0023 | | |
| 54 | 0.2000 | 0.0062 | 0.0016 | 0.0010 | 0.0024 | | |
| 55 | 0.3000 | 0.0074 | 0.0018 | 0.0010 | 0.0026 | | |
| 56 | 0.3000 | 0.0085 | 0.0021 | 0.0010 | 0.0028 | | |
| 57 | 0.3000 | 0.0096 | 0.0024 | 0.0010 | 0.0030 | | |
| 58 | 0.3000 | 0.0086 | 0.0022 | 0.0010 | 0.0033 | | |
| 59 | 0.3000 | 0.0077 | 0.0019 | 0.0010 | 0.0036 | | |
| 60 | 1.0000 | 0.0067 | 0.0000 | 0.0010 | 0.0040 | | |

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

# San Mateo County Employees' Retirement Association

## Table A-11: Rate of Separation From Active Service Safety & Probation Plans – Female

| Age | Service Retirement* | Service Disability | Ordinary Disability | Service Death | Ordinary Death | Years of Service | Other Terminations |
|---|---|---|---|---|---|---|---|
| 18 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0002 | 0 | 0.0800 |
| 19 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0002 | 1 | 0.0650 |
| 20 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0002 | 2 | 0.0500 |
| 21 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0002 | 3 | 0.0350 |
| 22 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0002 | 4 | 0.0250 |
| 23 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0002 | 5 | 0.0233 |
| 24 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0002 | 6 | 0.0217 |
| 25 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0002 | 7 | 0.0200 |
| 26 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0002 | 8 | 0.0190 |
| 27 | 0.0000 | 0.0012 | 0.0003 | 0.0010 | 0.0002 | 9 | 0.0180 |
| 28 | 0.0000 | 0.0013 | 0.0003 | 0.0010 | 0.0002 | 10 | 0.0170 |
| 29 | 0.0000 | 0.0014 | 0.0003 | 0.0010 | 0.0002 | 11 | 0.0160 |
| 30 | 0.0000 | 0.0014 | 0.0004 | 0.0010 | 0.0002 | 12 | 0.0150 |
| 31 | 0.0000 | 0.0015 | 0.0004 | 0.0010 | 0.0002 | 13 | 0.0140 |
| 32 | 0.0000 | 0.0016 | 0.0004 | 0.0010 | 0.0002 | 14 | 0.0130 |
| 33 | 0.0000 | 0.0017 | 0.0004 | 0.0010 | 0.0003 | 15 | 0.0120 |
| 34 | 0.0000 | 0.0018 | 0.0004 | 0.0010 | 0.0003 | 16 | 0.0110 |
| 35 | 0.0000 | 0.0018 | 0.0005 | 0.0010 | 0.0003 | 17 | 0.0100 |
| 36 | 0.0000 | 0.0019 | 0.0005 | 0.0010 | 0.0004 | 18 | 0.0080 |
| 37 | 0.0000 | 0.0020 | 0.0005 | 0.0010 | 0.0004 | 19 | 0.0060 |
| 38 | 0.0000 | 0.0021 | 0.0005 | 0.0010 | 0.0005 | 20 & Above | 0.0000 |
| 39 | 0.0000 | 0.0022 | 0.0005 | 0.0010 | 0.0005 | | |
| 40 | 0.0000 | 0.0022 | 0.0006 | 0.0010 | 0.0006 | | |
| 41 | 0.0000 | 0.0023 | 0.0006 | 0.0010 | 0.0006 | | |
| 42 | 0.0000 | 0.0024 | 0.0006 | 0.0010 | 0.0006 | | |
| 43 | 0.0000 | 0.0025 | 0.0006 | 0.0010 | 0.0007 | | |
| 44 | 0.0000 | 0.0026 | 0.0006 | 0.0010 | 0.0008 | | |
| 45 | 0.0000 | 0.0026 | 0.0007 | 0.0010 | 0.0009 | | |
| 46 | 0.0000 | 0.0027 | 0.0007 | 0.0010 | 0.0009 | | |
| 47 | 0.0000 | 0.0028 | 0.0007 | 0.0010 | 0.0010 | | |
| 48 | 0.0000 | 0.0030 | 0.0008 | 0.0010 | 0.0011 | | |
| 49 | 0.0000 | 0.0033 | 0.0008 | 0.0010 | 0.0012 | | |
| 50 | 0.2000 | 0.0035 | 0.0009 | 0.0010 | 0.0013 | | |
| 51 | 0.1500 | 0.0038 | 0.0009 | 0.0010 | 0.0014 | | |
| 52 | 0.1500 | 0.0040 | 0.0010 | 0.0010 | 0.0016 | | |
| 53 | 0.2000 | 0.0051 | 0.0013 | 0.0010 | 0.0017 | | |
| 54 | 0.2000 | 0.0062 | 0.0016 | 0.0010 | 0.0018 | | |
| 55 | 0.3000 | 0.0074 | 0.0018 | 0.0010 | 0.0020 | | |
| 56 | 0.3000 | 0.0085 | 0.0021 | 0.0010 | 0.0021 | | |
| 57 | 0.3000 | 0.0096 | 0.0024 | 0.0010 | 0.0023 | | |
| 58 | 0.3000 | 0.0086 | 0.0022 | 0.0010 | 0.0025 | | |
| 59 | 0.3000 | 0.0077 | 0.0019 | 0.0010 | 0.0028 | | |
| 60 | 1.0000 | 0.0067 | 0.0000 | 0.0010 | 0.0030 | | |

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