

**Contra Costa County Employees'
Retirement Association**

ACTUARIAL EXPERIENCE STUDY

**Analysis of Actuarial Experience
During the Period
January 1, 2001 through December 31, 2003**

Copyright © 2004

**THE SEGAL GROUP, INC.
THE PARENT OF THE SEGAL COMPANY
ALL RIGHTS RESERVED**



THE SEGAL COMPANY

120 Montgomery Street Suite 500 San Francisco, CA 94104-4308

T 415.263.8200 F 415.263.8290 www.segalco.com

July 6, 2004

Board of Retirement
Contra Costa County Employees' Retirement Association
1355 Willow Way, Suite 221
Concord, CA 94520

Re: Review of Non-economic Actuarial Assumptions for the December 31, 2003 Actuarial Valuation

Dear Members of the Board:

We are pleased to submit this report of our review of the actuarial experience of the Contra Costa County Employees' Retirement Association. This study utilizes the census data of the last three actuarial valuations and includes the proposed actuarial assumptions to be used in future actuarial valuations.

Please note that we have also reviewed the economic assumptions. The economic actuarial assumption recommendations for the December 31, 2003 valuation were provided in a separate report issued on February 17, 2004.

We look forward to reviewing this report with you and answering any questions you may have.

Sincerely,

Paul Angelo, FSA, MAAA, FCA
Vice President and Actuary

JZM/czr

John Monroe, MAAA
Associate Actuary

174776/05337.001

Benefits, Compensation and HR Consulting ATLANTA BOSTON CHICAGO CLEVELAND DENVER HARTFORD HOUSTON LOS ANGELES MINNEAPOLIS
NEW ORLEANS NEW YORK PHILADELPHIA PHOENIX SAN FRANCISCO SEATTLE TORONTO WASHINGTON, DC



Multinational Group of Actuaries and Consultants AMSTERDAM BARCELONA GENEVA HAMBURG JOHANNESBURG LONDON MELBOURNE
MEXICO CITY OSLO PARIS

TABLE OF CONTENTS

Page

| | |
|----------------------------------------------------------------|-----------|
| I. INTRODUCTION, SUMMARY, AND RECOMMENDATIONS | 1 |
| II. BACKGROUND AND METHODOLOGY | 4 |
| III. ACTUARIAL ASSUMPTIONS..... | 5 |
| A. ECONOMIC ASSUMPTIONS..... | 5 |
| B. RETIREMENT RATES..... | 5 |
| C. MORTALITY RATES - HEALTHY..... | 15 |
| D. MORTALITY RATES - DISABLED | 21 |
| E. TERMINATION RATES..... | 25 |
| F. DISABILITY INCIDENCE RATES..... | 34 |
| G. MERIT AND LONGEVITY SALARY INCREASES | 40 |
| H. TERMINAL PAY | 44 |
| I. SERVICE FROM UNUSED SICK LEAVE CONVERSION | 46 |
| J. TIER 2 MEMBERS ELECTING TIER 3 MEMBERSHIP | 48 |
| K. TIER 3 MEMBERS CONVERTING PRIOR TIER 2 SERVICE | 48 |
| APPENDIX A CURRENT ACTUARIAL ASSUMPTIONS | 49 |
| APPENDIX B PROPOSED ACTUARIAL ASSUMPTIONS | 60 |

I. INTRODUCTION, SUMMARY, AND RECOMMENDATIONS

To project the cost and liabilities of the Pension Fund, assumptions are made about all future events that could affect the amount and timing of the benefits to be paid and the assets to be accumulated. Each year actual experience is compared against the assumptions, and to the extent there are differences, the future contribution requirement is adjusted.

If assumptions are changed, contribution requirements are adjusted to take into account a change in the projected experience in all future years. There is a great difference in both philosophy and cost impact between recognizing the actuarial deviations as they occur annually and changing the actuarial assumptions. Taking into account one year's gains or losses without making a change in the assumptions means that that year's experience was temporary and that, over the long run, experience will return to what was originally assumed. Changing assumptions reflects a basic change in thinking about the future, and it has a much greater effect on the current contribution requirements than the gain or loss for a single year.

The use of realistic actuarial assumptions is important in maintaining adequate funding, while paying adequate benefit amounts to participants already retired and to those near retirement. The actuarial assumptions used do not determine the "actual cost" of the plan. The actual cost is determined solely by the benefits and administrative expenses paid out, offset by investment income received. However, it is desirable to estimate as closely as possible what the actual cost will be so as to permit an orderly method for setting aside contributions today to provide benefits in the future, and to maintain equity among generations of participants and taxpayers.

This study was undertaken in order to compare the actual experience during this three year period with that expected under the current assumptions. The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 35, "Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations." This Standard of Practice put forth guidelines for the selection of the various actuarial assumptions utilized in a pension plan actuarial valuation. Based on the study's results and expected near-term experience, we are recommending various changes in the current actuarial assumptions.

We are recommending changes in the assumptions for retirement from active employment, deferred vested retirement age, pre-retirement mortality, healthy life mortality, disabled life mortality, turnover (vested and ordinary), disability (ordinary and duty), salary increases, terminal pay, service from unused sick leave conversion, and Tier 2 members electing Tier 3 membership.

In some cases we have worked to refine and simplify the structure of the assumptions as long as accuracy and predictive power are not lost in the process. For example, some assumptions which currently differentiate between males and females reflect experience which is not significantly different enough to warrant establishing different assumptions by sex. This is also evident by the fact that the current male and female assumptions are fairly close.

Our recommendations for the major actuarial assumption categories are as follows:

Retirement Rates - The probability of retirement at each age at which participants are eligible to retire.

Recommendation: Adjust the current retirement rates to more accurately reflect past experience. General Tier 1 Enhanced members are assumed to retire earlier while General Tier 3 Enhanced and Safety Enhanced members are assumed to retire a little later. For Non-enhanced members the current rates were left almost unchanged.

Mortality Rates - The probability of dying at each age. Mortality rates are used to project life expectancies.

Recommendation: The current post-retirement rates for General male members who retire for service have been adjusted to reflect increased mortality rates equivalent to about one year of age. For General female members the rates have been adjusted to reflect decreased mortality rates equivalent to about one year of age. For Safety female members who retire for service the rates have been changed to use a female version of the mortality table that is being used for Safety male members. For Safety male members a very slight change is recommended. The pre-retirement mortality assumption has been adjusted to be consistent with the table used for post-service retirement mortality. The disabled member mortality rates for General members are unchanged. For Safety members the disabled

mortality rates have been changed to be the same as the non-disabled member rates as there is no significant difference in the mortality experience of disabled and non-disabled members.

Termination Rates - The probability of leaving employment at each age and receiving either a refund of contributions or a deferred vested retirement benefit.

Recommendation: A combined set of withdrawal and termination assumptions is recommended in addition to a new assumption that a member will choose between a refund of contributions and deferred vested benefit based on which option is more valuable.

Disability Incidence Rates - The probability of becoming disabled at each age.

Recommendation: The rates for General members have mostly been decreased to more accurately reflect past experience. For Safety members the rates were increased.

Individual Salary Increases - Increases in the salary of a member between the date of the valuation to the date of separation from active service

Recommendation: The merit and longevity rates have been significantly increased at all ages to reflect recent years' experience.

Terminal Pay – Additional pay elements that are expected to be received during the member's final average earnings period.

Recommendation: Only very slight adjustments to the current assumption are recommended.

Service From Unused Sick Leave Conversion – Additional service that is expected to be received when the member retires.

Recommendation: We recommend introducing an assumption in this valuation to anticipate the value of retirement benefits that are produced from the conversion of unused sick leave at retirement.

Section II provides some background on basic principles and the methodology used for the experience study. A detailed discussion of the experience and reasons for the proposed changes is found in Section III.

II. BACKGROUND AND METHODOLOGY

In this report, we analyzed the “demographic” or “non-economic” assumptions only. Our analysis of the “economic” assumptions for the December 31, 2003 valuation is provided in a separate report. Demographic assumptions include the probabilities of certain events occurring in the population of members, referred to as “decrements,” e.g., withdrawal from service, disability retirement, service retirement, and death after retirement. We also review the individual salary increases net of inflation (i.e., the merit and longevity assumptions) in this report.

Demographic Assumptions

In order to determine the probability of an event occurring, we examine the “decrements” and “exposures” of that event. For example, taking withdrawal from service, we compare the number of employees who actually withdraw in a certain age and/or service category (i.e., the number of “decrements”) with those who could have withdrawn (i.e., the number of “exposures”). For example, if there were 500 active employees in the 20-24 age group at the beginning of the year and 50 of them left during the year, we would say the probability of withdrawal in that age group is $50 \div 500$ or 10%.

The reliability of the resulting probability is highly dependent on both the number of decrements and the number of exposures. For example, if there are only a few people in a high age category at the beginning of the year (number of exposures), we would not lend as much credence to the probability of withdrawal developed for that age category, especially if it is out of line with the pattern shown for the other age groups. Similarly, if we are considering the death decrement, there may be a large number of exposures in, say, the age 20-24 category, but very few decrements (actual deaths); therefore, we would not be able to rely heavily on the probability developed for that category.

One reason we use several years of experience for such a study is to have more exposures and decrements, and therefore more statistical reliability. Another reason for using several years of data is to smooth out fluctuations that may occur from one year to the next. However, we also calculate the rates on a year-to-year basis to check for any trend that may be developing in the later years.

III. ACTUARIAL ASSUMPTIONS

A. ECONOMIC ASSUMPTIONS

The economic assumptions are reviewed on an annual basis. See the separate reported titled "Review of Economic Actuarial Assumptions for the December 31, 2003 Actuarial Valuation" that was issued on February 17, 2004.

B. RETIREMENT RATES

The age at which a member retires will affect both the amount of the benefits that will be paid to that member as well as the period over which funding must take place.

Since the Association adopted improved benefits effective October 1, 2002, we believe retirement probabilities are best estimated using experience collected from the plan year after the benefit improvement (i.e. from January 1, 2003 to December 31, 2003). The service (non-disability) retirement experience for active participants over the last year are provided on the following page.

Actual Rate of Retirement* (From January 1, 2003 to December 31, 2003)

Rate (%)

| Age | Tier 1 | Tier 3 | Safety |
|-------|--------|--------|--------|
| 45-49 | 80.00 | 100.00 | 4.48 |
| 50 | 3.51 | 8.89 | 18.75 |
| 51 | 1.52 | 3.53 | 20.59 |
| 52 | 4.55 | 4.81 | 17.50 |
| 53 | 10.96 | 0.00 | 19.44 |
| 54 | 14.49 | 4.44 | 30.56 |
| 55 | 20.00 | 2.91 | 36.67 |
| 56 | 22.97 | 5.00 | 29.17 |
| 57 | 36.84 | 8.47 | 46.67 |
| 58 | 30.61 | 10.96 | 83.33 |
| 59 | 29.79 | 8.06 | 50.00 |
| 60 | 25.81 | 10.00 | 62.50 |
| 61 | 46.15 | 16.13 | 100.00 |
| 62 | 36.84 | 15.38 | 100.00 |
| 63 | 16.67 | 20.00 | 100.00 |
| 64 | 55.56 | 58.82 | 0.00 |
| 65 | 33.33 | 20.00 | 0.00 |
| 66 | 100.00 | 11.11 | 0.00 |
| 67 | 100.00 | 25.00 | 0.00 |
| 68 | 100.00 | 28.57 | 0.00 |
| 69 | 0.00 | 100.00 | 0.00 |
| 70 | 33.33 | 15.00 | 0.00 |

*Shown for employees with enhanced benefits only. Actual rates are calculated for males and females combined.

The following rates of retirement are currently assumed for those members covered under the enhanced benefit formulas:

| <u>Current Retirement Probability – Enhanced Benefit</u> | | | | | | | |
|-----------------------------------------------------------------|--------|--------|-----------------------|--------|-----------------------|--------|--------|
| Rate (%) | | | | | | | |
| Age | Tier 1 | | Tier 3 ⁽¹⁾ | | Tier 3 ⁽²⁾ | | Safety |
| | Male | Female | Male | Female | Male | Female | |
| 45 | - | - | - | - | - | - | - |
| 46 | - | - | - | - | - | - | - |
| 47 | - | - | - | - | - | - | - |
| 48 | - | - | - | - | - | - | - |
| 49 | - | - | - | - | - | - | - |
| 50 | 3.29 | 3.15 | 3.29 | 3.15 | 2.71 | 2.92 | 33.00 |
| 51 | 3.43 | 2.37 | 3.43 | 2.37 | 2.71 | 2.12 | 25.00 |
| 52 | 5.33 | 5.65 | 5.33 | 5.65 | 4.00 | 4.49 | 25.00 |
| 53 | 9.88 | 8.42 | 9.88 | 8.42 | 7.43 | 6.59 | 33.00 |
| 54 | 14.57 | 11.96 | 14.57 | 11.96 | 10.97 | 9.50 | 33.00 |
| 55 | 16.96 | 14.83 | 16.96 | 14.83 | 13.06 | 11.82 | 50.00 |
| 56 | 16.96 | 17.00 | 16.96 | 17.00 | 13.17 | 13.70 | 50.00 |
| 57 | 10.18 | 10.67 | 10.18 | 10.67 | 8.20 | 9.13 | 50.00 |
| 58 | 10.18 | 11.67 | 10.18 | 11.67 | 8.22 | 9.83 | 50.00 |
| 59 | 19.89 | 16.00 | 19.89 | 16.00 | 15.53 | 13.41 | 50.00 |
| 60 | 24.76 | 18.00 | 24.76 | 18.00 | 19.97 | 15.22 | 100.00 |
| 61 | 15.19 | 13.00 | 15.19 | 13.00 | 12.17 | 11.23 | 100.00 |
| 62 | 43.57 | 40.00 | 43.57 | 40.00 | 34.95 | 33.74 | 100.00 |
| 63 | 24.71 | 25.00 | 24.71 | 25.00 | 20.42 | 21.33 | 100.00 |
| 64 | 34.11 | 20.00 | 34.11 | 20.00 | 29.06 | 19.72 | 100.00 |
| 65 | 46.73 | 30.09 | 46.73 | 30.09 | 46.73 | 30.09 | 100.00 |
| 66 | 35.05 | 35.10 | 35.05 | 35.10 | 35.05 | 35.10 | 100.00 |
| 67 | 34.00 | 35.10 | 34.00 | 35.10 | 34.00 | 35.10 | 100.00 |
| 68 | 30.40 | 35.10 | 30.40 | 35.10 | 30.40 | 35.10 | 100.00 |
| 69 | 28.96 | 50.15 | 28.96 | 50.15 | 28.96 | 50.15 | 100.00 |
| 70 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

⁽¹⁾ Rates apply to members who choose to convert their prior Tier 2 service to Tier 3.

⁽²⁾ Rates apply to members who choose not to convert their prior Tier 2 service to Tier 3.

The following rates of retirement are currently assumed for those members not covered under the enhanced benefit formulas:

| <u>Current Retirement Probability – Non-enhanced Benefit</u> | | | | | | | |
|---------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Rate (%) | | | | | | | |
| Age | Tier 1 | | Tier 2 | | Tier 3 | | Safety |
| | Male | Female | Male | Female | Male | Female | |
| 45 | - | - | - | - | - | - | 0.10 |
| 46 | - | - | - | - | - | - | 0.11 |
| 47 | - | - | - | - | - | - | 0.12 |
| 48 | - | - | - | - | - | - | 0.12 |
| 49 | - | - | - | - | - | - | 0.15 |
| 50 | 3.00 | 3.15 | 2.95 | 3.73 | 1.00 | 2.23 | 0.20 |
| 51 | 3.43 | 2.37 | 2.49 | 3.71 | 0.54 | 1.38 | 0.25 |
| 52 | 3.43 | 2.21 | 2.68 | 3.91 | 0.01 | 0.98 | 0.30 |
| 53 | 3.29 | 2.50 | 3.05 | 4.10 | 0.10 | 1.10 | 0.35 |
| 54 | 2.99 | 4.88 | 3.38 | 5.04 | 0.19 | 2.14 | 0.75 |
| 55 | 10.18 | 6.50 | 6.36 | 4.58 | 1.36 | 2.79 | 1.50 |
| 56 | 10.18 | 9.00 | 6.02 | 5.01 | 1.80 | 3.79 | 2.00 |
| 57 | 10.18 | 10.00 | 5.68 | 5.34 | 2.25 | 4.51 | 3.00 |
| 58 | 10.18 | 11.00 | 5.76 | 4.75 | 2.34 | 4.32 | 4.00 |
| 59 | 10.16 | 12.00 | 5.76 | 4.55 | 2.42 | 5.64 | 20.00 |
| 60 | 24.76 | 18.00 | 14.39 | 14.96 | 5.61 | 6.89 | 17.00 |
| 61 | 15.19 | 13.00 | 12.68 | 12.33 | 3.08 | 5.90 | 17.00 |
| 62 | 43.57 | 40.00 | 15.80 | 17.21 | 9.09 | 14.95 | 18.00 |
| 63 | 24.71 | 25.00 | 11.56 | 7.44 | 7.54 | 10.33 | 20.00 |
| 64 | 34.11 | 20.00 | 10.82 | 27.60 | 13.89 | 18.88 | 100.00 |
| 65 | 46.73 | 30.09 | 19.44 | 29.16 | 26.69 | 16.60 | 100.00 |
| 66 | 35.05 | 35.10 | 14.71 | 25.33 | 22.06 | 20.93 | 100.00 |
| 67 | 34.00 | 35.10 | 11.58 | 30.78 | 25.53 | 22.49 | 100.00 |
| 68 | 30.40 | 35.10 | 37.88 | 41.42 | 30.40 | 35.10 | 100.00 |
| 69 | 28.96 | 50.15 | 40.85 | 33.33 | 28.96 | 50.15 | 100.00 |
| 70 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

The following rates of retirement are proposed for those members covered under the enhanced benefit formulas:

Proposed Retirement Probability – Enhanced Benefit

| Age | Rate (%) | | |
|-----|----------|--------|--------|
| | Tier 1 | Tier 3 | Safety |
| 45 | - | - | - |
| 46 | - | - | - |
| 47 | - | - | - |
| 48 | - | - | - |
| 49 | - | - | - |
| 50 | 3.00 | 3.00 | 30.00 |
| 51 | 3.00 | 3.00 | 25.00 |
| 52 | 5.00 | 5.00 | 25.00 |
| 53 | 10.00 | 5.00 | 25.00 |
| 54 | 15.00 | 10.00 | 30.00 |
| 55 | 20.00 | 10.00 | 45.00 |
| 56 | 20.00 | 10.00 | 45.00 |
| 57 | 25.00 | 10.00 | 50.00 |
| 58 | 25.00 | 10.00 | 50.00 |
| 59 | 25.00 | 10.00 | 50.00 |
| 60 | 25.00 | 15.00 | 100.00 |
| 61 | 30.00 | 15.00 | 100.00 |
| 62 | 30.00 | 25.00 | 100.00 |
| 63 | 30.00 | 25.00 | 100.00 |
| 64 | 30.00 | 30.00 | 100.00 |
| 65 | 35.00 | 35.00 | 100.00 |
| 66 | 35.00 | 35.00 | 100.00 |
| 67 | 35.00 | 35.00 | 100.00 |
| 68 | 35.00 | 35.00 | 100.00 |
| 69 | 35.00 | 35.00 | 100.00 |
| 70 | 100.00 | 100.00 | 100.00 |

These proposed rates anticipate that General Tier 3 members and Safety members will retire later than the current assumptions. General Tier 1 members rates anticipate earlier retirement than the current assumptions. The retirement rates for General male and females have been developed on a combined basis since no significant differences in retirement rates by sex were observed.

For those members not covered under the enhanced benefit formulas, we are recommending that the current retirement rates be left almost unchanged. There is only a small group of members covered by the non-enhanced formulas and there is insufficient data to allow a modification of the rates. However, we have combined the gender specific rates to a unisex basis in a manner that will have an insignificant effect on the valuation results. The proposed rates are as follows:

Proposed Retirement Probability – Non-enhanced Benefit

| Age | Rate (%) | | | |
|-----|----------|--------|--------|--------|
| | Tier 1 | Tier 2 | Tier 3 | Safety |
| 45 | - | - | - | - |
| 46 | - | - | - | - |
| 47 | - | - | - | - |
| 48 | - | - | - | - |
| 49 | - | - | - | - |
| 50 | 3.00 | 3.00 | 2.00 | 1.00 |
| 51 | 3.00 | 3.00 | 2.00 | 1.00 |
| 52 | 3.00 | 3.00 | 2.00 | 1.00 |
| 53 | 3.00 | 3.00 | 2.00 | 1.00 |
| 54 | 3.00 | 3.00 | 2.00 | 1.00 |
| 55 | 10.00 | 5.00 | 2.00 | 2.00 |
| 56 | 10.00 | 5.00 | 4.00 | 2.00 |
| 57 | 10.00 | 5.00 | 4.00 | 3.00 |
| 58 | 10.00 | 5.00 | 4.00 | 4.00 |
| 59 | 10.00 | 5.00 | 5.00 | 20.00 |
| 60 | 25.00 | 15.00 | 5.00 | 17.00 |
| 61 | 15.00 | 15.00 | 5.00 | 17.00 |
| 62 | 40.00 | 15.00 | 15.00 | 18.00 |
| 63 | 25.00 | 10.00 | 10.00 | 20.00 |
| 64 | 30.00 | 25.00 | 20.00 | 100.00 |
| 65 | 40.00 | 25.00 | 20.00 | 100.00 |
| 66 | 35.00 | 25.00 | 20.00 | 100.00 |
| 67 | 35.00 | 25.00 | 20.00 | 100.00 |
| 68 | 35.00 | 40.00 | 35.00 | 100.00 |
| 69 | 35.00 | 40.00 | 50.00 | 100.00 |
| 70 | 100.00 | 100.00 | 100.00 | 100.00 |

Chart 1 compares actual experience with the assumed and proposed rates of retirement for General Tier 1 members covered by the Enhanced formula. The assumed rates are male and female rates combined based on the actual number of males and females. Chart 2 has the same data for General Tier 3 members and Chart 3 has the same data for Safety members.

In prior valuations, deferred vested General and Safety members were assumed to retire at age 62 and 55, respectively. The average age at retirement over the prior three years was 58 for General and 55 for Safety. We recommend modifying the assumed retirement age for deferred vested participants to age 58 for General members. We also recommend leaving the Safety assumption at age 55.

It was also assumed that 40% of inactive General and Safety deferred vested participants would be reciprocal and receive 5.25% salary increases from termination until their date of retirement. Based on the actual experience that 52% of General and Safety members went on to be covered by a reciprocal retirement system during the last three years, we recommend a 50% reciprocal assumption be utilized for both General and Safety members. Based on our higher recommended merit and longevity salary increase assumptions, we propose a 6.00% salary increase assumption be utilized to anticipate salary increases from termination to the expected date of retirement.

In prior valuations, it was assumed that 80% of all active male members and 55% of all active female members would be married when they retired. According to experience of members who retired during the last three years, about 72% of all male members and 52% of all female members were married at retirement. However, we recommend no change at this time due to the following two reasons:

- 1) Spouses of members who marry for the first time or remarry after retirement are eligible for survivor continuance benefits; and
- 2) Starting January 1, 2005 surviving domestic partners become eligible for this benefit.

Based on observed experience from members who retired during the last three years, we also recommend that we maintain the assumption that when active members retire, female spouses are assumed to be three years younger than their male spouses. Spouses will be assumed to be of the opposite sex to the member until we have actual experience concerning domestic partners.

Chart 1
Retirement Rates - General Tier 1 Members with
Enhanced Benefits

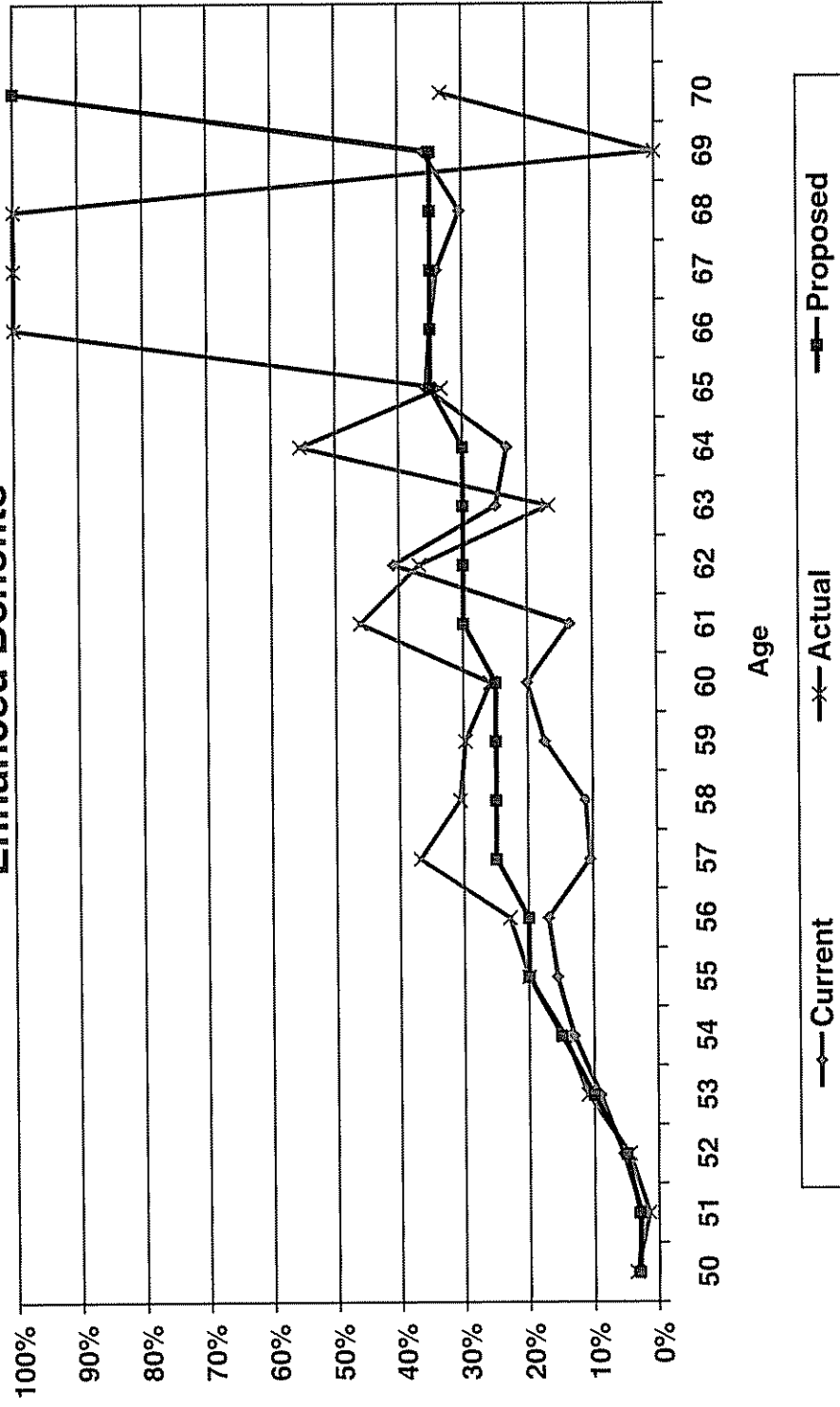


Chart 2
Retirement Rates - General Tier 3 Members with
Enhanced Benefits

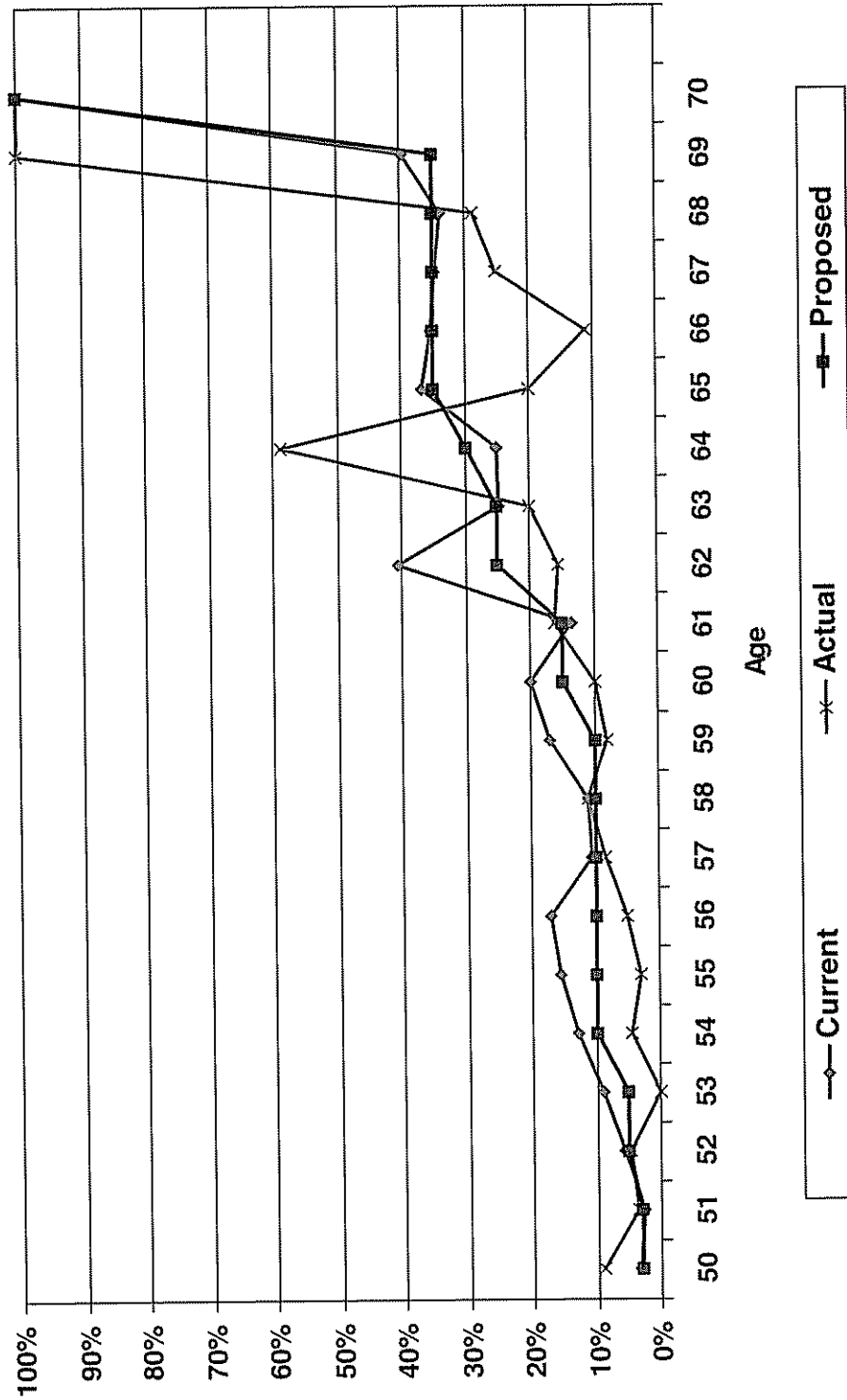
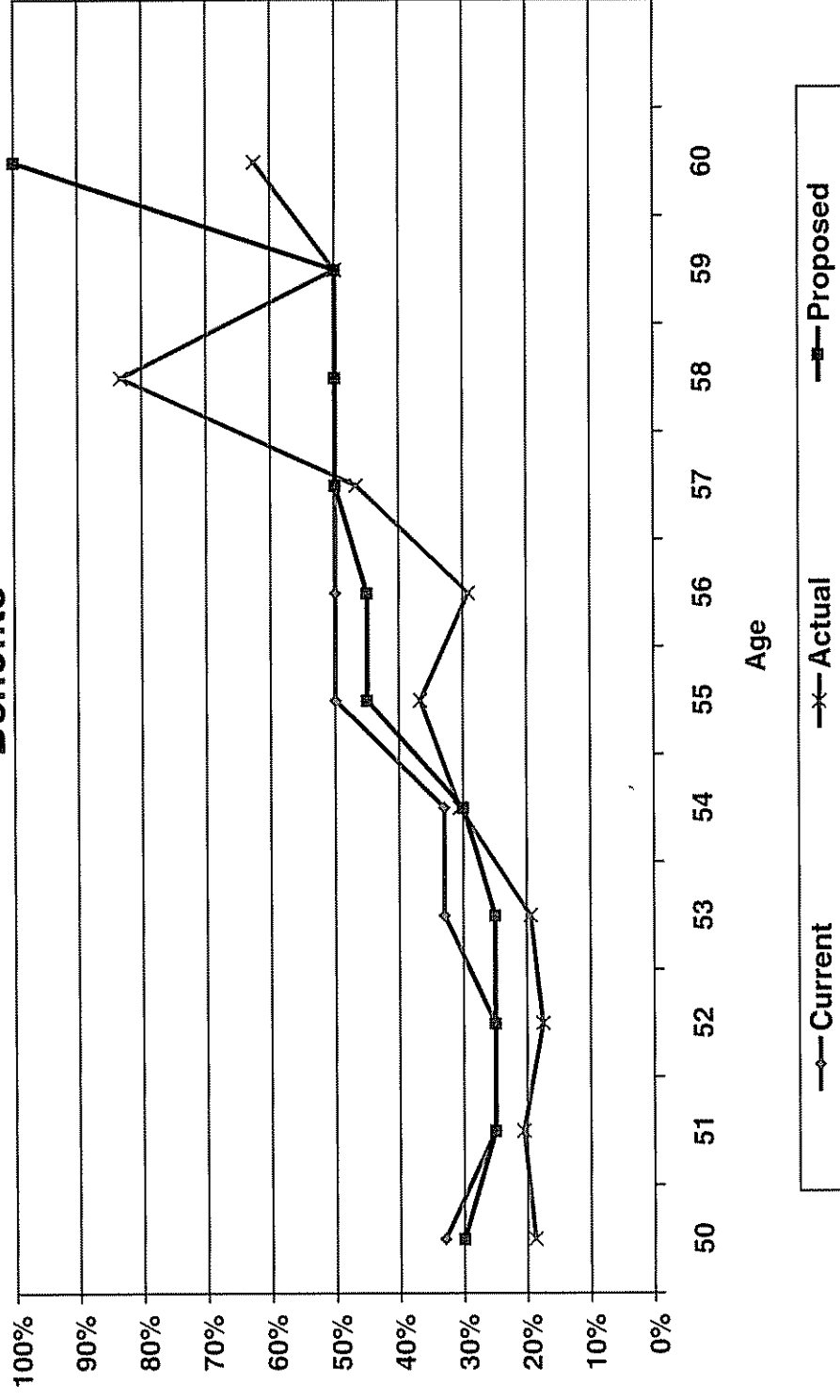


Chart 3 Retirement Rates - Safety Members with Enhanced Benefits



C. MORTALITY RATES - HEALTHY

The "healthy" mortality rates project what proportion of members will die before retirement as well as the life expectancy of a member who retires for service (i.e., who did not retire on disability pension). The tables currently being used for post-service retirement mortality rates are the 1994 Uninsured Pensioner Mortality Male and Female Tables. For General members the male table is set back one year and the female table is set forward one year. For Safety members the male table is used for all members and is set forward one year. For beneficiaries of General Members the female table set forward one year is used.

Mortality Table for Member Contributions

We recommend that the mortality table used for determining contributions for General members be changed from the 1994 Uninsured Pensioner Mortality Table for Males with a three year set back to the 1994 Group Annuity Mortality Table set forward one year weighted 30% male and 70% female. This is based on the proposed valuation table for General members and the sex distribution of General members.

For Safety members, we recommend the mortality table be changed from the 1994 Uninsured Pensioner Mortality Table for Males with a one year set forward to the 1994 Group Annuity Mortality Table with a two year set forward weighted 85% male and 15% female. This is based on the proposed valuation table for Safety members and the actual sex distribution of members.

Pre-Retirement Mortality

The number of deaths among active members is not large enough to provide statistics sufficient enough to develop a unique table. Therefore, it is assumed that pre-retirement mortality at retirement mortality will follow the same tables. All pre-retirement deaths are assumed ordinary (non-duty). This is based on the last three years data and discussions with staff of the Association office.

Post-Retirement Mortality (Service Retirements)

Among service retired members, the actual deaths compared to the expected deaths under the current assumption for the last three years is as follows:



ent as
: on a
es are
rs the
mbers
Safety

mbers
ear set
ie and
actual



nsured
munity
based
Safety

edible
l post-
to be
at the

er the



| | General - Healthy | | | Safety - Healthy | | |
|-------------------|-------------------|--------------------------|---------------|------------------|--------------------------|---------------|
| | Expected Deaths | Proposed Expected Deaths | Actual Deaths | Expected Deaths | Proposed Expected Deaths | Actual Deaths |
| 2001 | 100 | 101 | 118 | 12 | 12 | 13 |
| 2002 | 107 | 107 | 132 | 10 | 11 | 12 |
| 2003 | 110 | 110 | 123 | 13 | 14 | 13 |
| Total | 317 | 318 | 373 | 35 | 37 | 38 |
| Actual / Expected | 118% | 117% | | 109% | 103% | |

Chart 4 compares actual to expected deaths for General members under the current and proposed assumptions for all pensioners over the last three years. Experience shows that there were more deaths than predicted by the current table. Note that for General members the number of actual deaths observed during the 1998-2000 experience study, was very close to the expected deaths as recommended in this study.

Chart 5 has the same comparison for Safety members. Experience shows that there were almost the same number of deaths as expected.

For General male service retirees the ratio of actual to expected deaths was 135%. For females, the ratio was 106%. Therefore, we recommend changing to the 1994 Group Annuity Mortality Table (separate tables for males and females) with a one year set forward. This will bring the male and female actual to expected ratios to 121% and 115%, respectively.

For Safety service retirees the ratio of actual to expected deaths was 109%. We recommend changing to the 1994 Group Annuity Mortality Table (separate tables for males and females) with a two year set forward. This will bring the actual to expected ratio to 103%. We will continue to monitor this assumption closely in future studies.

Chart 6 shows the life expectancies under the current and the proposed tables for General Members.

Chart 7 has the same information for Safety members.

Chart 4
Post - Retirement Deaths (General)
Non - Disabled Members

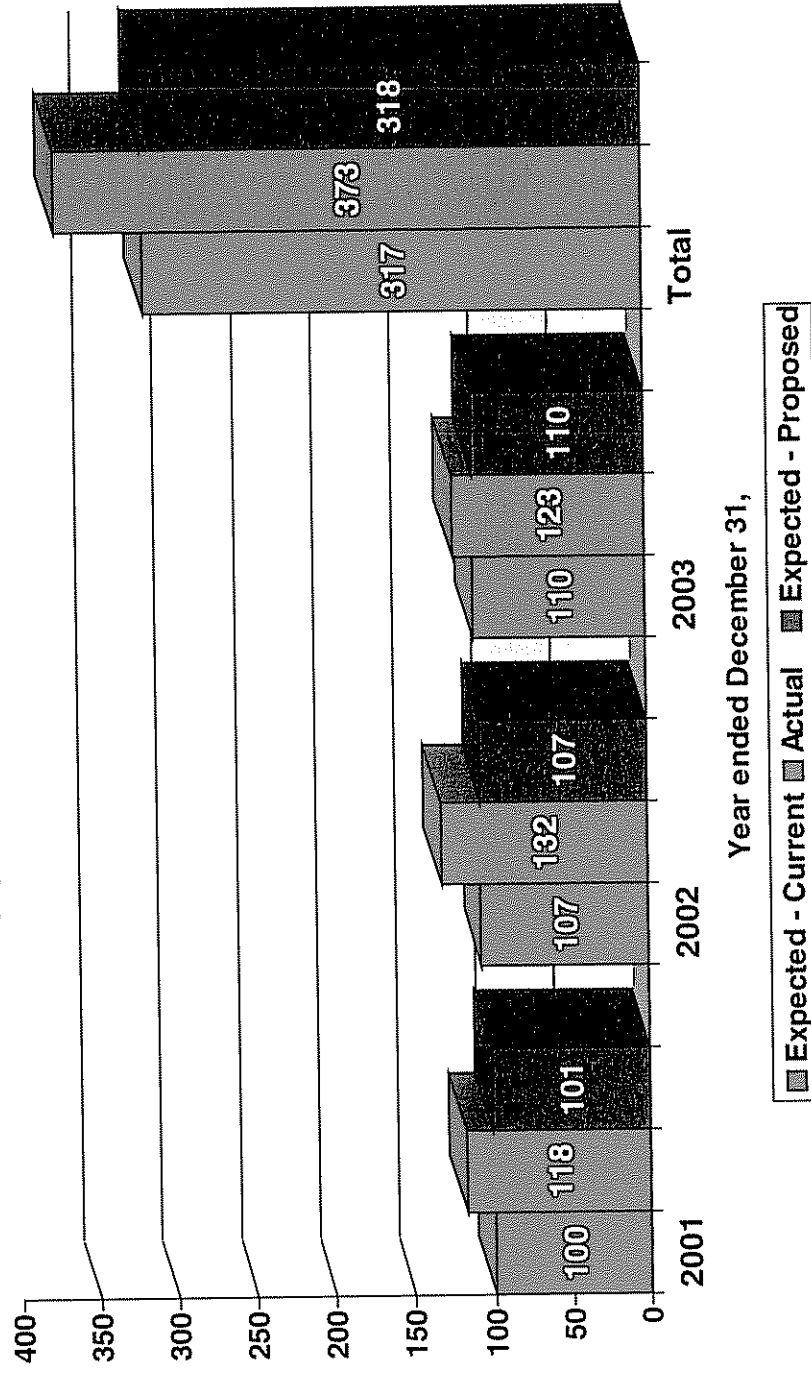


Chart 5
Post - Retirement Deaths (Safety)
Non - Disabled Members

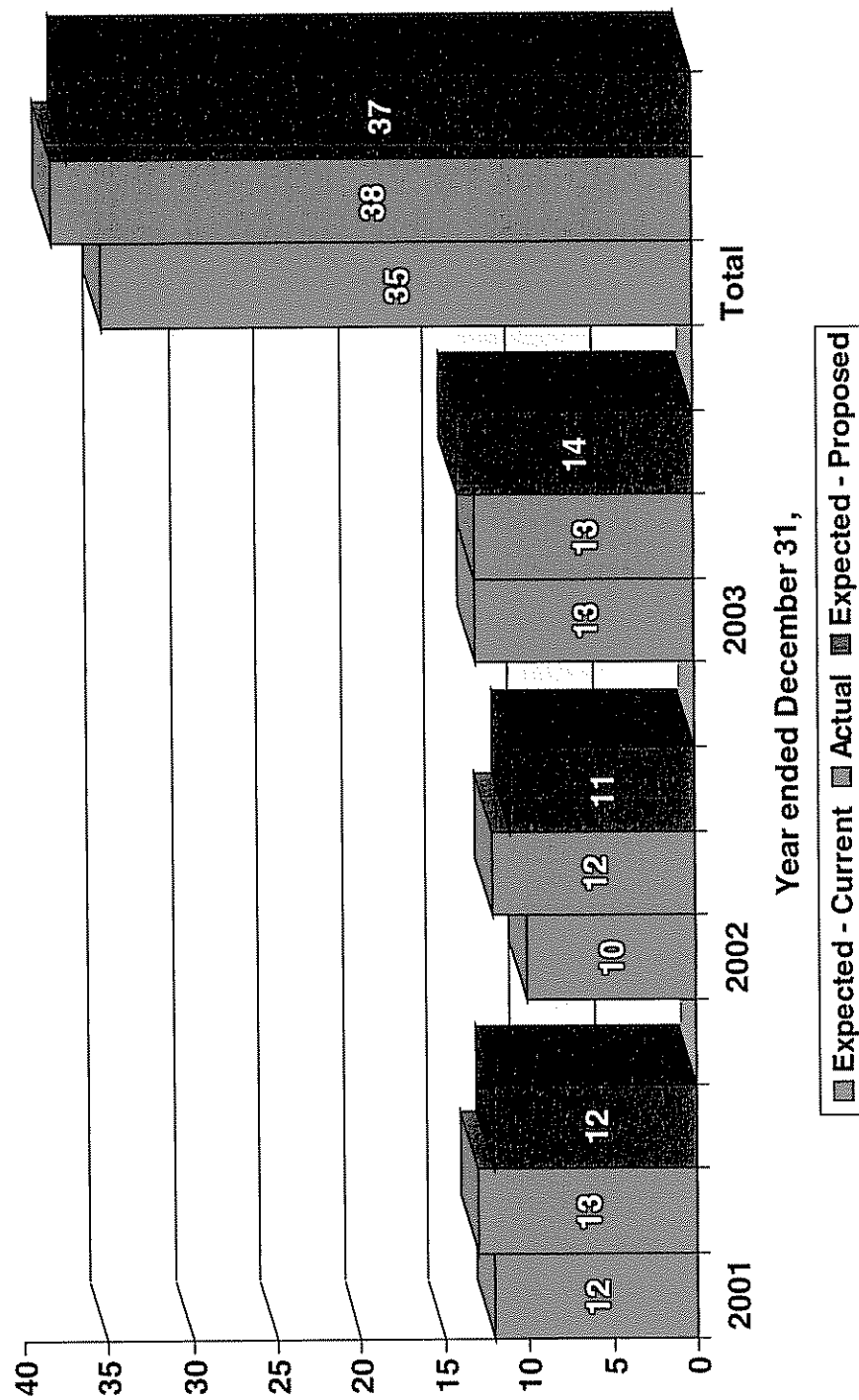


Chart 6

Life Expectancies (General)

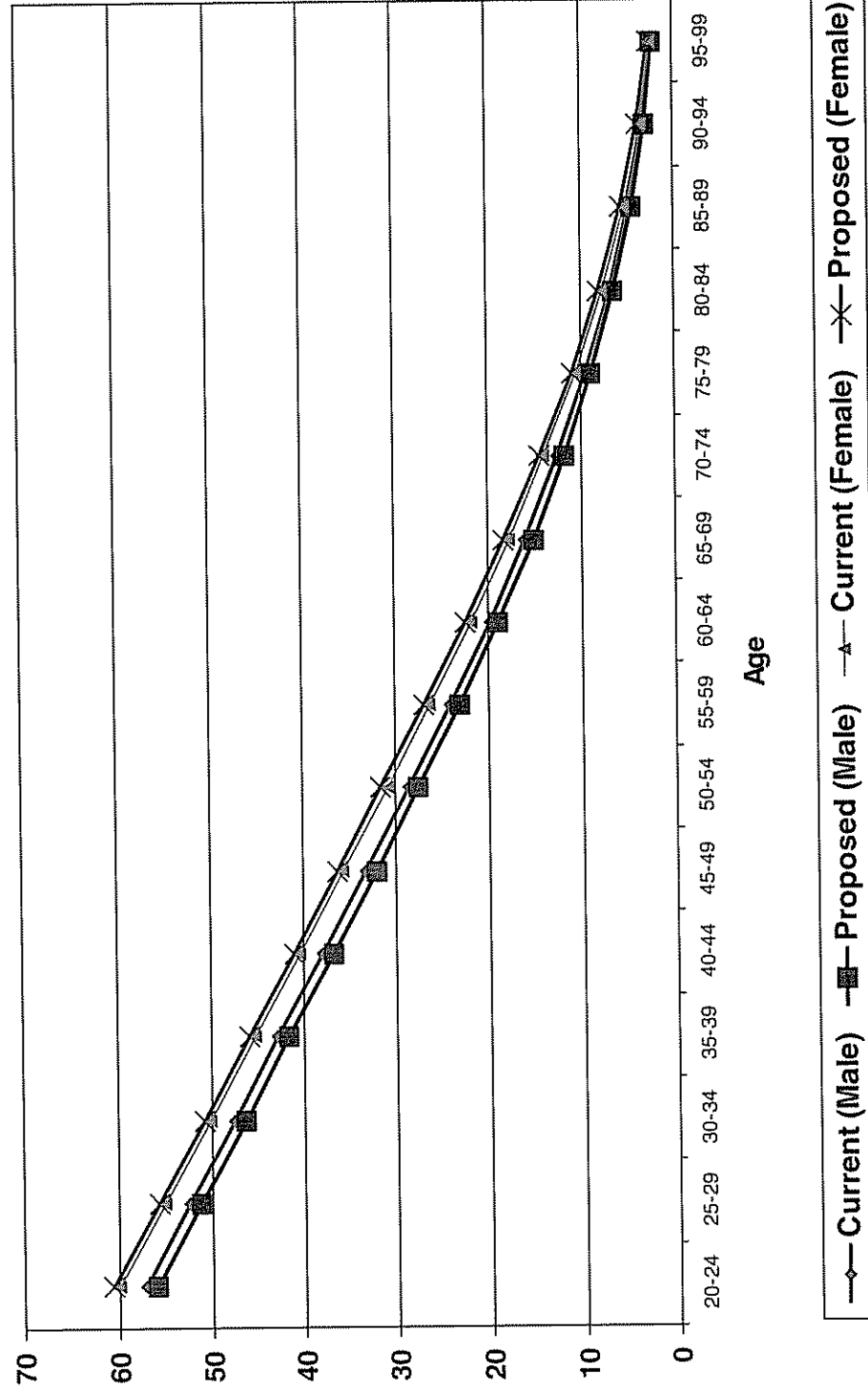
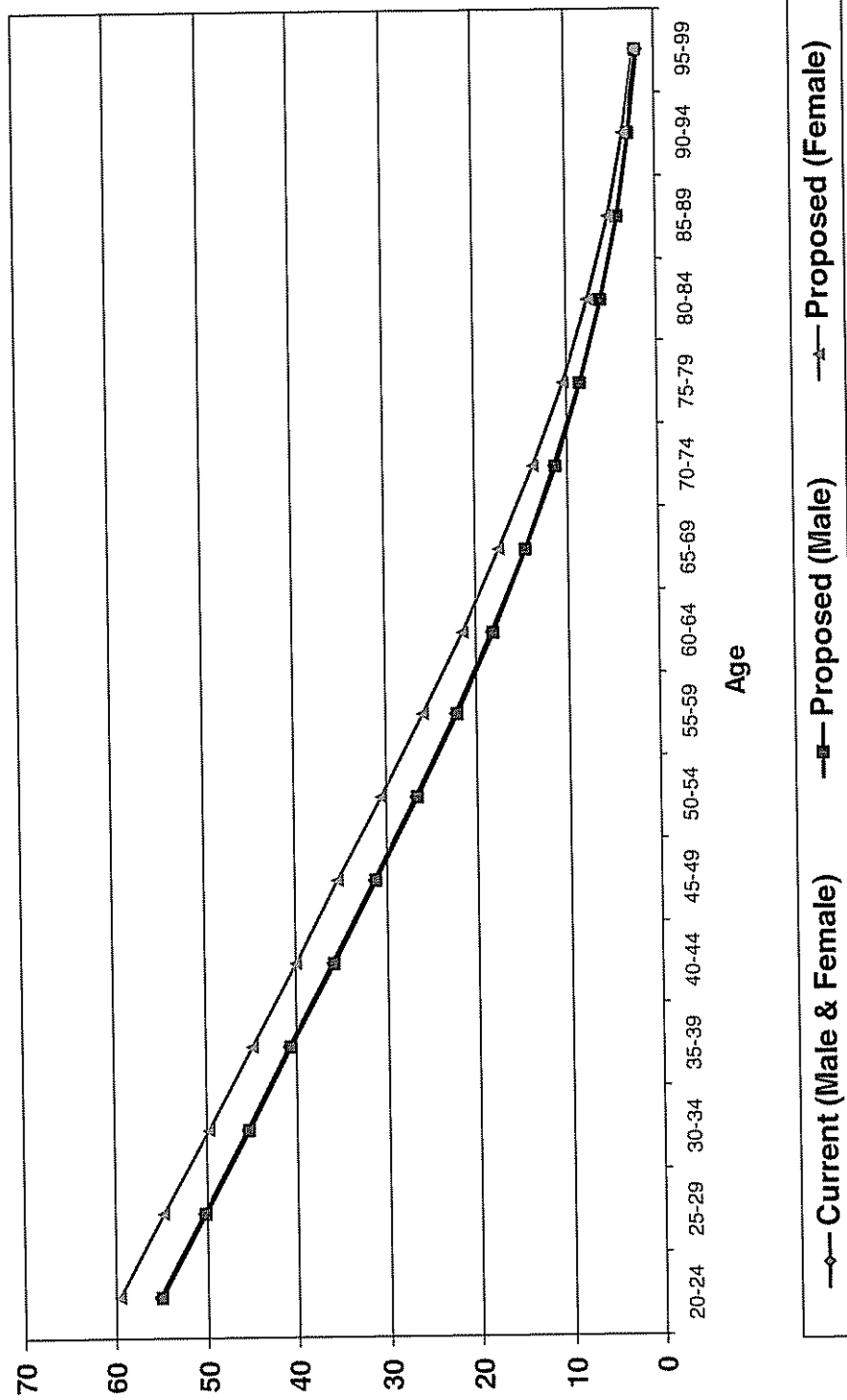


Chart 7 **Life Expectancies (Safety)**



D. MORTALITY RATES - DISABLED

Since death rates for disabled members are sometimes higher than for healthy members, a different mortality assumption is used. The table currently being used for General members is the 1981 Disability Mortality Table (General) set back three years. For Safety members, the 1981 Disability Mortality Table (Safety) with no adjustment is used.

The number of actual deaths compared to the number expected for the last three years has been as follows:

| | General – Disability | | | Safety – Disabled | | |
|-------------------|----------------------|--------------------------|---------------|-------------------|--------------------------|---------------|
| | Expected Deaths | Proposed Expected Deaths | Actual Deaths | Expected Deaths | Proposed Expected Deaths | Actual Deaths |
| 2001 | 17 | 17 | 23 | 8 | 4 | 4 |
| 2002 | 18 | 18 | 17 | 8 | 5 | 6 |
| 2003 | 18 | 18 | 25 | 9 | 5 | 4 |
| Total | 53 | 53 | 65 | 25 | 14 | 14 |
| Actual / Expected | 123% | 123% | | 56% | 100% | |

Chart 8 compares actual to expected deaths under both the current and proposed assumptions for disabled General members over the last three years.

Chart 9 compares actual to expected deaths under both the current and proposed assumptions for disabled Safety members over the last three years.

Based on the combined experience for all disabled retirees, we recommend that the mortality table for General members remain unchanged and the 1994 Group Annuity Mortality Table (separate tables for males and females) with ages set forward two years be used for Safety members. These are the same tables that are recommended for healthy Safety members. Note that the number of actual deaths observed during the 1998-2000 experience study, was very close to the expected deaths as recommended in this study. We have found that, in the aggregate, it is not uncommon in 1937 Act Plans for Safety disabled members to have similar mortality to their non-disabled counterparts and we have recommended similar changes for some other clients.

Chart 10 shows the life expectancies under both the current and proposed tables for both General and Safety.

Chart 8
Post - Retirement Deaths
Disabled General Members

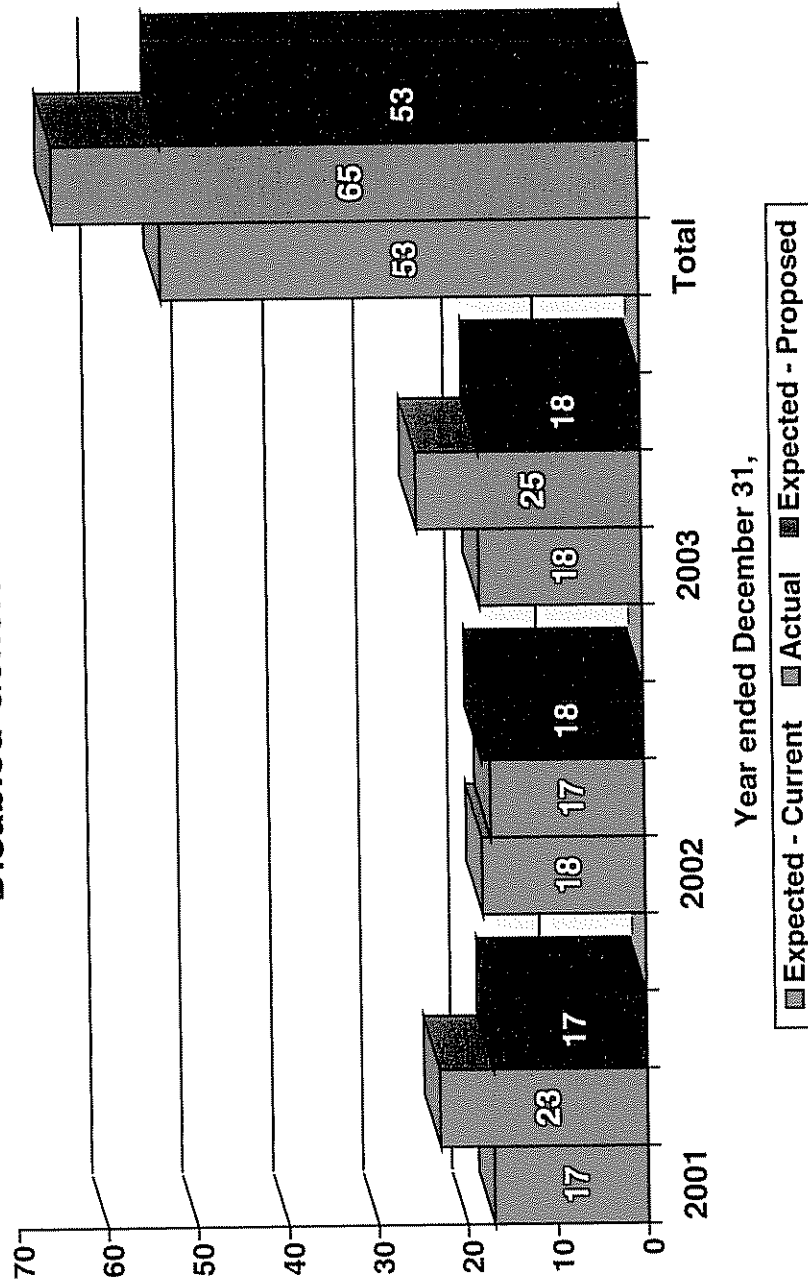


Chart 9
Post - Retirement Deaths
Disabled Safety Members

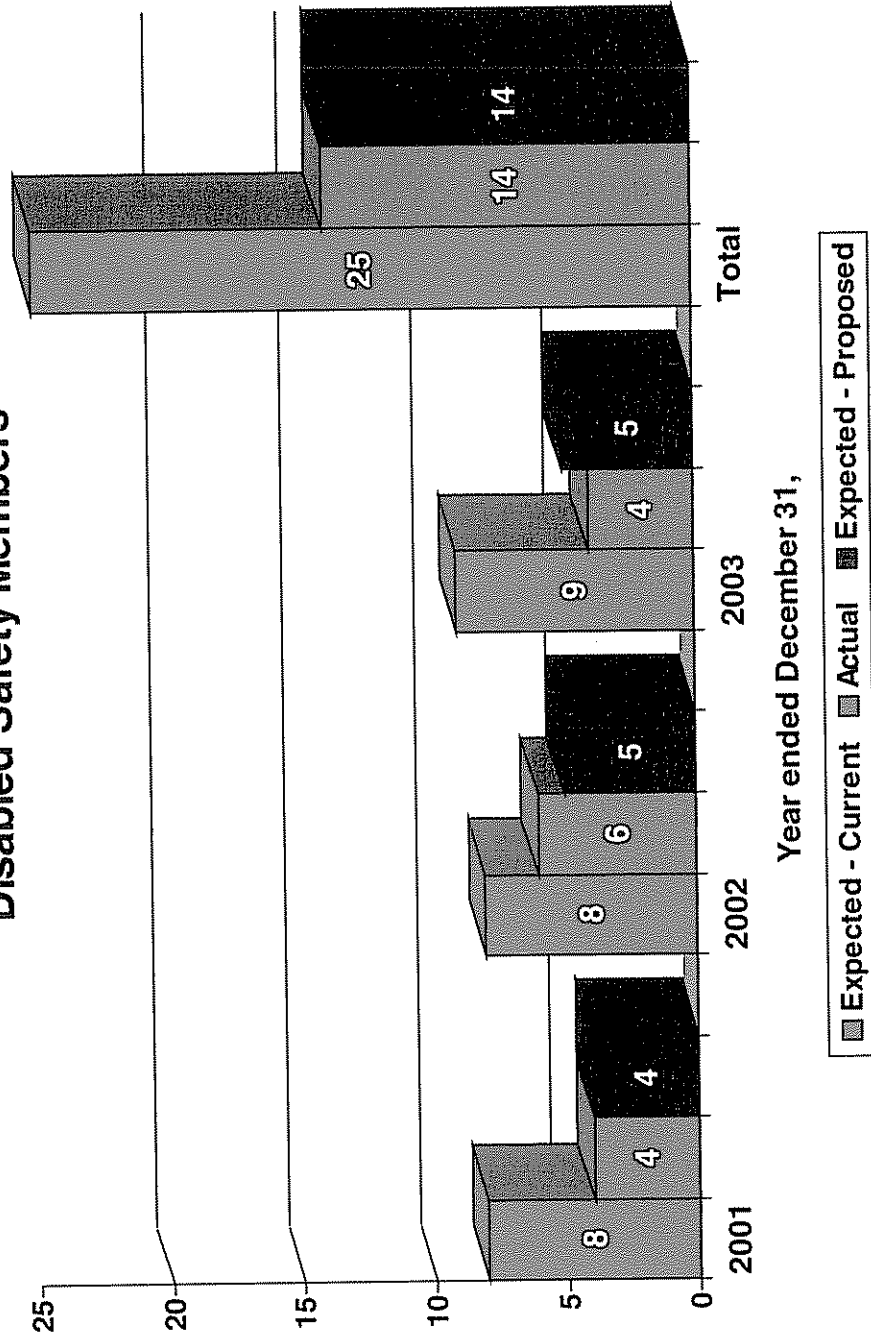
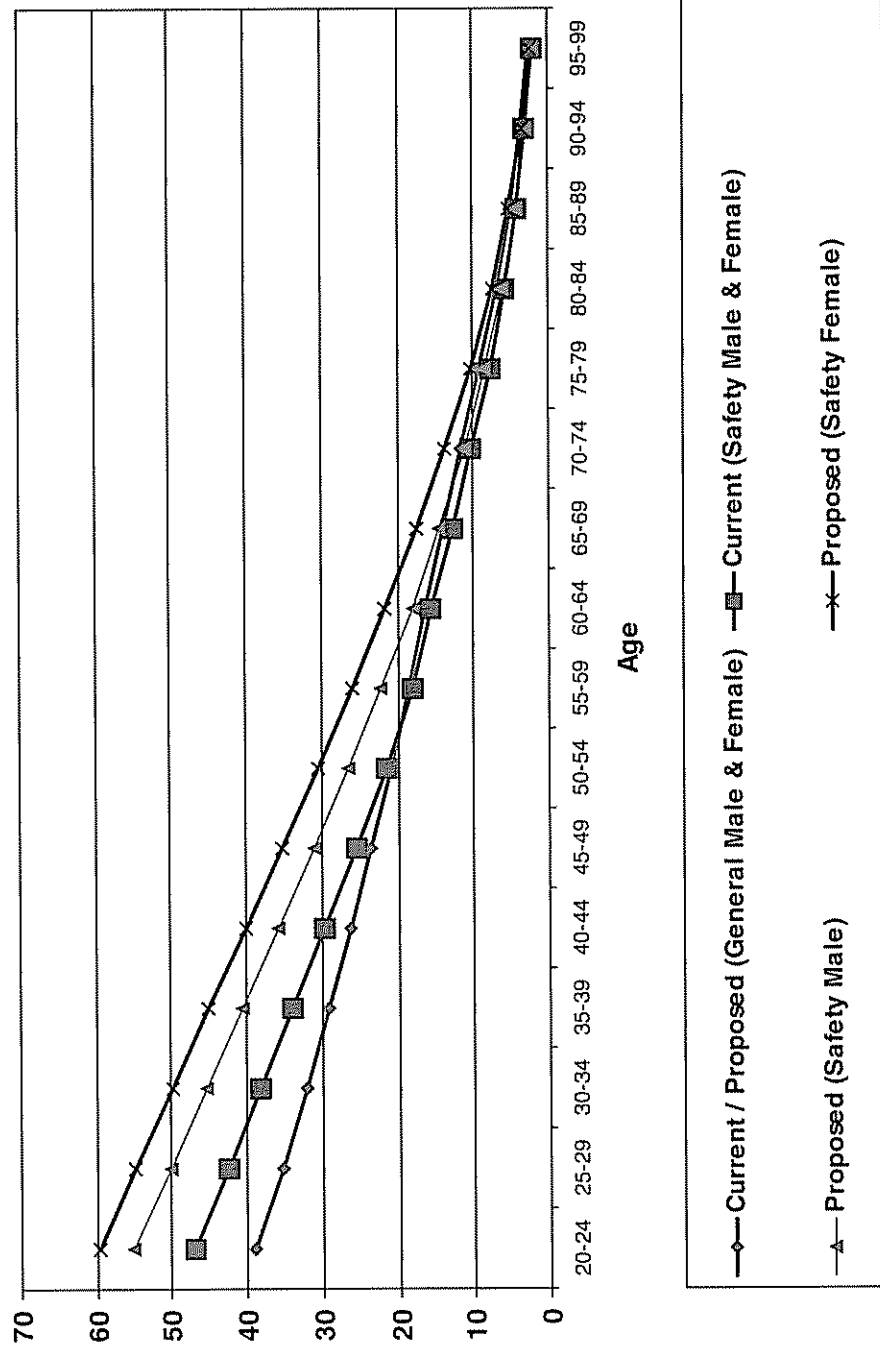


Chart 10 Life Expectancies (Disabled)



E. TERMINATION RATES

Termination rates include all terminations for reasons other than death, disability, or retirement. Under the current assumptions there is a separate set of assumptions for ordinary withdrawal and for vested termination to predict, respectively, those members who are anticipated to withdraw their contributions (ordinary withdrawal) or leave their contributions on deposit and receive a deferred vested benefit (vested termination). With this experience study we are recommending that a combined set of withdrawal and termination assumptions be used, together with a new assumption that a member will choose between a refund of contributions and deferred vested benefit based on which option is more valuable. We are also combining the experience for all General members together in deriving a proposed assumption that will apply to all General members. This methodology will also be applied to Safety members. The termination experience over the last three years for General and Safety members split between those employees with under five years of service and those with five or more years of service is as follows:

Rates of Withdrawal (General) (Fewer than Five Years of Service)

| <u>Years of Service</u> | <u>Current Rate*</u> | <u>Observed Rate</u> | <u>Proposed Rate</u> |
|-------------------------|----------------------|----------------------|----------------------|
| 0 | 19.85% | 11.87% | 13.00% |
| 1 | 4.73 | 7.16 | 7.00 |
| 2 | 4.52 | 5.66 | 6.00 |
| 3 | 4.30 | 5.59 | 5.00 |
| 4 | 4.02 | 3.45 | 4.00 |

*Current rate varies by age also. Rate listed is an average weighted by those in each age category. These rates are also the General Tier 1 and General Tier 3 rates for those members receiving enhanced benefits.

Rates of Withdrawal (Safety) (Fewer than Five Years of Service)

| <u>Years of Service</u> | <u>Current Rate*</u> | <u>Observed Rate</u> | <u>Proposed Rate</u> |
|-------------------------|----------------------|----------------------|----------------------|
| 0 | 5.26% | 9.51% | 9.00% |
| 1 | 4.32 | 6.19 | 6.00 |
| 2 | 4.12 | 6.19 | 5.00 |
| 3 | 3.88 | 4.29 | 4.00 |
| 4 | 3.58 | 2.71 | 3.00 |

*Current rate varies by age also. Rate listed is an average weighted by those in each age category.

Rates of Termination (General)
(Five or More Years of Service)

| <u>Age</u> | <u>Current Rate*</u> | <u>Observed Rate</u> | <u>Proposed Rate</u> |
|------------|----------------------|----------------------|----------------------|
| 20 – 24 | 3.00% | 0.00% | 4.00% |
| 25 – 29 | 10.35 | 1.35 | 4.00 |
| 30 – 34 | 6.19 | 3.70 | 4.00 |
| 35 – 39 | 4.03 | 3.42 | 4.00 |
| 40 – 44 | 2.52 | 3.27 | 3.61 |
| 45 – 49 | 1.25 | 2.50 | 2.71 |
| 50 – 54 | 0.36 | 0.88 | 0.91 |
| 55 – 59 | 0.23 | 1.17 | 0.12 |
| 60 – 64 | 0.11 | 1.05 | 0.00 |
| 65 – 69 | 0.00 | 3.47 | 0.00 |

*Rate listed is an average weighted by those in each category. It is the sum of the ordinary and vested termination rates. These rates are also the General Tier 1 and General Tier 3 rates for those members receiving enhanced benefits.

Rates of Termination (Safety)
(Five or More Years of Service)

| <u>Age</u> | <u>Current Rate*</u> | <u>Observed Rate</u> | <u>Proposed Rate</u> |
|------------|----------------------|----------------------|----------------------|
| 20 – 24 | 2.44% | 0.00% | 3.00% |
| 25 – 29 | 3.65 | 16.00 | 3.00 |
| 30 – 34 | 2.91 | 1.67 | 2.43 |
| 35 – 39 | 1.79 | 1.17 | 1.75 |
| 40 – 44 | 1.43 | 0.74 | 1.30 |
| 45 – 49 | 0.53 | 0.93 | 0.64 |
| 50 – 54 | 0.26 | 0.45 | 0.00 |
| 55 – 59 | 0.06 | 0.00 | 0.00 |
| 60 – 64 | 0.00 | 0.00 | 0.00 |

*Rate listed is an average weighted by those in each category. It is the sum of the ordinary withdrawal and vested termination rates.

Chart 11 compares actual to expected terminations over the past three years for both the current and proposed assumptions for General members.

Chart 12 graphs the same information as Chart 11, but for Safety members.

Chart 13 shows the current, along with the proposed withdrawal rates for General members with less than five years of service.

Chart 14 shows the same information as Chart 13, but for Safety members.

Chart 15 shows the current, along with the proposed termination rates for General members with five or more years of service.

Chart 16 shows the same information as Chart 15, but for Safety members.

Based upon the recent experience, the withdrawal rates for General members with less than five years of service have been increased in most cases. These select rates are now based on years of service only and not age. For General members with five or more years of service we have lowered the termination rates under age 40 and increased some rates at older ages. For Safety members with less than five years of service the withdrawal rates have been increased except for the lowering of the rate for those with at least four but less than five years of service. For Safety members with five or more years of service we have decreased the withdrawal rates in most cases. We also assume that all termination rates are zero for all members eligible to retire, that is, it is assumed that members eligible to retire at termination will retire rather than defer their benefit.

Chart 11
Actual Number of Terminations Compared
to Expected (General Members)

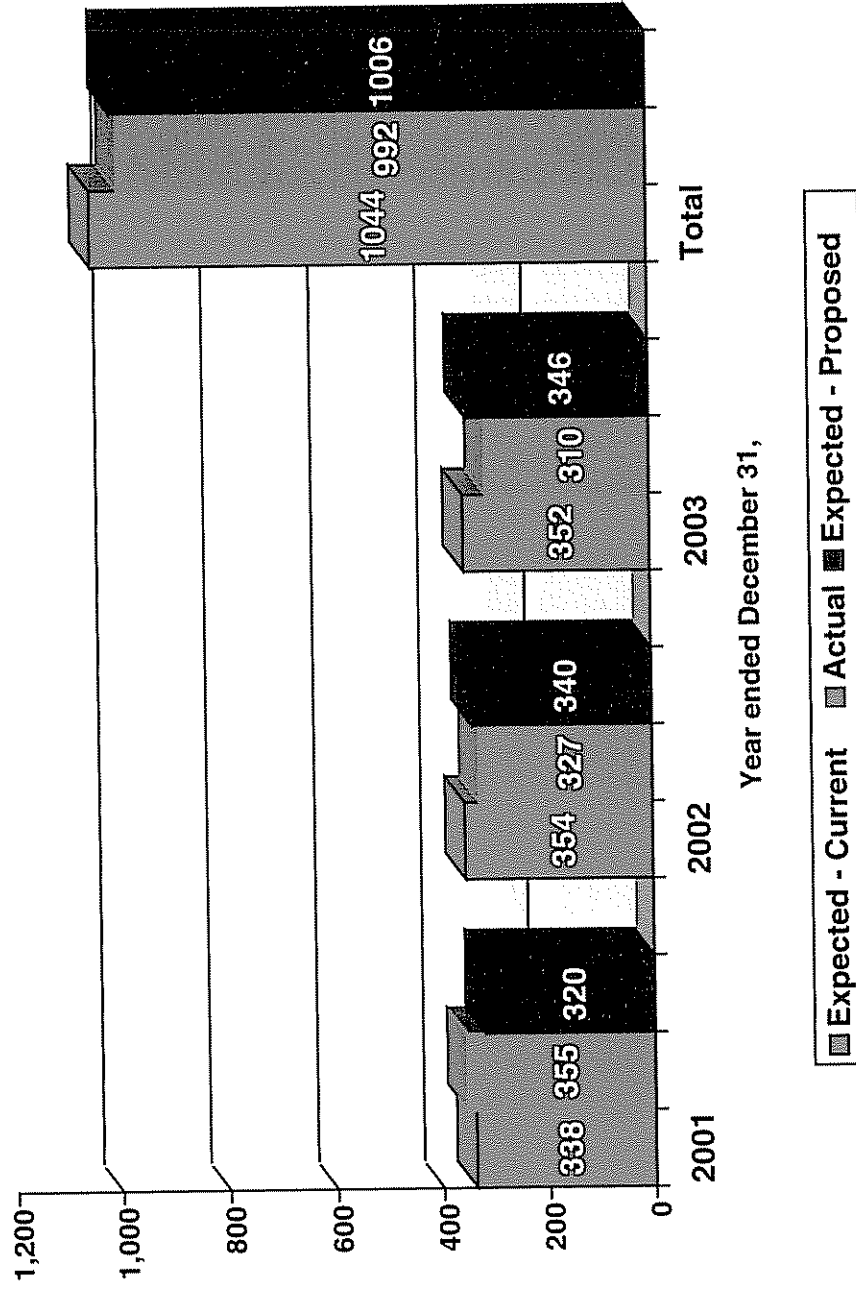


Chart 12
Actual Number of Terminations Compared
to Expected (Safety members)

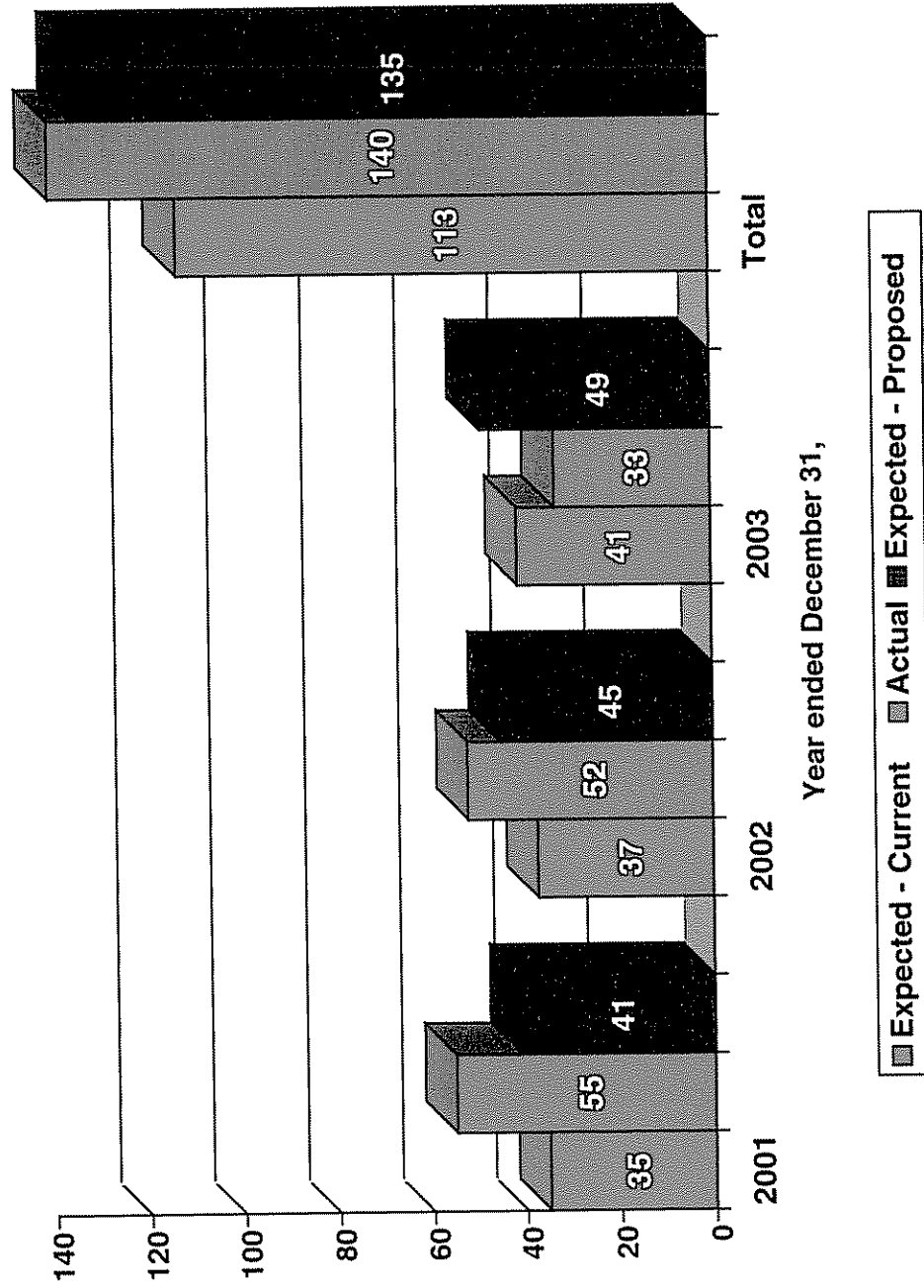


Chart 13
Withdrawal Rates - General Members
(Less than 5 Years of Service)

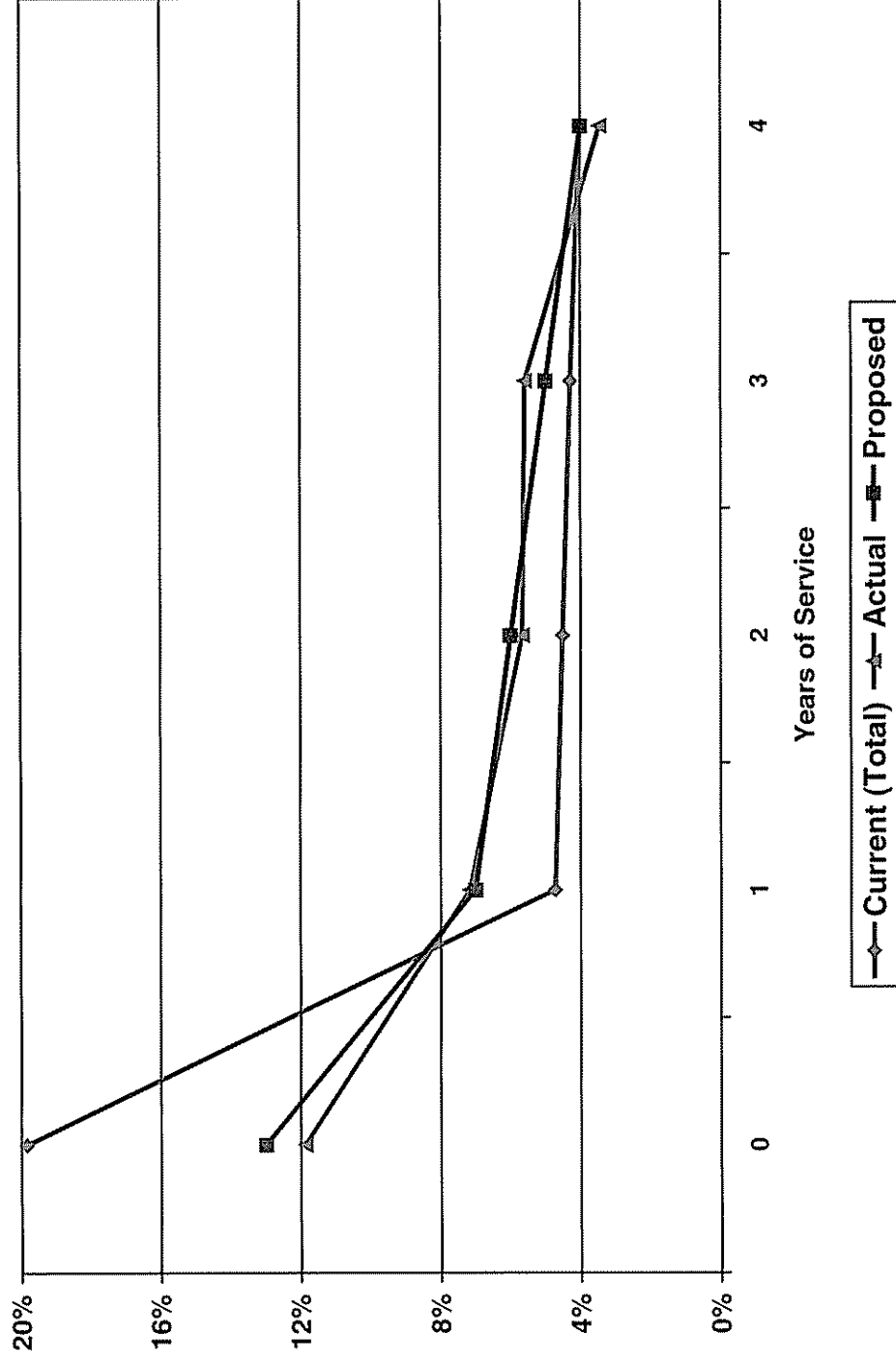


Chart 14
Withdrawal Rates - Safety Members
(Less Than 5 Years of Service)

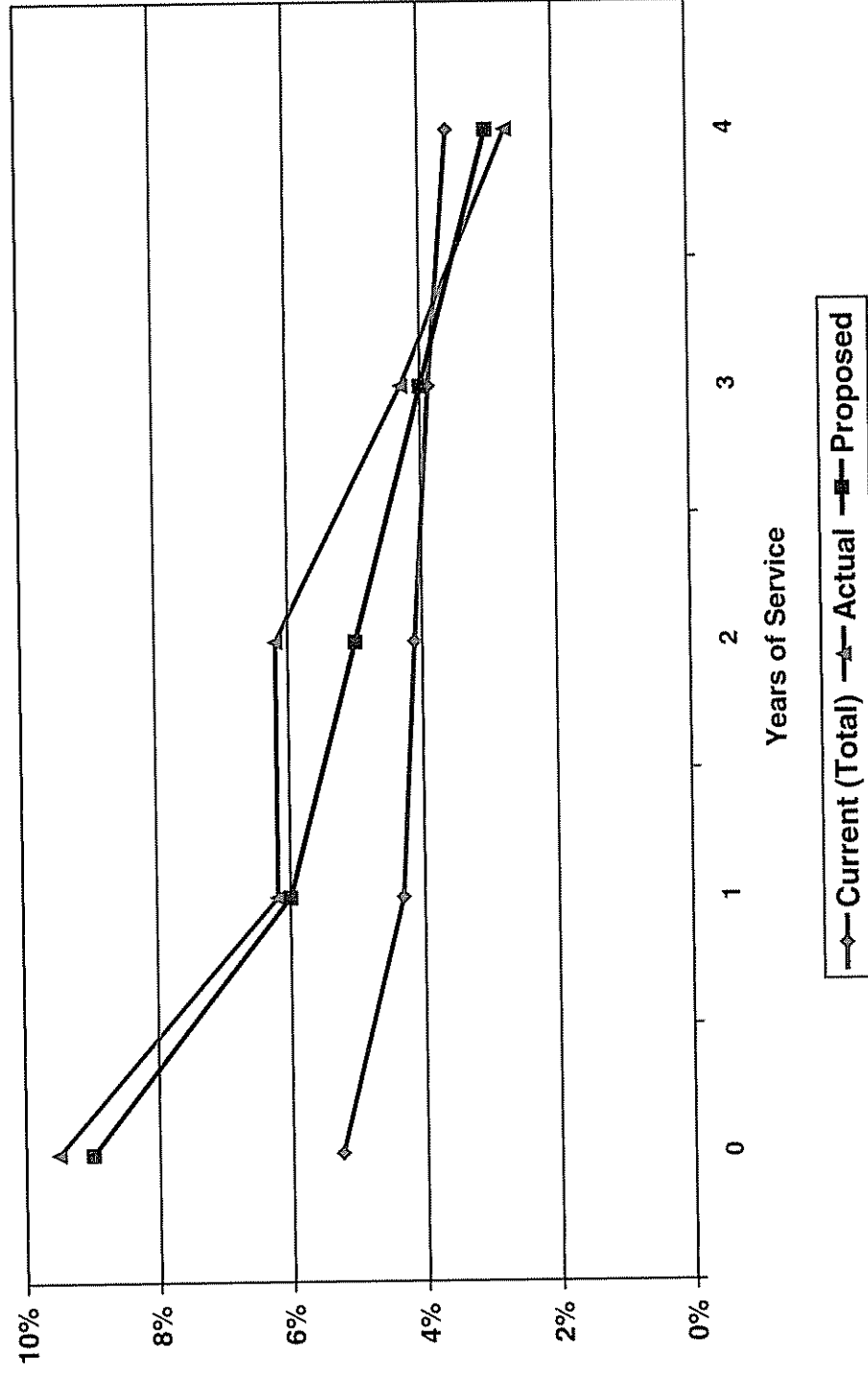


Chart 15
Withdrawal Rates - General Members
(5 or More Years of Service)

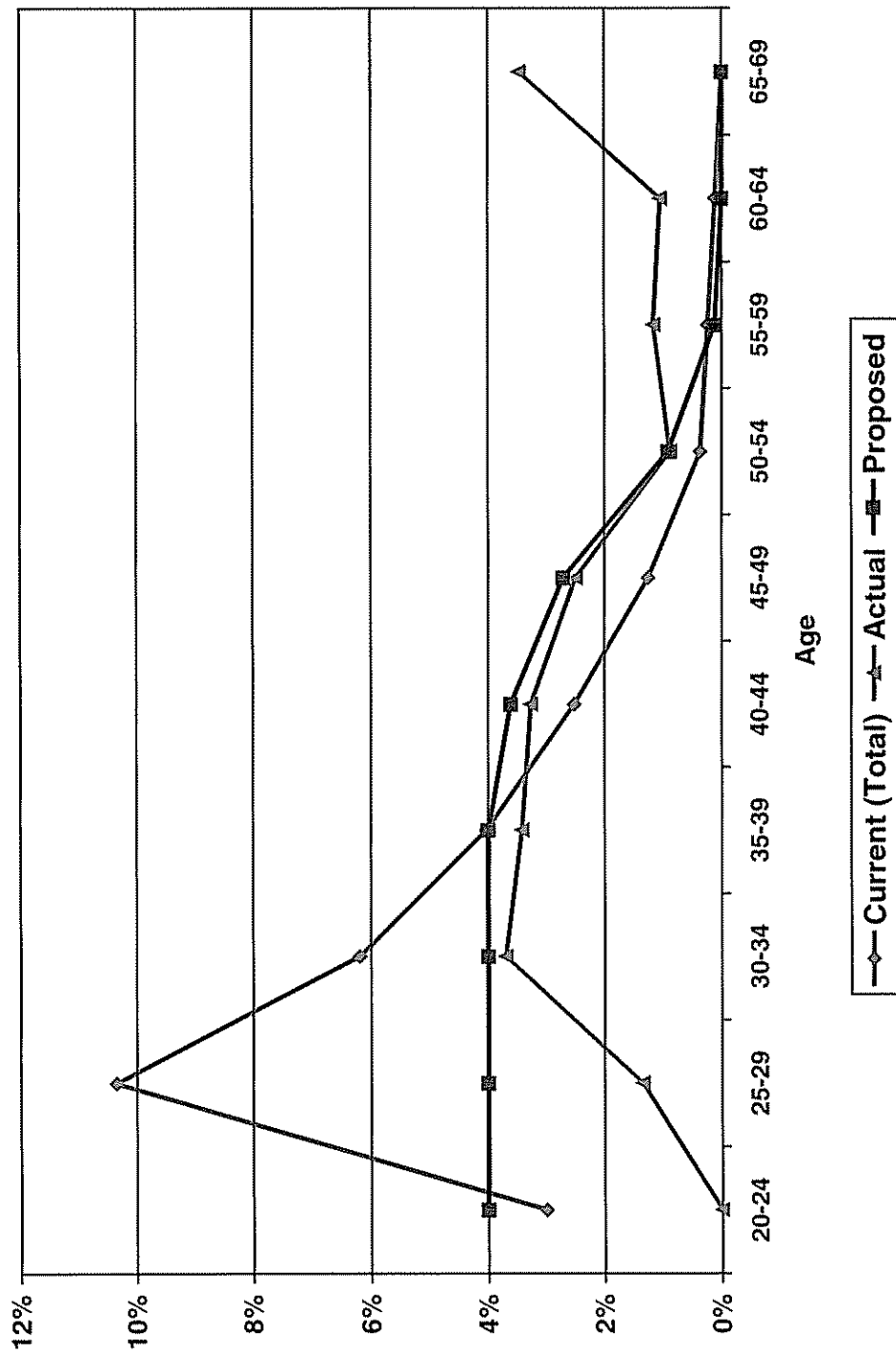
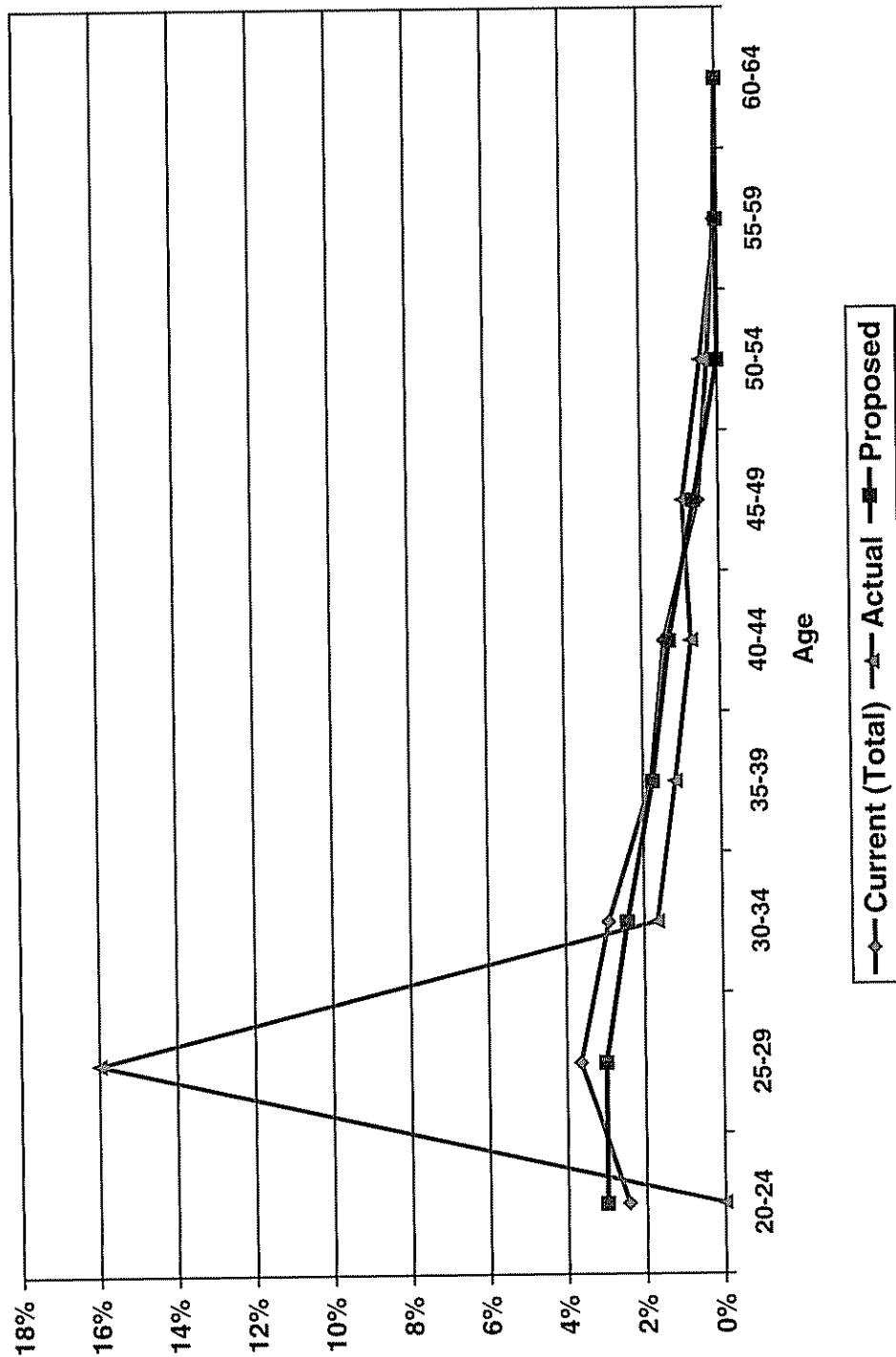


Chart 16
Withdrawal Rates - Safety Members
(5 or More Years of Service)



F. DISABILITY INCIDENCE RATES

When a member becomes disabled, he or she may be entitled to at least a 50% pension (service connected disability), or a pension that depends upon the member's years of service (non-service connected disability). The following summarizes the actual incidence of combined service and non-service connected disabilities over the past three years compared to the current and proposed assumptions for both service-connected and non-service connected disability incidence:

Rates Disability Incidence (General Tier 1)

| <u>Age</u> | <u>Current Rate*</u> | <u>Observed Rate</u> | <u>Proposed Rate</u> |
|------------|----------------------|----------------------|----------------------|
| 20 – 24 | 0.07% | 0.00% | 0.07% |
| 25 – 29 | 0.14 | 0.00 | 0.14 |
| 30 – 34 | 0.20 | 0.46 | 0.30 |
| 35 – 39 | 0.34 | 0.00 | 0.40 |
| 40 – 44 | 0.49 | 0.84 | 0.60 |
| 45 – 49 | 0.61 | 0.72 | 0.70 |
| 50 – 54 | 0.92 | 0.85 | 0.85 |
| 55 – 59 | 1.28 | 0.72 | 1.00 |
| 60 – 64 | 1.84 | 0.34 | 1.25 |
| 65 – 69 | 2.08 | 0.00 | 1.50 |

Rates of Disability Incidence (General Tier 2 and Tier 3)

| <u>Age</u> | <u>Current Rate*</u> | <u>Observed Rate</u> | <u>Proposed Rate</u> |
|------------|----------------------|----------------------|----------------------|
| 20 – 24 | 0.01% | 0.00% | 0.01% |
| 25 – 29 | 0.04 | 0.00 | 0.03 |
| 30 – 34 | 0.06 | 0.00 | 0.05 |
| 35 – 39 | 0.13 | 0.08 | 0.10 |
| 40 – 44 | 0.17 | 0.07 | 0.12 |
| 45 – 49 | 0.20 | 0.26 | 0.21 |
| 50 – 54 | 0.44 | 0.42 | 0.43 |
| 55 – 59 | 0.69 | 0.63 | 0.65 |
| 60 – 64 | 1.29 | 0.49 | 0.90 |
| 65 – 69 | 2.02 | 0.44 | 1.20 |

*Composite current rate for service and non-service connected disability

Rates of Disability Incidence (Safety)

| <u>Age</u> | <u>Current Rate*</u> | <u>Observed Rate</u> | <u>Proposed Rate</u> |
|------------|----------------------|----------------------|----------------------|
| 20 – 24 | 0.11% | 0.00% | 0.10% |
| 25 – 29 | 0.13 | 0.37 | 0.20 |
| 30 – 34 | 0.58 | 0.56 | 0.60 |
| 35 – 39 | 0.77 | 1.33 | 1.00 |
| 40 – 44 | 1.03 | 0.50 | 1.20 |
| 45 – 49 | 1.34 | 2.86 | 1.80 |
| 50 – 54 | 1.76 | 3.29 | 2.50 |
| 55 – 59 | 2.70 | 2.52 | 2.50 |
| 60 – 64 | 0.00 | 3.64 | 0.00 |

*Composite current rate for service and non-service connected disability

Chart 17 compares the actual number of non-service connected and service connected disabilities over the past three years to that expected under both the current and proposed assumptions. The proposed disability rates were adjusted to reflect the past three years experience.

Chart 18 shows actual disablement rates, compared to the assumed and proposed rates for General Tier 1 members.

Since 72% of disabled General Tier 1 members received a service connected disability, we recommend that 70% of the proposed rate be used to anticipate service connected disability retirement. The remaining 30% of the rates will be used to anticipate non-service connected disability.

Chart 19 graphs the same information as Chart 18, but for General Tier 2 and Tier 3 members. Since 24% of disabled General Tier 2 and Tier 3 members received a service connected disability, we recommend that 25% of the proposed rate be used to anticipate service connected disability retirement. The remaining 75% of the rates will be used to anticipated non-service connected disability.

Chart 20 graphs the same information as Charts 18 and 19, but for Safety members. Since 99% of disabled Safety members received a service connected disability, we recommend that 100% of the proposed rate be used to anticipate service connected disability retirement. No non-service connected disabilities will be assumed for Safety members.

Chart 17
Actual Number of Disabilities Compared to Expected

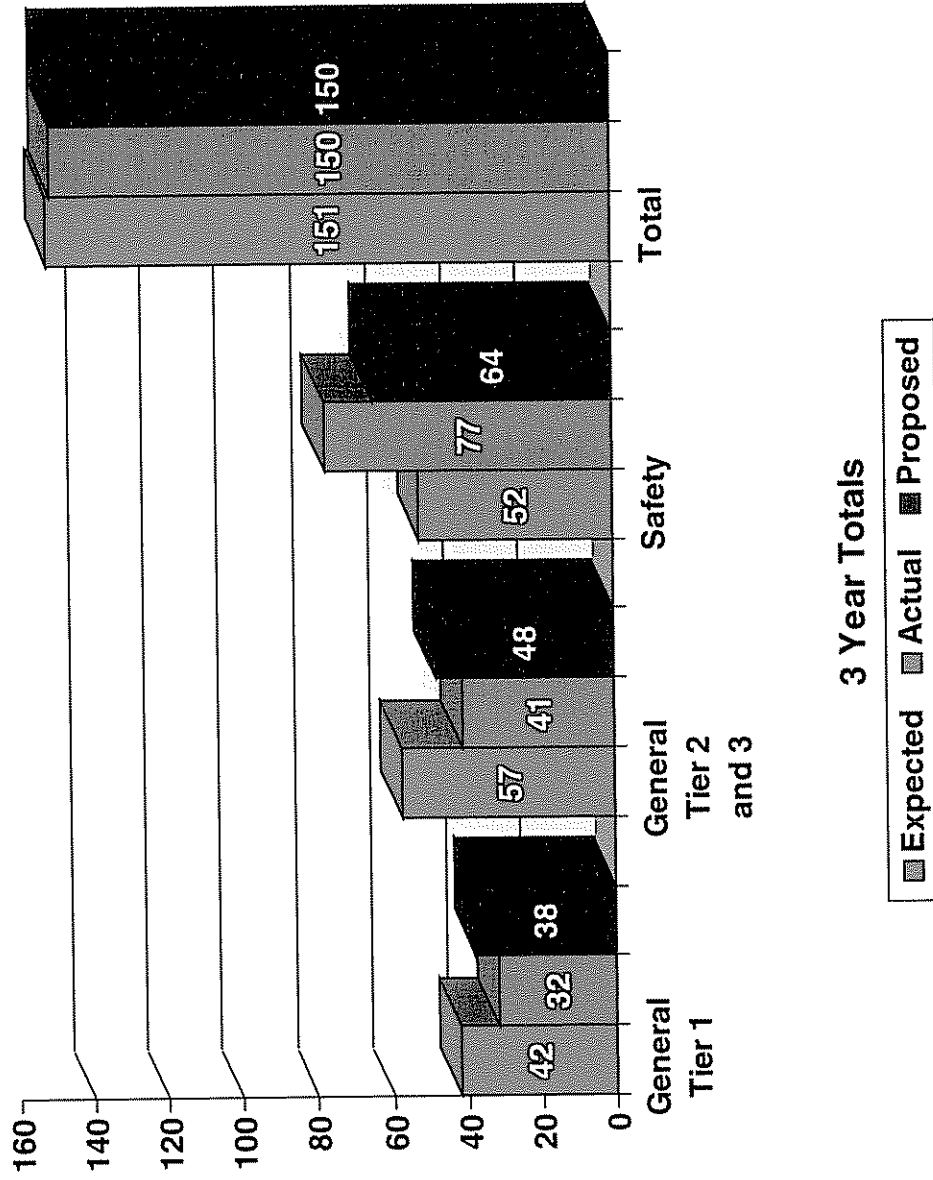


Chart 18 Disablement Rates for General Tier 1

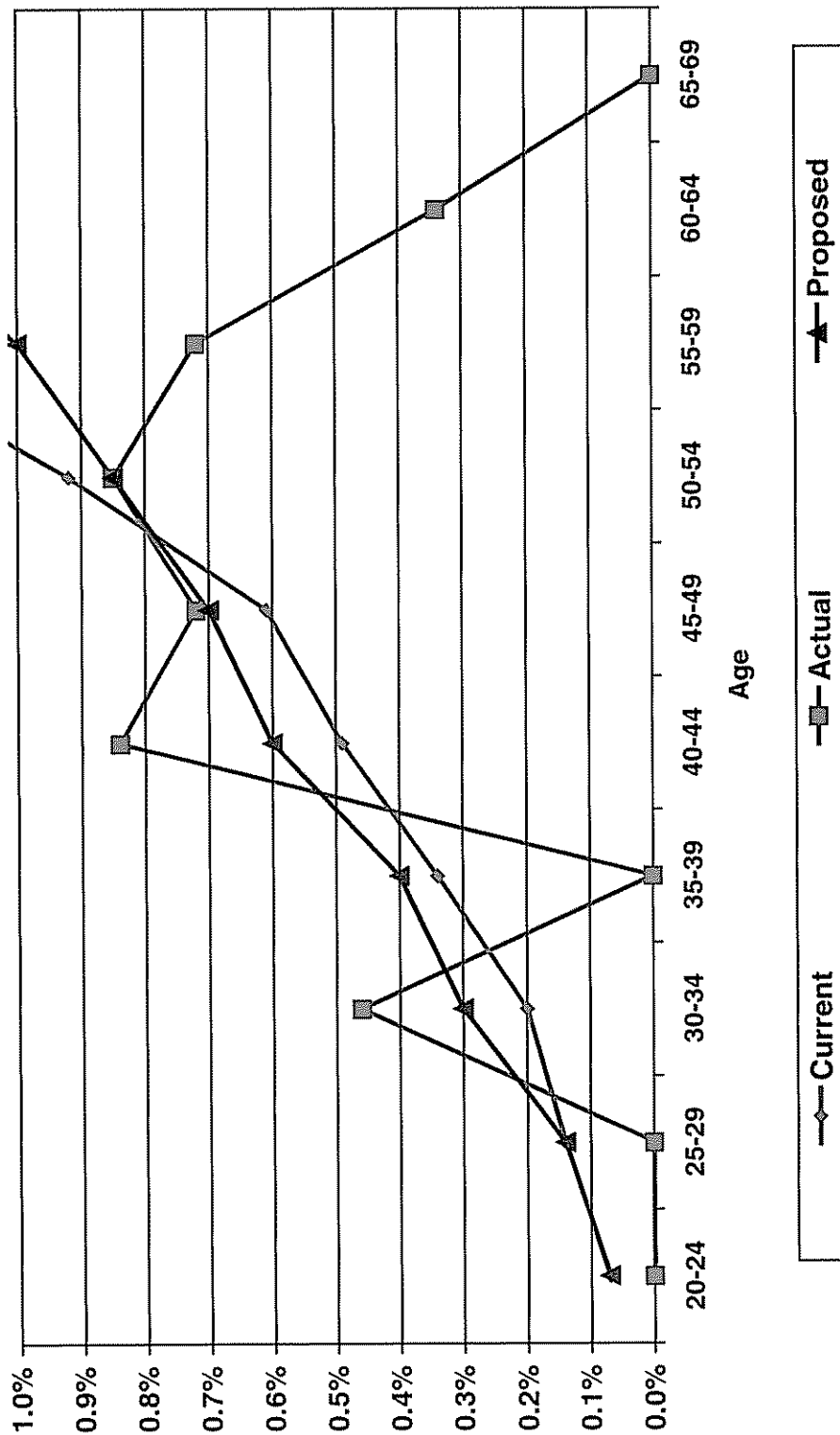


Chart 19
Disablement Rates for General Tier 2 and 3

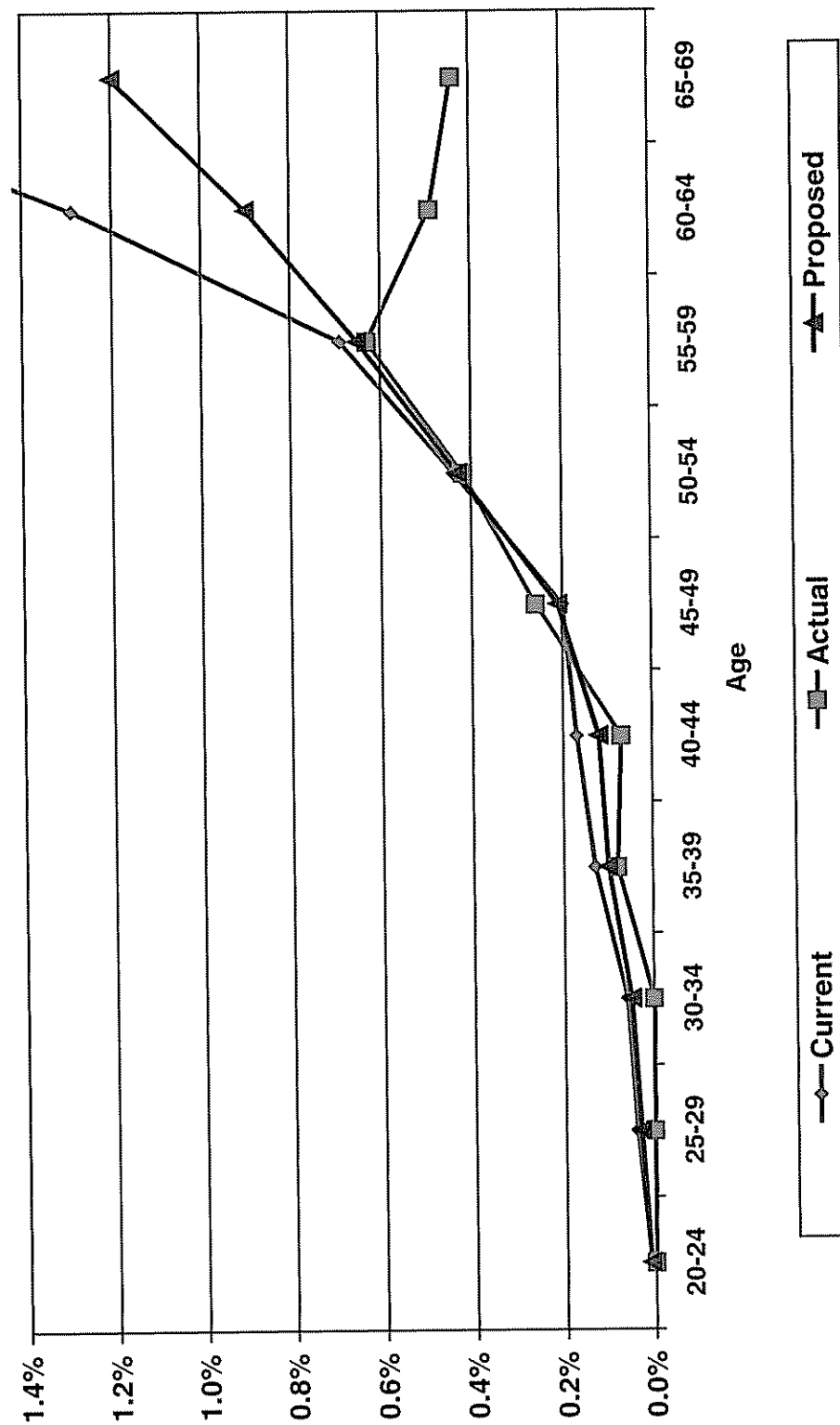
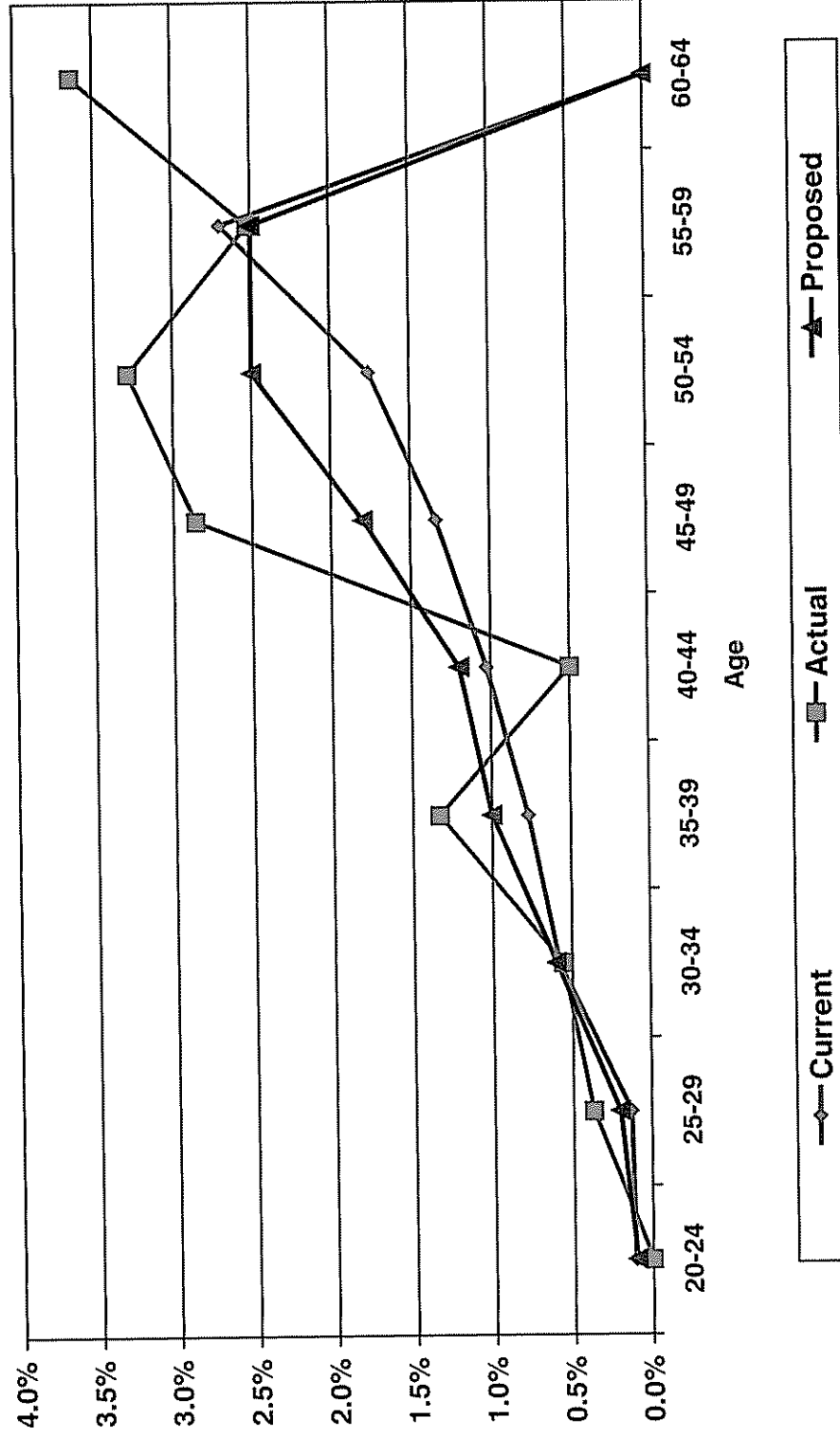


Chart 20 Disablement Rates for Safety Members



G. MERIT AND LONGEVITY SALARY INCREASES

The Association's retirement benefits are determined in large part by a member's compensation just prior to retirement. For that reason it is important to anticipate salary increases that employees will receive over their careers. These salary increases are made up of three components:

- Inflationary increases;
- Real "across the board" increases; and
- Merit and longevity increases.

The inflationary increases are assumed to follow the general inflation assumption discussed in our separate economic assumption report. We also discussed in that report our assumption of no "across the board" pay increases. Therefore, the inflationary component is used as the assumed annual rate of payroll growth at which payments to the UAAL are assumed to increase.

The merit and longevity increases are determined by measuring the actual increases received by employees over the experience period, net of the inflationary component. Increases are measured separately for General and Safety members. This is accomplished by:

- Measuring each member's actual salary increase over each year of the experience period;
- Categorizing these increases into service groups;
- Removing the inflation component from these increases (equal to the increase in the members' average salary during the year);
- Averaging these annual increases over the three year experience period; and
- Modifying current assumptions to reflect some portion of these measured increases reflective of their "credibility."

We are recommending significant increases in the merit and longevity assumptions for both General and Safety members. Part of this adjustment reflects lag in recognizing these larger increases in the last experience study. At the time, the actuary was uncertain whether the introduction of the Ventura pay adjustment was skewing the experience results upward. However, the most recent three years experience indicates that this appears not to have been the case.

The following table shows the average increases over the three-year experience period (January 1, 2001 through December 31, 2003) before removing the inflationary component:

| Age Group | General Members | Safety Members |
|-----------|-----------------|----------------|
| 20-24 | 15.14% | 21.12% |
| 25-29 | 13.28% | 18.70% |
| 30-34 | 11.98% | 11.85% |
| 35-39 | 10.31% | 10.30% |
| 40-44 | 8.64% | 9.10% |
| 45-49 | 8.38% | 8.41% |
| 50-54 | 8.28% | 7.80% |
| 55-59 | 7.41% | 7.33% |
| 60-64 | 7.29% | 9.94% |
| 65-69 | 7.80% | 7.62% |
| 70+ | 10.93% | - |

The increase in average salary over this three-year period was about 4.5% for general members and 5.3% for safety members. The following table shows the average merit longevity increases for the three-year period:

| Age Group | General Members | Safety Members |
|-----------|-----------------|----------------|
| 20-24 | 10.16% | 15.08% |
| 25-29 | 8.39% | 12.85% |
| 30-34 | 7.15% | 6.30% |
| 35-39 | 5.58% | 4.83% |
| 40-44 | 3.97% | 3.68% |
| 45-49 | 3.72% | 3.03% |
| 50-54 | 3.64% | 2.45% |
| 55-59 | 2.80% | 2.04% |
| 60-64 | 2.68% | 4.56% |
| 65-69 | 3.20% | 2.27% |
| 70+ | 6.10% | - |

The following table shows the current and recommended merit and longevity assumptions based on this recent experience:

| Age Group | General Members | | Safety Members | |
|-----------|-----------------|-------------|----------------|-------------|
| | Current | Recommended | Current | Recommended |
| 20-24 | 7.00% | 7.90% | 5.66% | 8.50% |
| 25-29 | 4.00% | 5.30% | 4.20% | 6.80% |
| 30-34 | 2.79% | 4.10% | 2.40% | 3.60% |
| 35-39 | 2.09% | 3.10% | 1.50% | 2.50% |
| 40-44 | 1.75% | 2.40% | 1.40% | 2.10% |
| 45-49 | 1.35% | 2.10% | 1.00% | 1.60% |
| 50-54 | 0.98% | 1.80% | 0.76% | 1.30% |
| 55-59 | 0.76% | 1.40% | 0.71% | 1.00% |
| 60-64 | 0.66% | 1.30% | - | - |
| 65+ | 0.56% | 1.20% | - | - |

Charts 21 and 22 provide a graphical comparison of the current, actual experience and recommended merit and longevity increases.

Chart 21
Merit and Longevity Salary Increase Rates
for General Members

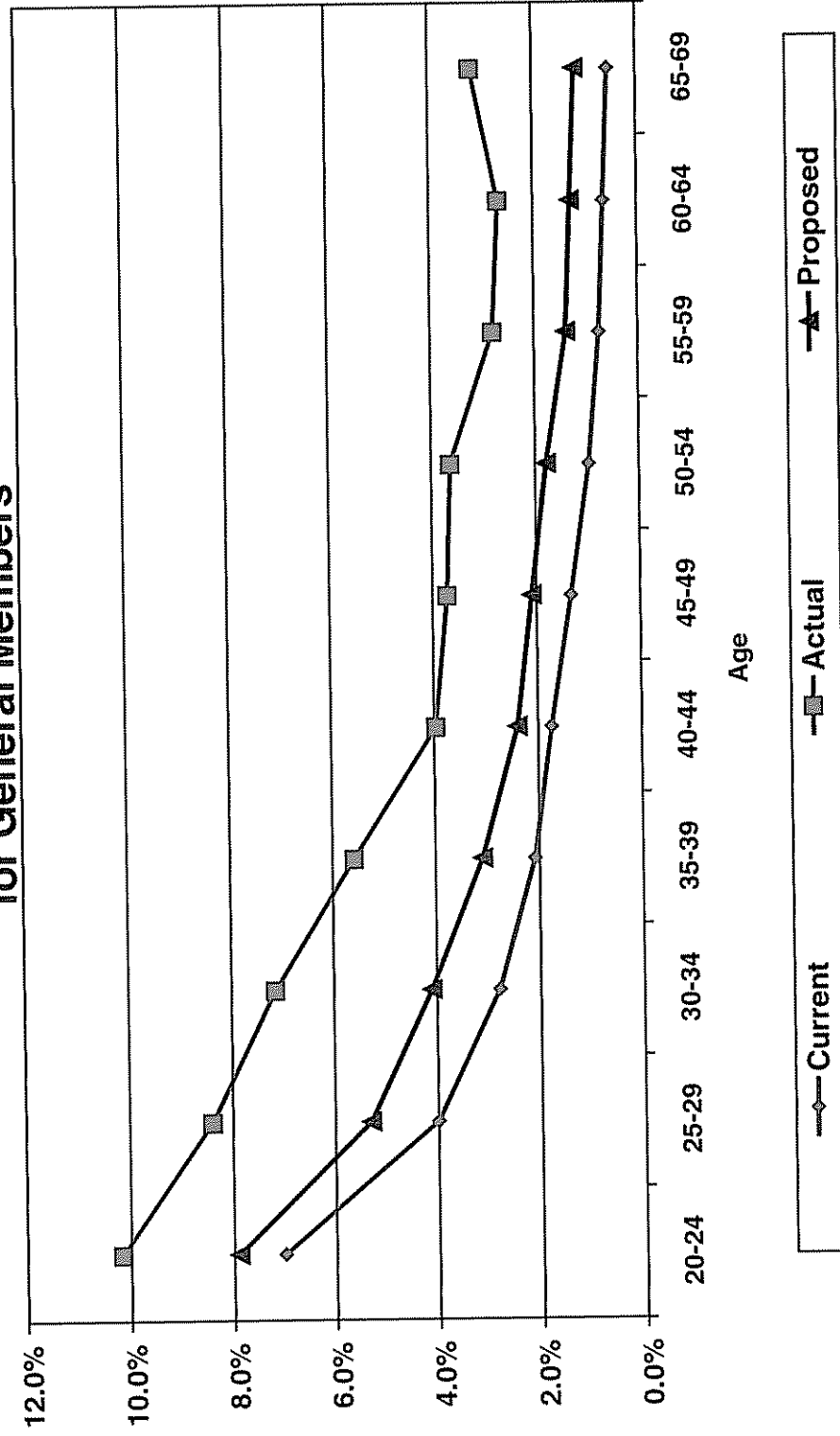
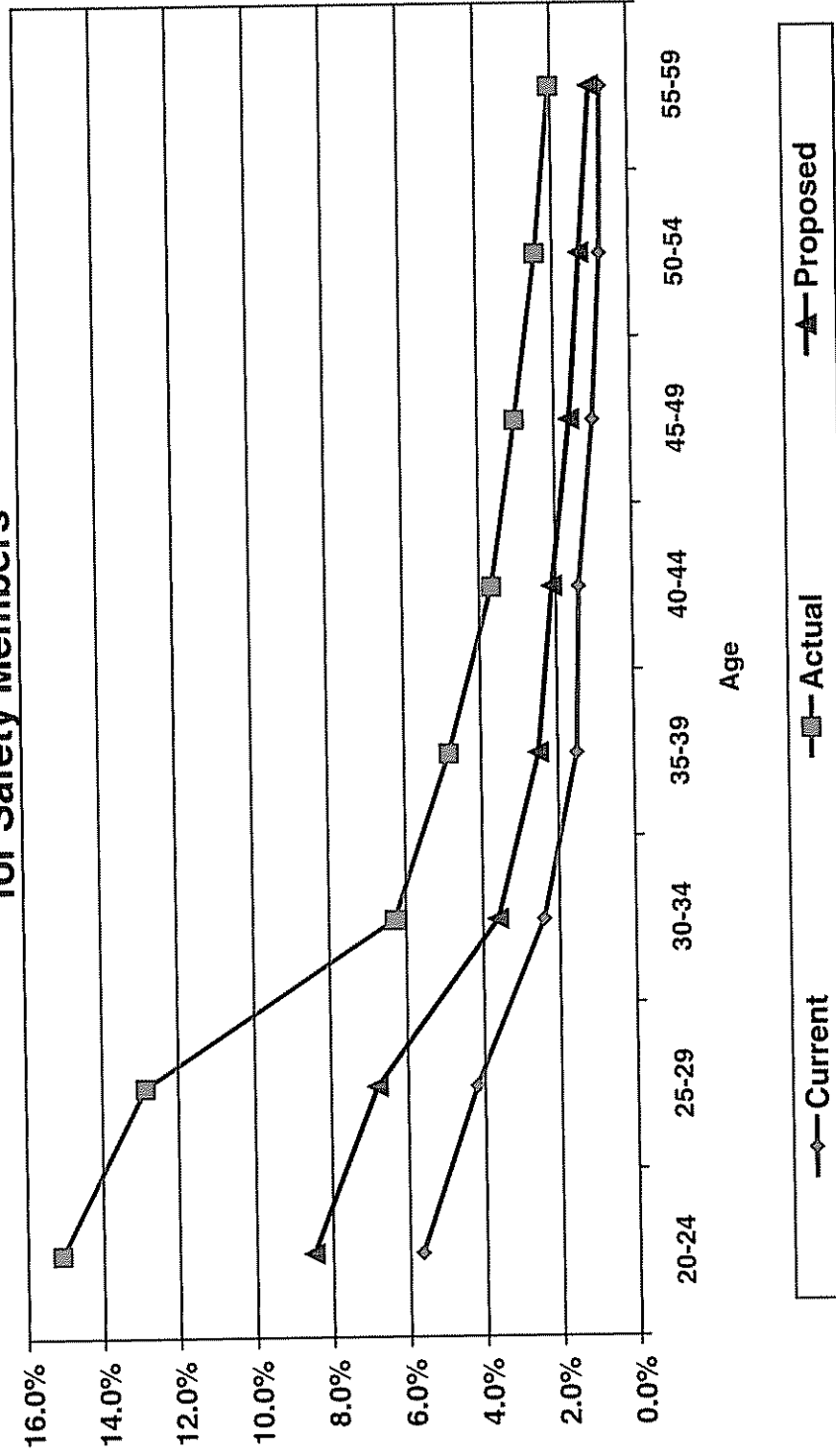


Chart 22
Merit and Longevity Salary Increase Rates
for Safety Members



H. TERMINAL PAY

In 1998, the Board of Retirement determined that several additional pay elements should be included as Earnable Compensation. That determination was a result of the Paulson Settlement. There are two categories within which these additional pay elements fall:

- Ongoing Pay Elements – Those that are expected to be received relatively uniformly over a member's employment years; and
- Terminal Pay Elements – Those that are expected to be received only during the member's final average earnings pay period.

The first category is recognized in the actuarial calculations by virtue of being included in the current pay of active members. The second category requires an actuarial assumption to anticipate its impact on a member's retirement benefit.

In this study, we have collected data for the last three years to estimate terminal pay for active members as a percentage of current pay. The results are summarized in the following table:

| Year | General Tier 1 | | General Tier 2 | | General Tier 3 | | Safety | |
|-------------------------------------------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|--------|----------------------|
| | Count | Average Terminal Pay | Count | Average Terminal Pay | Count | Average Terminal Pay | Count | Average Terminal Pay |
| 2001 | 167 | 11.03% | 102 | 2.44% | 64 | 5.61% | 61 | 10.01% |
| 2002 | 96 | 11.77% | 62 | 4.08% | 49 | 6.45% | 87 | 11.96% |
| 2003* | 200 | 12.47% | 126 | 2.95% | 108 | 6.64% | 116 | 11.42% |
| Total | 463 | 11.81% | 290 | 3.01% | 221 | 6.30% | 264 | 11.27% |
| Assumption Used in the 12/31/2002 Valuation | | 11.47% | | 3.32% | | 8.50% | | 11.72% |
| Assumption Recommended in The 12/31/2003 Valuation | | 11.50% | | 3.25% | | 8.50% | | 11.50% |

* Including pending retirements

For determining the cost of the basic benefit (i.e., non-COLA component), the cost of this pay element is currently recognized in the valuation as an employer only cost and does not affect member contribution rates.

Based on the data in the above table, we are recommending only very slight changes in the terminal pay assumptions for the December 31, 2003 valuation.

Even though the assumed terminal pay percentage is higher than the actual experience for General Tier 3, we recommend no change in that assumption based on the following considerations:

- (1) The actual terminal pay percentages for members in that tier have increased over each of the last three years.
- (2) General Tier 3 members have the same service retirement formula and terminal pay elements as General Tier 1 so it is likely that terminal pay percentages will eventually become closer to those of General Tier 1.

I. SERVICE FROM UNUSED SICK LEAVE CONVERSION

With this experience study we are recommending to the Board that a new assumption be used in the valuation to anticipate the additional retirement benefits that are produced from the conversion of unused sick leave at retirement. Presently these conversions are not pre-funded by the employer and are only recognized as actuarial losses in the actuarial valuation when a member retires.

We have studied the additional service generated by converting unused sick leave for members who retired during the last two years. This experience is generally consistent with the last experience study of the Association.

Following is the analysis of retirees' additional service from unused sick leave and our recommended assumption:

| General Healthy New Retirees | | | | |
|------------------------------|-----------------------------|---------------------------------------------|----------------------------------------------|-----------------------|
| <u>Year Of Retirement</u> | (1) <u># of Retirees</u> | (2) "Regular" <u>Years of Service</u> | (3) Add'l Sick Leave <u>Service</u> | (4) <u>(3)/(2)</u> |
| 2003 | 278 | 28.00 | 0.32 | 1.14% |
| 2002 | 153 | 27.32 | 0.27 | 0.99% |

| Safety Healthy New Retirees | | | | |
|-----------------------------|-----------------------------|---------------------------------------------|----------------------------------------------|-----------------------|
| <u>Year Of Retirement</u> | (1) <u># of Retirees</u> | (2) "Regular" <u>Years of Service</u> | (3) Add'l Sick Leave <u>Service</u> | (4) <u>(3)/(2)</u> |
| 2003 | 87 | 36.09 | 0.69 | 1.91% |
| 2002 | 83 | 32.05 | 0.69 | 2.15% |

| General Disabled New Retirees | | | | |
|-------------------------------|-----------------------------|---------------------------------------------|----------------------------------------------|-----------------------|
| <u>Year Of Retirement</u> | (1) <u># of Retirees</u> | (2) "Regular" <u>Years of Service</u> | (3) Add'l Sick Leave <u>Service</u> | (4) <u>(3)/(2)</u> |
| 2003 | 39 | 18.93 | 0.03 | 0.16% |
| 2002 | 24 | 19.10 | 0.01 | 0.05% |

Safety Disabled New Retirees

| <u>Year Of Retirement</u> | (1) # of <u>Retirees</u> | (2) "Regular" Years of <u>Service</u> | (3) Add'l Sick Leave <u>Service</u> | (4) <u>(3)/(2)</u> |
|-----------------------------------|--------------------------------|------------------------------------------------|----------------------------------------------|-----------------------|
| 2003 | 37 | 17.69 | 0.16 | 0.90% |
| 2002 | 11 | 17.20 | 0.14 | 0.81% |

Based on this experience we recommend that a factor of 1.00% for General healthy retirees and 2.00% for Safety healthy retirees be used to estimate the cost of this benefit. For disableds, we recommend no factor for General and a 1.00% factor for Safety.

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

J. TIER 2 MEMBERS ELECTING TIER 3 MEMBERSHIP

Currently an adjustment in the Tier 2 employer normal cost for those employers who allow their members to elect Tier 3 after five years of service is included in the valuation. This allows those employers to pre-fund for the increase in the Unfunded Actuarial Accrued Liability which arises when their employees elect Tier 3.

This additional cost is currently developed assuming 75% of all eligible Tier 2 members would elect Tier 3 membership after they had five years of service.

Since Tier 2 membership has dramatically changed over the past two years and will further change when CNA members are moved to Tier 3 on January 1, 2005, we recommend that this additional cost be developed assuming that 100% of the few remaining eligible Tier 2 members will elect Tier 3 membership after they have five years of service.

Per conversations with staff at the Association office, this assumption is consistent with their experience.

K. TIER 3 MEMBERS CONVERTING PRIOR TIER 2 SERVICE

There is an additional cost included in the valuation to account for Tier 3 members converting their prior Tier 2 service to Tier 3. It is currently assumed that 10 percent of current Tier 3 County members will convert their prior Tier 2 service to Tier 3.

We recommend no change in this assumption at this point due to lack of available data. We will be working with staff at the Association office to determine how this data can be tracked for experience study purposes.

APPENDIX A

CURRENT ACTUARIAL ASSUMPTIONS

Section 1 – Post-Retirement Mortality Rates

Healthy: For General Members: 1994 Uninsured Pensioner Mortality Table set back one year for males (from the male table) and set forward one year for females (from the female table).

For Safety Members: 1994 Uninsured Pensioner Mortality Table set forward one year (from the male table) and set forward one year for beneficiaries (from the female table).

Disabled: For General members, 1981 Disability Mortality Table (General) set back three years. For Safety members, 1981 Disability Mortality Table (Safety).

Employee Contribution Rate: For General members, 1994 Uninsured Pensioner (Male) Mortality Table set back three years.

For Safety members, 1994 Uninsured Pensioner (Male) Mortality Table set forward one year.

Termination Rates Before Retirement:

| Age | Rate (%) | | | | |
|-----|--------------------|--------|--------|----------------|--------|
| | Ordinary Mortality | | | Duty Mortality | |
| | General | | Safety | General | Safety |
| | Male | Female | | | |
| 25 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 |
| 30 | 0.03 | 0.03 | 0.01 | 0.01 | 0.02 |
| 35 | 0.04 | 0.04 | 0.02 | 0.01 | 0.02 |
| 40 | 0.06 | 0.05 | 0.02 | 0.01 | 0.03 |
| 45 | 0.08 | 0.07 | 0.03 | 0.01 | 0.04 |
| 50 | 0.17 | 0.12 | 0.04 | 0.01 | 0.05 |
| 55 | 0.48 | 0.17 | 0.05 | 0.01 | 0.06 |
| 60 | 0.86 | 0.22 | 0.00 | 0.01 | 0.00 |
| 65 | 1.56 | 0.28 | 0.00 | 0.01 | 0.00 |

Termination Rates Before Retirement (continued):

Rate (%)

Ordinary Disability

| Age | General Tier 1 | | General Tier 2 | | General Tier 3 | | Safety |
|-----|----------------|--------|----------------|--------|----------------|--------|--------|
| | Male | Female | Male | Female | Male | Female | |
| 25 | 0.04 | 0.01 | 0.04 | 0.03 | 0.04 | 0.03 | 0.05 |
| 30 | 0.08 | 0.01 | 0.08 | 0.04 | 0.08 | 0.04 | 0.06 |
| 35 | 0.08 | 0.07 | 0.10 | 0.09 | 0.09 | 0.09 | 0.06 |
| 40 | 0.16 | 0.12 | 0.12 | 0.15 | 0.09 | 0.15 | 0.06 |
| 45 | 0.21 | 0.16 | 0.22 | 0.15 | 0.12 | 0.15 | 0.12 |
| 50 | 0.25 | 0.28 | 0.32 | 0.27 | 0.12 | 0.27 | 0.05 |
| 55 | 0.25 | 0.42 | 0.37 | 0.55 | 0.17 | 0.55 | 0.17 |
| 60 | 0.25 | 0.60 | 0.44 | 1.00 | 0.37 | 0.87 | 0.00 |
| 65 | 0.25 | 1.00 | 0.60 | 3.25 | 0.82 | 1.81 | 0.00 |

Rate (%)

Duty Disability

| Age | General Tier 1 | | General Tier 2 | | General Tier 3 | | Safety |
|-----|----------------|--------|----------------|--------|---------------------|--------|--------|
| | Male | Female | Male | Female | Male ⁽¹⁾ | Female | |
| 25 | 0.10 | 0.10 | 0.01 | 0.01 | 0.01 | 0.01 | 0.06 |
| 30 | 0.13 | 0.15 | 0.02 | 0.01 | 0.02 | 0.01 | 0.46 |
| 35 | 0.20 | 0.29 | 0.03 | 0.02 | 0.03 | 0.02 | 0.60 |
| 40 | 0.26 | 0.36 | 0.04 | 0.02 | 0.05 | 0.02 | 0.85 |
| 45 | 0.31 | 0.42 | 0.06 | 0.03 | 0.06 | 0.03 | 1.10 |
| 50 | 0.40 | 0.55 | 0.06 | 0.10 | 0.06 | 0.13 | 1.50 |
| 55 | 0.80 | 0.80 | 0.09 | 0.24 | 0.09 | 0.18 | 2.50 |
| 60 | 1.10 | 1.05 | 0.17 | 0.35 | 0.17 | 0.22 | 0.00 |
| 65 | 1.50 | 1.50 | 0.22 | 0.35 | 0.24 | 0.30 | 0.00 |

⁽¹⁾ Rates apply to members not covered under the enhanced benefit formulas. For those members covered by the enhanced benefit formulas the General Tier 2 rates apply.

Termination Rates Before Retirement (continued):

| Rate (%) | | | | | | | |
|----------------------------------------------|----------------|--------|----------------|--------|-------------------------------|--------|--------|
| Vested Termination (5+ years) ⁽²⁾ | | | | | | | |
| Age | General Tier 1 | | General Tier 2 | | General Tier 3 ⁽³⁾ | | Safety |
| | Male | Female | Male | Female | Male | Female | |
| 25 | 1.19 | 10.00 | 1.62 | 0.43 | 5.00 | 5.00 | 1.18 |
| 30 | 3.50 | 7.50 | 0.85 | 0.71 | 4.50 | 4.50 | 1.90 |
| 35 | 4.50 | 3.13 | 1.12 | 1.00 | 3.00 | 3.00 | 1.25 |
| 40 | 3.25 | 2.46 | 1.45 | 0.94 | 3.00 | 2.81 | 1.00 |
| 45 | 2.00 | 1.16 | 1.33 | 0.84 | 2.50 | 1.65 | 0.43 |
| 50 | 0.75 | 0.37 | 1.01 | 0.65 | 0.65 | 0.65 | 0.20 |
| 55 | 0.36 | 0.23 | 0.94 | 0.69 | 0.50 | 0.50 | 0.06 |
| 60 | 0.23 | 0.15 | 0.87 | 0.73 | 0.50 | 0.50 | 0.00 |
| 65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

⁽²⁾ Rates are zero for members eligible to retire.

⁽³⁾ Rates apply to members not covered under the enhanced benefit formulas. For those members covered by the enhanced benefit formulas the General Tier 1 rates apply.

| Age | Rate (%) | | | | | | Safety |
|-----|-----------------------------------------------|--------|----------------|--------|-------------------------------|--------|--------|
| | Ordinary Withdrawal (5+ years) ⁽⁴⁾ | | | | | | |
| | General Tier 1 | | General Tier 2 | | General Tier 3 ⁽⁵⁾ | | |
| | Male | Female | Male | Female | Male | Female | |
| 25 | 3.50 | 2.21 | 7.83 | 2.75 | 3.50 | 2.19 | 2.00 |
| 30 | 2.39 | 1.25 | 5.47 | 2.50 | 2.39 | 1.79 | 1.18 |
| 35 | 1.28 | 0.80 | 4.11 | 2.25 | 1.28 | 1.12 | 0.78 |
| 40 | 0.58 | 0.50 | 2.47 | 2.00 | 0.58 | 1.02 | 0.50 |
| 45 | 0.25 | 0.09 | 1.55 | 1.42 | 0.25 | 0.56 | 0.35 |
| 50 | 0.00 | 0.00 | 0.68 | 1.26 | 0.00 | 0.00 | 0.10 |
| 55 | 0.00 | 0.00 | 0.21 | 0.77 | 0.00 | 0.00 | 0.00 |
| 60 | 0.00 | 0.00 | 0.16 | 0.45 | 0.00 | 0.00 | 0.00 |
| 65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

⁽⁴⁾ Rates are zero for members eligible to retire.

⁽⁵⁾ Rates apply to members not covered under the enhanced benefit formulas. For those members covered by the enhanced benefit formulas the General Tier 1 rates apply.

Termination Rates Before Retirement (continued):

The ordinary withdrawal rates on the previous page apply after five years of service. The following rates apply for those members with at least one year of service but less than five years of service.

| Age | Rate (%) | | | | |
|-----|----------------|--------|-------------------------------------|--------|--------|
| | General Tier 1 | | General Tier 2 and 3 ⁽⁶⁾ | | Safety |
| | Male | Female | Male | Female | |
| 25 | 7.50 | 7.50 | 12.50 | 12.48 | 6.24 |
| 30 | 6.00 | 6.00 | 10.00 | 9.00 | 4.08 |
| 35 | 5.00 | 5.00 | 8.51 | 8.00 | 3.75 |
| 40 | 4.50 | 4.50 | 6.97 | 7.00 | 3.10 |
| 45 | 3.50 | 3.50 | 7.79 | 6.50 | 2.60 |
| 50 | 2.00 | 2.00 | 6.08 | 6.00 | 1.30 |
| 55 | 1.50 | 1.50 | 5.00 | 5.50 | 0.00 |
| 60 | 1.00 | 1.00 | 5.00 | 5.00 | 0.00 |
| 65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

⁽⁶⁾ Rates apply to members not covered under the enhanced benefit formulas. For those members covered by the enhanced benefit formulas the General Tier 1 rates apply.

The following ordinary withdrawal rates apply for those members with less than one year of service.

| Age | Rate (%) | | | | |
|-----|----------------|--------|-------------------------------------|--------|--------|
| | General Tier 1 | | General Tier 2 and 3 ⁽⁷⁾ | | Safety |
| | Male | Female | Male | Female | |
| 25 | 15.00 | 45.00 | 10.00 | 13.45 | 8.00 |
| 30 | 15.00 | 30.00 | 10.00 | 10.57 | 5.00 |
| 35 | 15.00 | 20.00 | 10.00 | 10.57 | 3.75 |
| 40 | 15.00 | 15.00 | 10.00 | 10.57 | 3.10 |
| 45 | 15.00 | 14.00 | 10.00 | 9.82 | 2.60 |
| 50 | 15.00 | 10.00 | 10.00 | 7.53 | 1.30 |
| 55 | 15.00 | 10.00 | 10.00 | 7.41 | 0.00 |
| 60 | 15.00 | 10.00 | 10.00 | 7.41 | 0.00 |
| 65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

⁽⁷⁾ Rates apply to members not covered under the enhanced benefit formulas. For those members covered by the enhanced benefit formulas the General Tier 1 rates apply.

Retirement Rates (Enhanced):

For those members covered under the enhanced benefit formulas the following rates apply:

| Age | Rate (%) | |
|-----|--------------|----------------|
| | Tier 1 | |
| | General Male | General Female |
| 45 | - | - |
| 46 | - | - |
| 47 | - | - |
| 48 | - | - |
| 49 | - | - |
| 50 | 3.29 | 3.15 |
| 51 | 3.43 | 2.37 |
| 52 | 5.33 | 5.65 |
| 53 | 9.88 | 8.42 |
| 54 | 14.57 | 11.96 |
| 55 | 16.96 | 14.83 |
| 56 | 16.96 | 17.00 |
| 57 | 10.18 | 10.67 |
| 58 | 10.18 | 11.67 |
| 59 | 19.89 | 16.00 |
| 60 | 24.76 | 18.00 |
| 61 | 15.19 | 13.00 |
| 62 | 43.57 | 40.00 |
| 63 | 24.71 | 25.00 |
| 64 | 34.11 | 20.00 |
| 65 | 46.73 | 30.09 |
| 66 | 35.05 | 35.10 |
| 67 | 34.00 | 35.10 |
| 68 | 30.40 | 35.10 |
| 69 | 28.96 | 50.15 |
| 70 | 100.00 | 100.00 |

Retirement Rates (Enhanced) (continued):

| Age | Rate (%) | |
|-----|-----------------------|----------------|
| | Tier 3 ⁽⁸⁾ | |
| | General Male | General Female |
| 45 | - | - |
| 46 | - | - |
| 47 | - | - |
| 48 | - | - |
| 49 | - | - |
| 50 | 2.71 | 2.92 |
| 51 | 2.71 | 2.12 |
| 52 | 4.00 | 4.49 |
| 53 | 7.43 | 6.59 |
| 54 | 10.97 | 9.50 |
| 55 | 13.06 | 11.82 |
| 56 | 13.17 | 13.70 |
| 57 | 8.20 | 9.13 |
| 58 | 8.22 | 9.83 |
| 59 | 15.53 | 13.41 |
| 60 | 19.97 | 15.22 |
| 61 | 12.17 | 11.23 |
| 62 | 34.95 | 33.74 |
| 63 | 20.42 | 21.33 |
| 64 | 29.06 | 19.72 |
| 65 | 46.73 | 30.09 |
| 66 | 35.05 | 35.10 |
| 67 | 34.00 | 35.10 |
| 68 | 30.40 | 35.10 |
| 69 | 28.96 | 50.15 |
| 70 | 100.00 | 100.00 |

⁽⁸⁾ Rates apply to members who choose not to convert their prior Tier 2 service to Tier 3.

Retirement Rates (Enhanced) (continued):

| Age | Rate (%) | | |
|-----|-----------------------|----------------|--------|
| | Tier 3 ⁽⁹⁾ | | |
| | General Male | General Female | Safety |
| 41 | - | - | - |
| 42 | - | - | - |
| 43 | - | - | - |
| 44 | - | - | - |
| 45 | - | - | - |
| 46 | - | - | - |
| 47 | - | - | - |
| 48 | - | - | - |
| 49 | - | - | - |
| 50 | 3.29 | 3.15 | 33.00 |
| 51 | 3.43 | 2.37 | 25.00 |
| 52 | 5.33 | 5.65 | 25.00 |
| 53 | 9.88 | 8.42 | 33.00 |
| 54 | 14.57 | 11.96 | 33.00 |
| 55 | 16.96 | 14.83 | 50.00 |
| 56 | 16.96 | 17.00 | 50.00 |
| 57 | 10.18 | 10.67 | 50.00 |
| 58 | 10.18 | 11.67 | 50.00 |
| 59 | 19.89 | 16.00 | 50.00 |
| 60 | 24.76 | 18.00 | 100.00 |
| 61 | 15.19 | 13.00 | 100.00 |
| 62 | 43.57 | 40.00 | 100.00 |
| 63 | 24.71 | 25.00 | 100.00 |
| 64 | 34.11 | 20.00 | 100.00 |
| 65 | 46.73 | 30.09 | 100.00 |
| 66 | 35.05 | 35.10 | 100.00 |
| 67 | 34.00 | 35.10 | 100.00 |
| 68 | 30.40 | 35.10 | 100.00 |
| 69 | 28.96 | 50.15 | 100.00 |
| 70 | 100.00 | 100.00 | 100.00 |

⁽⁹⁾ Rates apply to members who choose to convert their prior Tier 2 service to Tier 3.

Retirement Rates (Non-enhanced) (continued):

For those members not covered under the enhanced benefit formulas the following rates apply:

| Age | Rate (%) | | |
|-----|--------------|----------------|--------------|
| | Tier 1 | | Tier 2 |
| | General Male | General Female | General Male |
| 45 | - | - | - |
| 46 | - | - | - |
| 47 | - | - | - |
| 48 | - | - | - |
| 49 | - | - | - |
| 50 | 3.00 | 3.15 | 2.95 |
| 51 | 3.43 | 2.37 | 2.49 |
| 52 | 3.43 | 2.21 | 2.68 |
| 53 | 3.29 | 2.50 | 3.05 |
| 54 | 2.99 | 4.88 | 3.38 |
| 55 | 10.18 | 6.50 | 6.36 |
| 56 | 10.18 | 9.00 | 6.02 |
| 57 | 10.18 | 10.00 | 5.68 |
| 58 | 10.18 | 11.00 | 5.76 |
| 59 | 10.16 | 12.00 | 5.76 |
| 60 | 24.76 | 18.00 | 14.39 |
| 61 | 15.19 | 13.00 | 12.68 |
| 62 | 43.57 | 40.00 | 15.80 |
| 63 | 24.71 | 25.00 | 11.56 |
| 64 | 34.11 | 20.00 | 10.82 |
| 65 | 46.73 | 30.09 | 19.44 |
| 66 | 35.05 | 35.10 | 14.71 |
| 67 | 34.00 | 35.10 | 11.58 |
| 68 | 30.40 | 35.10 | 37.88 |
| 69 | 28.96 | 50.15 | 40.85 |
| 70 | 100.00 | 100.00 | 100.00 |

Retirement Rates (Non-enhanced) (continued):

| Rate (%) | | | | |
|----------|----------------|--------------|----------------|--------|
| Age | Tier 2 | Tier 3 | | Safety |
| | General Female | General Male | General Female | |
| 45 | - | - | - | 0.10 |
| 46 | - | - | - | 0.11 |
| 47 | - | - | - | 0.12 |
| 48 | - | - | - | 0.12 |
| 49 | - | - | - | 0.15 |
| 50 | 3.73 | 1.00 | 2.23 | 0.20 |
| 51 | 3.71 | 0.54 | 1.38 | 0.25 |
| 52 | 3.91 | 0.01 | 0.98 | 0.30 |
| 53 | 4.10 | 0.10 | 1.10 | 0.35 |
| 54 | 5.04 | 0.19 | 2.14 | 0.75 |
| 55 | 4.58 | 1.36 | 2.79 | 1.50 |
| 56 | 5.01 | 1.80 | 3.79 | 2.00 |
| 57 | 5.34 | 2.25 | 4.51 | 3.00 |
| 58 | 4.75 | 2.34 | 4.32 | 4.00 |
| 59 | 4.55 | 2.42 | 5.64 | 20.00 |
| 60 | 14.96 | 5.61 | 6.89 | 17.00 |
| 61 | 12.33 | 3.08 | 5.90 | 17.00 |
| 62 | 17.21 | 9.09 | 14.95 | 18.00 |
| 63 | 7.44 | 7.54 | 10.33 | 20.00 |
| 64 | 27.60 | 13.89 | 18.88 | 100.00 |
| 65 | 29.16 | 26.69 | 16.60 | 100.00 |
| 66 | 25.33 | 22.06 | 20.93 | 100.00 |
| 67 | 30.78 | 25.53 | 22.49 | 100.00 |
| 68 | 41.42 | 30.40 | 35.10 | 100.00 |
| 69 | 33.33 | 28.96 | 50.15 | 100.00 |
| 70 | 100.00 | 100.00 | 100.00 | 100.00 |

**Retirement Age and Benefit for
Deferred Vested Members:**

For current deferred vested members, we make the following retirement assumption:

General Age: 62
Safety Age: 55

We assume that 40% of future deferred vested members are reciprocal. For reciprocals, we assume 5.25% compensation increases per annum.

Future Benefit Accruals:

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

Unknown Data for Members:

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

**Inclusion of Deferred Vested
Members:**

All deferred vested members are included in the valuation.

Percent Married:

80% of male members; 55% of female members.

Age of Spouse:

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

**Conversion of Prior
Tier 2 Service:**

75% of all eligible Tier 2 members will elect to convert to (non-enhanced) Tier 3 after five years of service.

**Tier 3 Members Converting
Prior Tier 2 Service:**

10% of all eligible Tier 3 members will convert their prior Tier 2 service to Tier 3 service.

Terminal Pay Assumptions:

The following assumptions for terminal pay as a percentage of final average pay are used:

General Tier 1: 11.47%
General Tier 2: 3.32%
General Tier 3: 8.50%
Safety: 11.72%

For determining the cost of the basic benefit (i.e., non-COLA component), the cost of this pay element is currently recognized in the valuation as an employer only cost and does not affect member contribution rates.

Net Investment Return: 8.00%

**Employee Contribution
Crediting Rate:** 8.00%

Consumer Price Index: Increase of 4.25% per year; retiree COLA increases due to CPI subject to a 3.0% maximum change per year except for Tier 3 disability benefits and Tier 2 benefits which are subject to a 4.0% maximum change per year.

Salary Increases:

| Annual Rate of Compensation Increase | | |
|----------------------------------------------------------|---------|--------|
| Inflation: 4.25%, Plus the following Merit and Longevity | | |
| Age | General | Safety |
| 20 | 8.20% | 6.16% |
| 25 | 5.20% | 4.76% |
| 30 | 3.27% | 3.12% |
| 35 | 2.37% | 1.86% |
| 40 | 1.89% | 1.44% |
| 45 | 1.51% | 1.16% |
| 50 | 1.13% | 0.86% |
| 55 | 0.85% | 0.73% |
| 60 | 0.70% | 0.28% |

There are assumed to be no "across the board" salary increases (other than inflation).

APPENDIX B

PROPOSED ACTUARIAL ASSUMPTIONS

Section 1 – Post-Retirement Mortality Rates

| | |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Healthy: | For General Members: 1994 Group Annuity Mortality Table set forward one year. |
| | For Safety Members: 1994 Group Annuity Mortality Table set forward two years. |
| Disabled: | For General members, 1981 Disability Mortality Table (General) set back three years. For Safety members, 1994 Group Annuity Mortality Table set forward two years. |
| Employee Contribution Rate: | For General members, 1994 Group Annuity Mortality Table set forward one year weighted 30% male and 70% female. |
| | For Safety members, 1994 Group Annuity Mortality Table set forward two years weighted 85% male and 15% female. |

Section 2 - Termination Rates Before Retirement:

| Age | Rate (%) | | | |
|-----|-----------|--------|--------|--------|
| | Mortality | | | |
| | General | | Safety | |
| | Male | Female | Male | Female |
| 25 | 0.07 | 0.03 | 0.07 | 0.03 |
| 30 | 0.08 | 0.04 | 0.08 | 0.04 |
| 35 | 0.09 | 0.05 | 0.09 | 0.06 |
| 40 | 0.12 | 0.08 | 0.13 | 0.08 |
| 45 | 0.17 | 0.10 | 0.19 | 0.11 |
| 50 | 0.29 | 0.16 | 0.32 | 0.17 |
| 55 | 0.49 | 0.26 | 0.56 | 0.29 |
| 60 | 0.90 | 0.51 | 1.01 | 0.58 |
| 65 | 1.62 | 0.97 | 1.80 | 1.08 |

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

Termination Rates Before Retirement (continued):

| Age | Rate (%) | | |
|-----|-------------------------------|-------------------------------------|-----------------------|
| | Disability | | |
| | General Tier 1 ⁽¹⁾ | General Tier 2 and 3 ⁽²⁾ | Safety ⁽³⁾ |
| 20 | 0.04 | 0.00 | 0.06 |
| 25 | 0.11 | 0.02 | 0.16 |
| 30 | 0.24 | 0.04 | 0.44 |
| 35 | 0.36 | 0.08 | 0.84 |
| 40 | 0.52 | 0.11 | 1.12 |
| 45 | 0.66 | 0.17 | 1.56 |
| 50 | 0.79 | 0.34 | 2.22 |
| 55 | 0.94 | 0.56 | 2.50 |
| 60 | 1.15 | 0.80 | 0.00 |

- ⁽¹⁾ 70% of General Tier 1 disabilities are assumed to be duty disabilities. The other 30% are assumed to be ordinary disabilities.
- ⁽²⁾ 25% of General Tier 2 disabilities are assumed to be duty disabilities. The other 75% are assumed to be ordinary disabilities.
- ⁽³⁾ 100% of Safety disabilities are assumed to be duty disabilities.

Termination Rates Before Retirement (continued):

| Rate (%) | | |
|-----------------------------------|---------|--------|
| Withdrawal (< 5 Years of Service) | | |
| Years of Service | General | Safety |
| 0 | 13.00 | 9.00 |
| 1 | 7.00 | 6.00 |
| 2 | 6.00 | 5.00 |
| 3 | 5.00 | 4.00 |
| 4 | 4.00 | 3.00 |

| Withdrawal (5+ Years of Service) * | | |
|------------------------------------|---------|--------|
| Age | General | Safety |
| 20 | 4.00 | 3.00 |
| 25 | 4.00 | 3.00 |
| 30 | 4.00 | 2.78 |
| 35 | 4.00 | 2.00 |
| 40 | 3.84 | 1.46 |
| 45 | 3.21 | 0.95 |
| 50 | 1.52 | 0.00 |
| 55 | 0.33 | 0.00 |
| 60 | 0.00 | 0.00 |

* The member is assumed to receive the greater of the member's contribution balance or a deferred retirement benefit. No withdrawal is assumed after a member is eligible for retirement.

Retirement Rates(Enhanced):

For those members covered under the enhanced benefit formulas the following rates apply:

| Rate (%) | | | |
|----------|--------|--------|--------|
| Age | Tier 1 | Tier 3 | Safety |
| 50 | 3.00 | 3.00 | 30.00 |
| 51 | 3.00 | 3.00 | 25.00 |
| 52 | 5.00 | 5.00 | 25.00 |
| 53 | 10.00 | 5.00 | 25.00 |
| 54 | 15.00 | 10.00 | 30.00 |
| 55 | 20.00 | 10.00 | 45.00 |
| 56 | 20.00 | 10.00 | 45.00 |
| 57 | 25.00 | 10.00 | 50.00 |
| 58 | 25.00 | 10.00 | 50.00 |
| 59 | 25.00 | 10.00 | 50.00 |
| 60 | 25.00 | 15.00 | 100.00 |
| 61 | 30.00 | 15.00 | 100.00 |
| 62 | 30.00 | 25.00 | 100.00 |
| 63 | 30.00 | 25.00 | 100.00 |
| 64 | 30.00 | 30.00 | 100.00 |
| 65 | 35.00 | 35.00 | 100.00 |
| 66 | 35.00 | 35.00 | 100.00 |
| 67 | 35.00 | 35.00 | 100.00 |
| 68 | 35.00 | 35.00 | 100.00 |
| 69 | 35.00 | 35.00 | 100.00 |
| 70 | 100.00 | 100.00 | 100.00 |

Retirement Rates(Non-Enhanced):

For those members not covered under the enhanced benefit formulas the following rates apply:

| Rate (%) | | | | |
|----------|--------|--------|--------|--------|
| Age | Tier 1 | Tier 2 | Tier 3 | Safety |
| 50 | 3.00 | 3.00 | 2.00 | 1.00 |
| 51 | 3.00 | 3.00 | 2.00 | 1.00 |
| 52 | 3.00 | 3.00 | 2.00 | 1.00 |
| 53 | 3.00 | 3.00 | 2.00 | 1.00 |
| 54 | 3.00 | 3.00 | 2.00 | 1.00 |
| 55 | 10.00 | 5.00 | 2.00 | 2.00 |
| 56 | 10.00 | 5.00 | 4.00 | 2.00 |
| 57 | 10.00 | 5.00 | 4.00 | 3.00 |
| 58 | 10.00 | 5.00 | 4.00 | 4.00 |
| 59 | 10.00 | 5.00 | 5.00 | 20.00 |
| 60 | 25.00 | 15.00 | 5.00 | 17.00 |
| 61 | 15.00 | 15.00 | 5.00 | 17.00 |
| 62 | 40.00 | 15.00 | 15.00 | 18.00 |
| 63 | 25.00 | 10.00 | 10.00 | 20.00 |
| 64 | 30.00 | 25.00 | 20.00 | 100.00 |
| 65 | 40.00 | 25.00 | 20.00 | 100.00 |
| 66 | 35.00 | 25.00 | 20.00 | 100.00 |
| 67 | 35.00 | 25.00 | 20.00 | 100.00 |
| 68 | 35.00 | 40.00 | 35.00 | 100.00 |
| 69 | 35.00 | 40.00 | 50.00 | 100.00 |
| 70 | 100.00 | 100.00 | 100.00 | 100.00 |

**Retirement Age and Benefit for
Deferred Vested Members:**

For current deferred vested members, we make the following retirement assumption:

General Age: 58
Safety Age: 55

We assume that 50% of future deferred vested members are reciprocal. For reciprocals, we assume 6.00% compensation increases per annum.

Future Benefit Accruals:

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

Unknown Data for Members:

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

**Inclusion of Deferred Vested
Members:**

All deferred vested members are included in the valuation.

Percent Married:

80% of male members; 55% of female members.

Age of Spouse:

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

**Conversion of Prior
Tier 2 Service:**

100% of all eligible Tier 2 members will elect to convert to (non-enhanced) Tier 3 after five years of service.

**Tier 3 Members Converting
Prior Tier 2 Service:**

10% of all eligible Tier 3 members will convert their prior Tier 2 service to Tier 3 service.

Terminal Pay Assumptions:

The following assumptions for terminal pay as a percentage of final average pay are used:

General Tier 1: 11.50%
General Tier 2: 3.25%
General Tier 3: 8.50%
Safety: 11.50%

For determining the cost of the basic benefit (i.e. non-COLA component), the cost of this pay element is currently recognized in the valuation as an employer only cost and does not affect member contribution rates.

**Service From Unused
Sick Leave Conversion:**

The following assumptions for service converted from unused sick leave as a percentage of service at retirement are used:

Service Retirements:

| | |
|----------|-------|
| General: | 1.00% |
| Safety: | 2.00% |

Disability Retirements:

| | |
|----------|-------|
| General: | 0.00% |
| Safety: | 1.00% |

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

Net Investment Return:

7.90%

**Employee Contribution
Crediting Rate:**

7.90%

Consumer Price Index:

Increase of 4.00% per year; retiree COLA increases due to CPI subject to a 3.0% maximum change per year except for Tier 3 disability benefits and Tier 2 benefits which are subject to a 4.0% maximum change per year.

Salary Increases:

| Annual Rate of Compensation Increase | | |
|----------------------------------------------------------|---------|--------|
| Inflation: 4.00%, Plus the following Merit and Longevity | | |
| Age | General | Safety |
| 20 | 11.80% | 9.20% |
| 25 | 6.40% | 7.60% |
| 30 | 4.70% | 5.00% |
| 35 | 3.50% | 3.00% |
| 40 | 2.80% | 2.20% |
| 45 | 2.10% | 1.80% |
| 50 | 1.80% | 1.30% |
| 55 | 1.50% | 1.00% |
| 60 | 1.40% | 0.00% |

There are assumed to be no "across the board" salary increases (other than inflation).

174776/05337.001