Fresno County Employees' Retirement Association

ACTUARIAL EXPERIENCE STUDY

Analysis of Actuarial Experience During the Period July 1, 2006 through June 30, 2009

SEGAL

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May 24, 2010

Board of Retirement
Fresno County Employees' Retirement Association
1111 H Street
Fresno, CA 93721

Re: Review of Non-Economic Actuarial Assumptions for the June 30, 2010 Actuarial Valuation

Dear Members of the Board:

We are pleased to submit this report of our review of the actuarial experience of the Fresno County Employees' Retirement Association. This study utilizes the census data for the period July 1, 2006 to June 30, 2009 and provides the proposed actuarial assumptions to be used in the June 30, 2010 valuation.

Please note that we have also reviewed the economic assumptions. The economic actuarial assumption recommendations for the June 30, 2010 valuation are provided in a separate report.

We are Members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

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

Sincerely,

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

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

MYM/bqb

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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 recognizing gains or losses as they occur.

The use of realistic actuarial assumptions is important in maintaining adequate funding, while paying promised 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 review the demographic actuarial assumptions and to compare the actual experience with that expected under the current assumptions during the three year experience period from July 1, 2006 through June 30, 2009. 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" and, as appropriate, ASOP No. 27 "Selection of Economic Assumptions for Measuring Pension Obligations." These Standards 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, reciprocity, pre-retirement mortality, healthy life post-retirement mortality, disabled life post-retirement mortality, termination, disability (ordinary and duty), salary increases, and annual leave conversion.

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: We recommend adjusting the retirement rates to those developed in Section III (B) for General Tier I Male, General Tier 1 Female and Safety member to anticipate later retirement. We also recommend increasing the reciprocity assumption for Safety members.

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

Recommendation: For members who retire from service, we recommend adjusting the rates as developed in Section III (C) to include about a two-year improvement in mortality for General members and all beneficiaries and about a one-year improvement in mortality for Safety members. The disabled member mortality rates for General and Safety members have also been decreased as developed in Section III (D.

The recommended pre-retirement mortality assumptions for General and Safety members are consistent with the tables used for post-service retirement mortality. In addition, we recommend that all pre-retirement deaths be assumed as ordinary deaths.

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

Recommendation: We recommend adjusting the termination rates to those developed in Section III (E) to reflect higher incidence of termination. In addition, a slightly higher proportion of members is expected to elect a refund of member contributions instead of a deferred vested benefit during the first five years of employment under the recommended assumptions.

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

Recommendation: We recommend adjusting the disability rates to those developed in Section III (F) to reflect slightly lower incidence of disability for General Male and Safety members and slightly higher incidences of disability for General Females.

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: We recommend increasing the merit and promotional rates of salary increase to those developed in Section III (H) to reflect past experience.

Annual Leave Conversion – Additional service that is expected to be received when the member retires due to conversion of unused annual leave.

Recommendation: We recommend adjusting the current assumptions to reflect an increase in accumulated annual leave for members in the Annual Leave Plan II.

Section II provides some background on basic principles and the methodology used for the experience study and the review of the demographic actuarial assumptions. A detailed discussion of each assumption 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 June 30, 2010 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., termination from service, disability retirement, service retirement, and death after retirement. We also reviewed the individual salary increases in excess of general salary inceases (i.e., the merit and promotional 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 termination from service, we compare the number of employees who actually terminate in a certain age and/or service category (i.e., the number of "decrements") with those who could have terminated (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 terminate during the year, we would say the probability of termination in that age group is 50 ÷ 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 termination 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 in a separate report titled "Review of Economic Actuarial Assumptions for the June 30, 2010 Actuarial Valuation."

B. RETIREMENT RATES

The age at which a member retires from service (i.e., who did not retire on a disability pension) 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.

The retirement experience during the current three-year period indicated that there were fewer actual retirements than expected from General Tier 1 Male and Female and Safety.

For General Tiers 2 and 3, we are not recommending a change in the retirement assumptions because there is not sufficient data available to support a change. Similarly, we recommend the continuation of the current practice of applying the Safety Tier 1 retirement rates for Safety Tier 2.

In this study, we have adjusted the retirement probabilities to reflect the current three-year experience, as well as prior experience as represented by the current retirement assumptions.

The following tables show the current, observed and proposed rates for General Tier 1 Male, General Tier 1 Female, and Safety.

Retirement Rates for General Tier 1 Male

Rate (%)

Age	Current	Observed	Proposed
45-49	0.00	40.00	0.00
50	4.00	0.84	3.00
51	4.00	2.31	3.00
52	4.00	1.53	3.00
53	4.00	4.23	4.00
54	4.00	2.68	4.00
55	7.00	11.04	9.00
56	11.00	14.47	13.00
57	16.00	18.46	17.00
58	20.00	23.62	20.00
59	25.00	17.43	20.00
60	30.00	27.66	30.00
61	30.00	26.67	30.00
62	34.00	25.58	30.00
63	34.00	28.57	30.00
64	34.00	23.53	30.00
65	43.00	36.36	40.00
66	48.00	66.67	50.00
67	53.00	50.00	50.00
68	60.00	25.00	50.00
69	70.00	25.00	50.00
70	100.00	21.74	100.00

Retirement Rates for General Tier 1 Female

Rate (%)

Age	Current	Observed	Proposed
45-49	0.00	20.00	0.00
50	4.00	3.17	4.00
51	4.00	2.88	4.00
52	4.00	4.90	4.00
53	4.00	4.10	4.00
54	4.00	7.48	5.00
55	10.00	10.94	10.00
56	12.00	10.04	12.00
57	12.00	13.36	13.00
58	15.00	15.63	15.00
59	16.50	16.17	16.00
60	22.00	15.83	18.00
61	25.00	20.00	22.00
62	40.00	23.17	25.00
63	25.00	25.93	25.00
64	22.00	25.71	25.00
65	30.00	51.85	35.00
66	35.00	33.33	35.00
67	40.00	44.44	40.00
68	45.00	40.00	45.00
69	50.00	42.86	50.00
70	100.00	36.67	100.00

Retirement Rates for Safety Tier 1

Rate (%)

Age	Current	Observed	Proposed
0-44	0.00	10.53	0.00
45	1.00	10.00	1.00
46	1.00	0.00	1.00
47	1.00	0.00	1.00
48	1.00	0.00	1.00
49	3.00	2.86	3.00
50	5.00	7.02	5.00
51	6.00	0.00	5.00
52	9.00	7.27	8.00
53	14.00	18.97	15.00
54	25.00	27.08	25.00
55	45.00	21.43	35.00
56	35.00	22.22	25.00
57	25.00	0.00	25.00
58	30.00	18.75	25.00
59	40.00	14.29	30.00
60	100.00	37.21	100.00

Chart 1 compares actual experience with the current and the proposed rates of retirement for General Tier 1 Male members. Chart 2 has the same data for General Tier 1 Female members and Chart 3 has the same data for Safety Tier 1 members.

In prior valuations, deferred vested General and Safety members were assumed to retire at age 58 and 55, respectively. The average age at retirement over the prior three years was 58.0 and 54.5 for both General and Safety, respectively. We recommend maintaining the assumed retirement age for General and Safety deferred vested members.

It was also assumed that 40% of future inactive General and 55% of future inactive Safety deferred vested participants would be covered under a reciprocal retirement system and receive 4.90% and 5.25% compensation increases for General and Safety members, respectively, from termination until their date of retirement. Based on the actual experience that 41% of General and 67% of Safety members went on to be covered by a reciprocal retirement system as reported in the data provided in the June 30, 2009 valuation, we recommend maintaining a 40% reciprocal assumption for General and changing to a 60% reciprocal assumption for Safety. Based on our average 1.00%

and 1.50% recommended merit and longevity salary increase assumptions, we propose a 5.00% and 5.50% salary increase assumption for General and Safety members, respectively, be utilized to anticipate salary increases from the date of termination from FCERA to the expected date of retirement for participants in a reciprocal retirement system.

In prior valuations, it was assumed that 80% of all active male members and 55% of all active female members would be married or have an eligible domestic partner when they retired. According to the experience of members who retired recently, about 75% of all male members and 58% of all female members were married or had a domestic partner at retirement. We recommend maintaining the marriage assumption at 80% for male members and 55% for female members.

Based on observed experience from members who retired during the last three years, we also recommend maintaining 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 more actual experience concerning domestic partners.

Chart 1
Retirement Rates - General Tier 1 Male Members

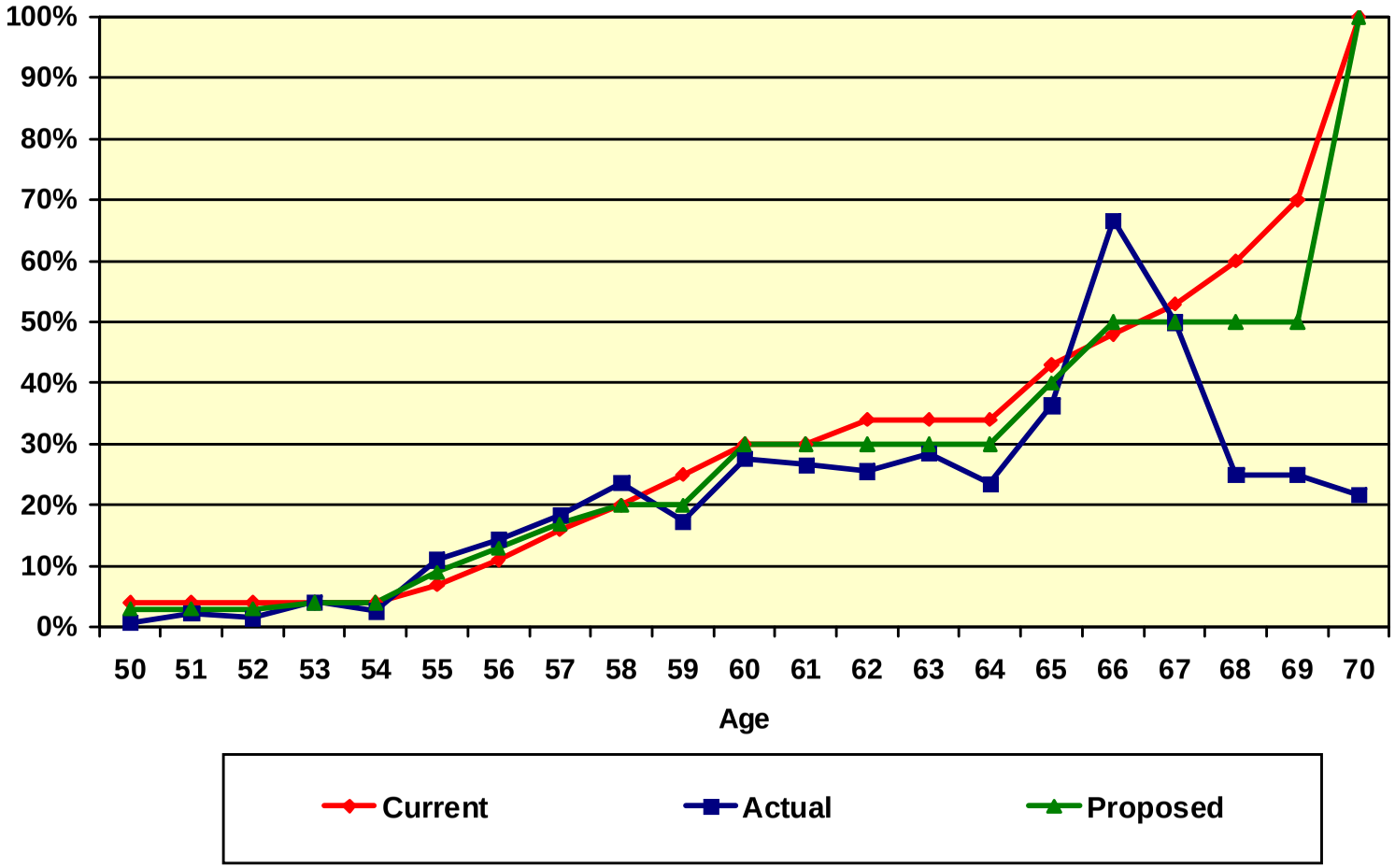


Chart 2
Retirement Rates - General Tier 1 Female Members

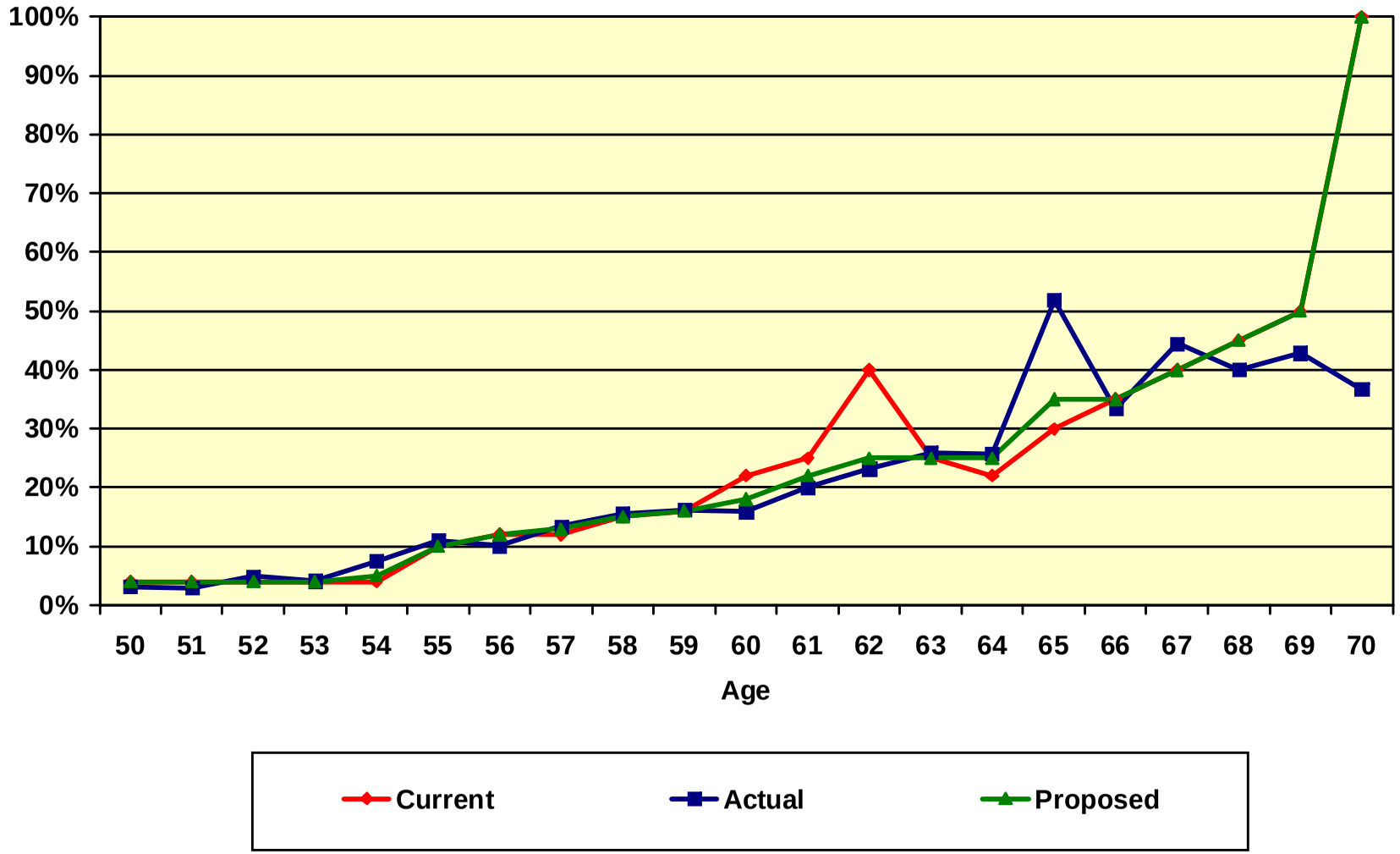
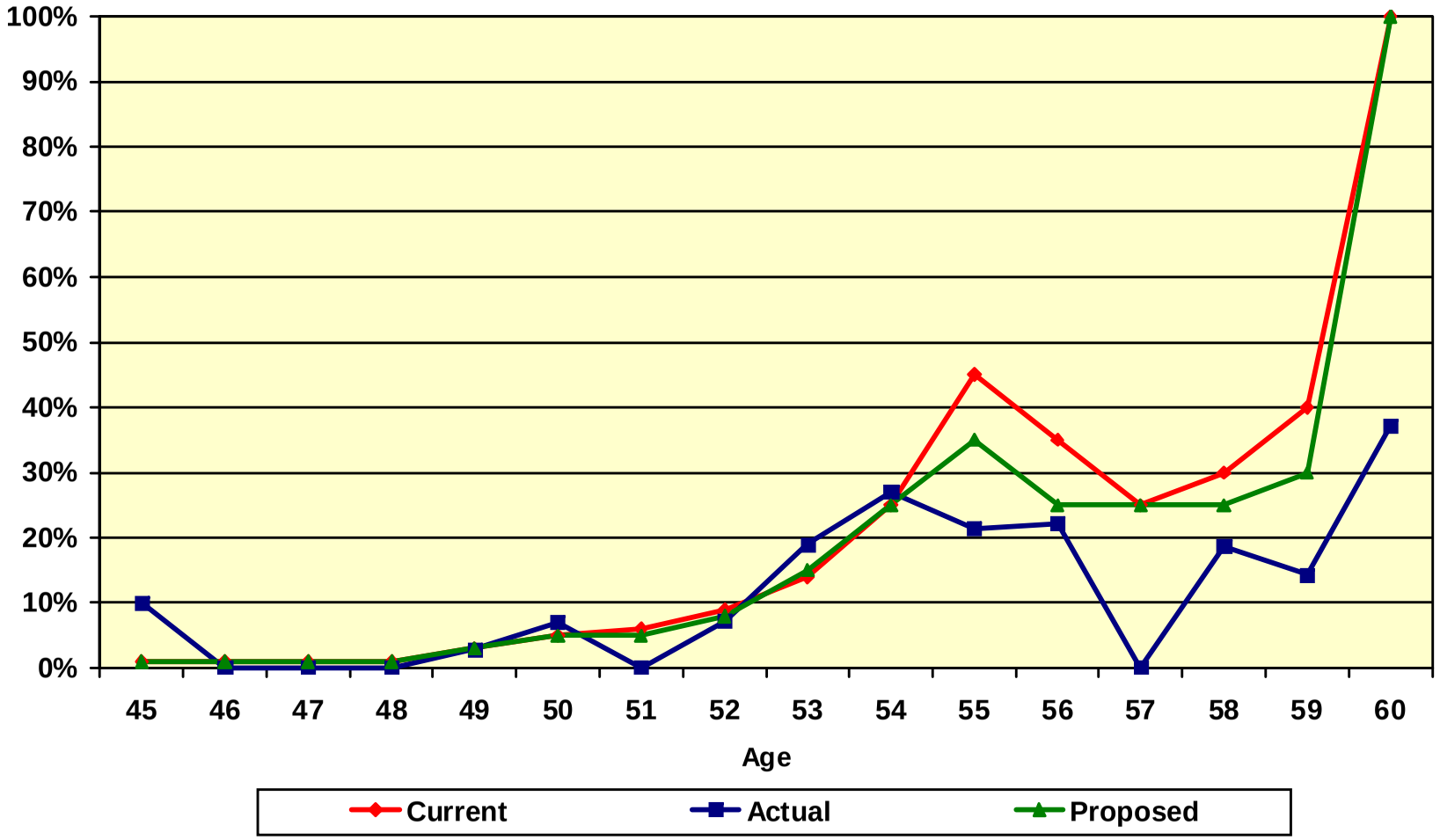


Chart 3
Retirement Rates - Safety Tier 1 Members



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 from service (i.e., who did not retire on a disability pension). The tables currently being used for post-service retirement mortality rates are the RP-2000 Healthy Annuitant Mortality Table with adjustment for white collar workers (separate tables for males and females) for General members and all beneficiaries and the RP-2000 Healthy Annuitant Mortality Table with adjustment for blue collar workers (separate tables for males and females) set back two years for Safety members.

Pre-Retirement Mortality

The number of deaths among active members is not large enough to provide statistics credible enough to develop a unique table. Therefore, it is assumed that pre-retirement mortality assumptions for non-service connected deaths for General and Safety follow the same tables used for post-retirement mortality. In addition, based on experience from the last three years, we recommend that all pre-retirement deaths be assumed to be ordinary deaths.

Post-Retirement Mortality (Service Retirements)

Among service retired member and beneficiaries, the actual deaths compared to the expected deaths under the current and the proposed assumptions for the last three years are as follows:

	General Retirees- Healthy			Safety Retirees – Healthy		
Year Ending June 30	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths
2007	86	83	70	7	11	6
2008	93	96	75	7	7	6
2009	97	69	78	7	4	7
Total	276	248*	223	21	22	19
Actual / Expected	90%		111%	105%		116%

* There were 67, 77 and 135 deaths reported for the years ending June 30, 2004, 2005 and 2006, respectively. This is discussed on the next page.

Year Ending June 30	All Beneficiaries		
	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths
2007	24	21	20
2008	25	22	20
2009	25	24	21
Total	74	67	61
Actual/Expected	91%		110%

For General members and all beneficiaries, the ratio of actual to expected deaths under the current assumption was 90% and 91%, respectively. We recommend changing to the RP-2000 Healthy Annuitant Mortality Table with adjustment for white collar workers (separate tables for males and females) set back two years. This will bring the actual to expected ratios for the most recent three year period to 111% and 110%, for General members and all beneficiaries.

As we pointed out in our last experience study report, we did not recommend any improvement in this assumption in that study because of the significantly higher number of deaths observed for the year ending June 30, 2006. If we calculate the average number of deaths for the periods July 1, 2003 to June 30, 2005 and July 1, 2006 to June 30, 2009 (i.e., excluding 2005/2006), that average is 78 per year. The average expected number of deaths under the proposed assumption is only about 74 per year, which provides some margin for future mortality improvement. Nonetheless, we will need to continue to monitor this assumption to determine if additional improvement is warranted in the next study.

For the Safety members, the ratio of actual expected deaths was 105%. We recommend changing to the RP-2000 Healthy Annuitant Mortality Table with adjustment for blue collar workers (separate table for males and females) set back three years. This will bring the actual to expected rates to 116% and will provide some margin for future mortality improvements. We will continue to monitor this assumption closely in future studies.

Chart 4 compares actual to expected deaths for General members and all beneficiaries under the current and the proposed assumptions for all members and beneficiaries over the last three years. Experience shows that there were fewer deaths than predicted by the current table.

Chart 5 has the same comparison for Safety members.

Chart 6 shows the life expectancies under the current and the proposed tables for General members and all beneficiaries.

Chart 7 has the same information for Safety members.

Mortality Table for Member Contributions

We recommend the mortality table used for determining contributions for General members be changed from the RP-2000 Healthy Annuitant Mortality Table with adjustment for white collar workers weighted 1/3 male and 2/3 female to the RP-2000 Healthy Annuitant Mortality Table with adjustment for white collar workers set back two years weighted 35% male and 65% female. This is based on the proposed mortality table for General members and the actual gender distribution for the current General members.

For Safety members, we recommend the mortality table be changed from the RP-2000 Healthy Annuitant Mortality Table with adjustment for blue collar workers set back two years weighted 5/6 male and 1/6 female to the RP-2000 Healthy Annuitant Mortality Table with adjustment for blue collar workers set back three years weighted 80% male and 20% female. This is based on the proposed mortality table for Safety members and the actual gender distribution for the current Safety members.

Chart 4
Post - Retirement Deaths
Non - Disabled General Members and All Beneficiaries

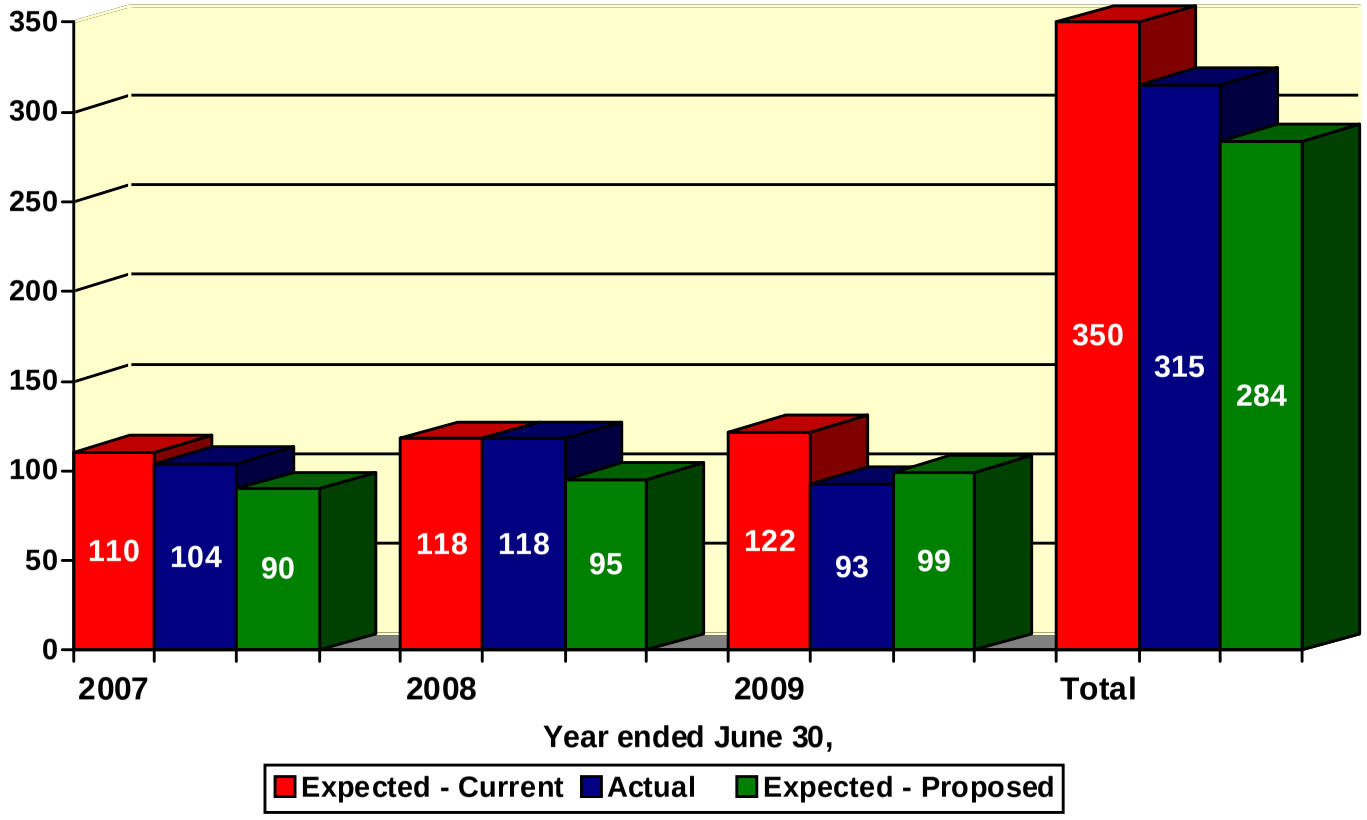


Chart 5
Post - Retirement Deaths
Non - Disabled Safety Members

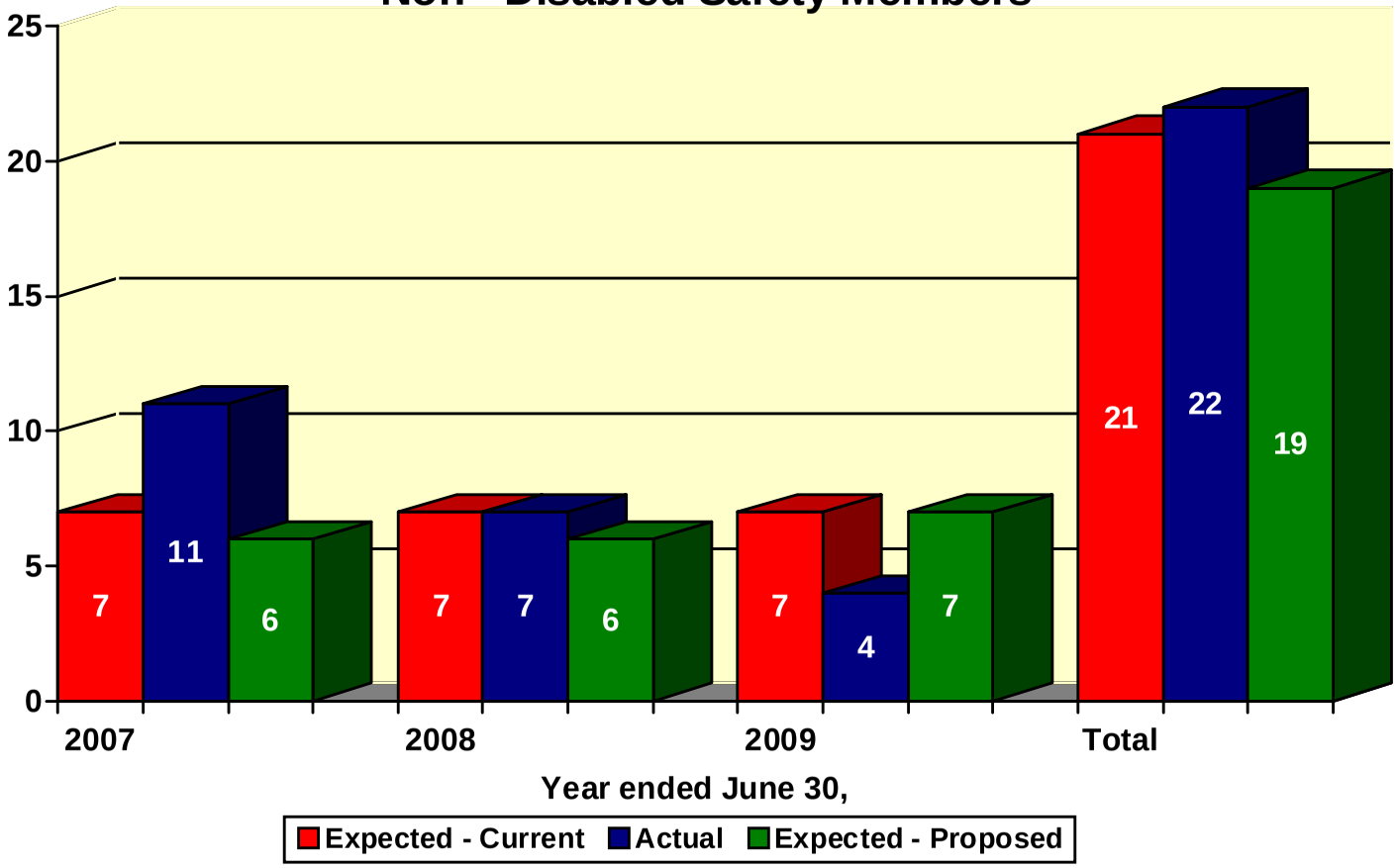


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Chart 6
Life Expectancies
Non - Disabled General Members and All Beneficiaries

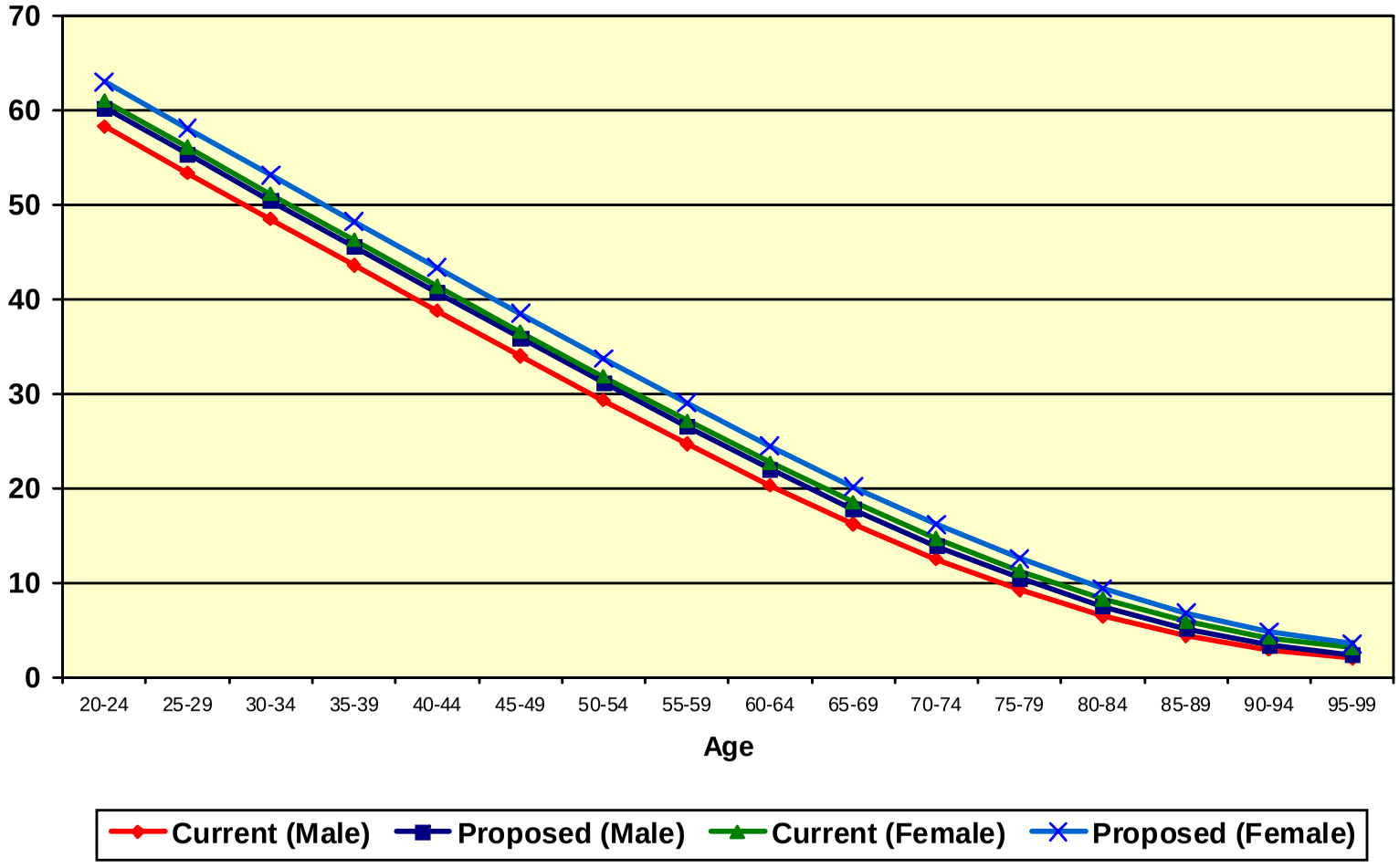

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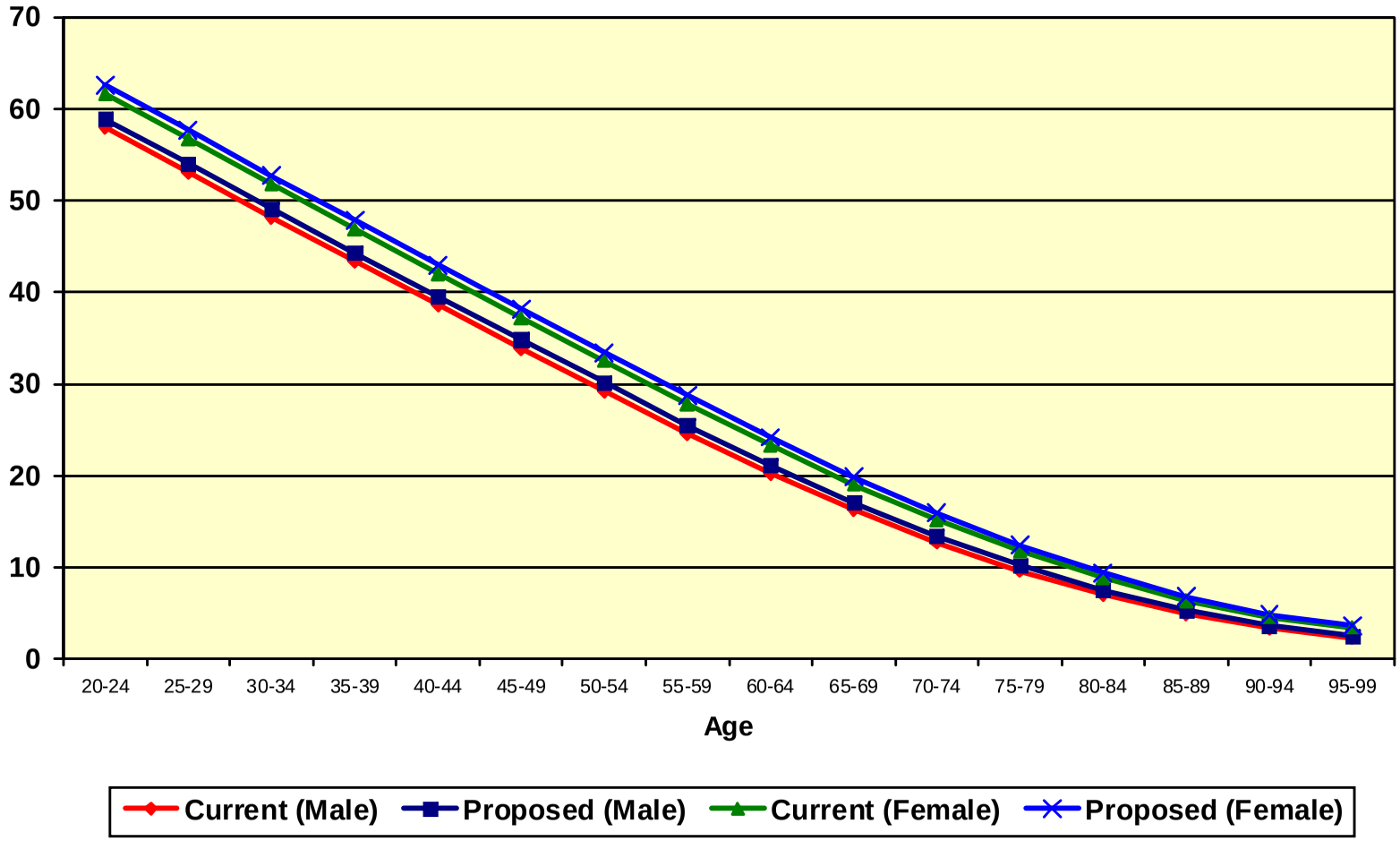
Chart 7
Life Expectancies
Non - Disabled Safety Members



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D. MORTALITY RATES - DISABLED

Since death rates for disabled members can differ from those of healthy members, a different mortality assumption is often used. The table currently being used is the RP-2000 Disabled Annuitant Mortality Table (separate tables for males and females) set back one year for General members and two years for Safety members.

The number of actual deaths compared to the number expected under the current and the proposed assumptions for the last three years has been as follows:

	General – Disability			Safety – Disability		
Year Ending June 30	Expected Deaths	Actual Deaths	Proposed Expected Deaths	Expected Deaths	Actual Deaths	Proposed Expected Deaths
2007	7.79	5	5.25	3.47	1	0.65
2008	8.75	6	6.22	3.68	1	0.73
2009	9.24	8	6.86	3.90	0	0.81
Total	25.78	19	18.33	11.05	2	2.19
Actual / Expected	74%		104%	18%		91%

Based on the actual experience from the current and the last triennial experience study periods, we recommend changing the mortality table for General disabled members to the RP-2000 Healthy Annuitant Mortality Table with adjustment for white collar workers (separate tables for males and females) set forward four years. We will continue to monitor this assumption closely in future studies.

Based on the actual experience from the current and the last triennial experience study periods, we recommend changing the mortality table for Safety disabled members to the RP-2000 Healthy Annuitant Mortality Table with adjustment for blue collar workers (separate tables for males and females) set back three years. These are the same tables that are recommended for healthy Safety members. We have found that it is not uncommon for 1937 Act plans to utilize similar mortality assumptions for both disabled and non-disabled Safety retirees. We will continue to monitor this assumption to determine if mortality improvement is warranted in the next study.

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

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

Chart 10 and 11 show the life expectancies under both the current and the proposed tables for General and Safety, respectively.

Chart 8
Post - Retirement Deaths
Disabled General Members

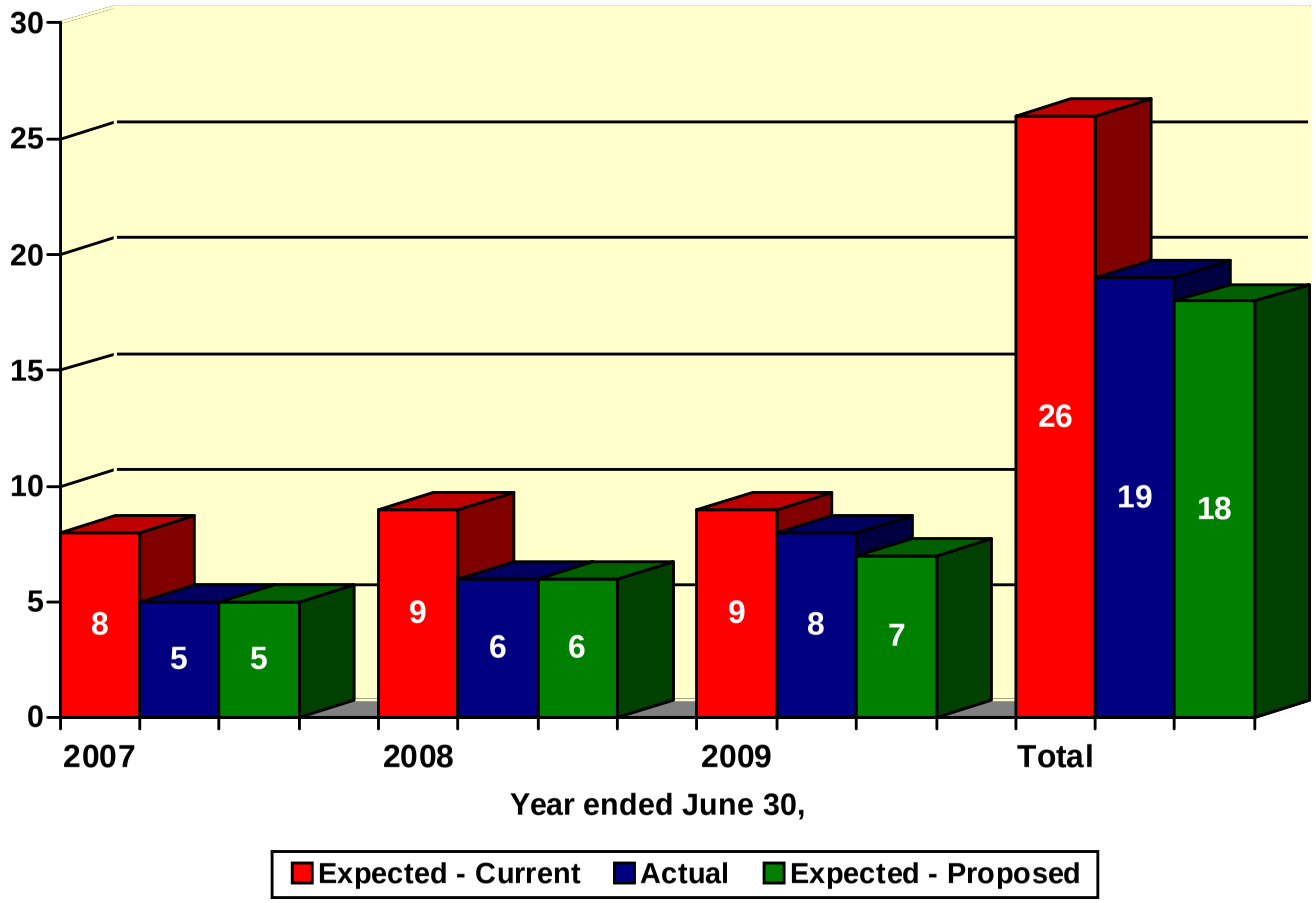


Chart 9
Post - Retirement Deaths
Disabled Safety Members

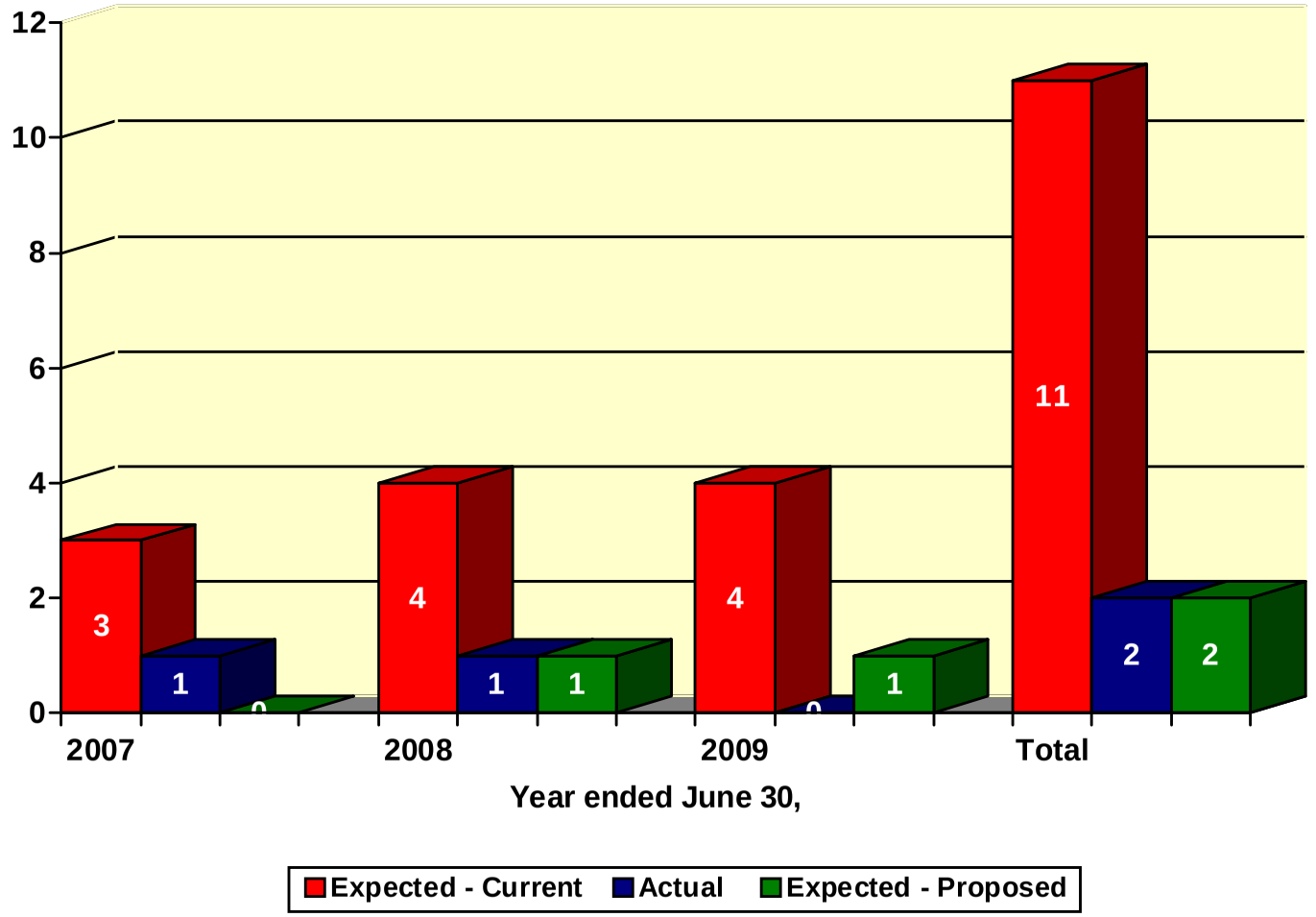


Chart 10
Life Expectancies (Disabled General Members)

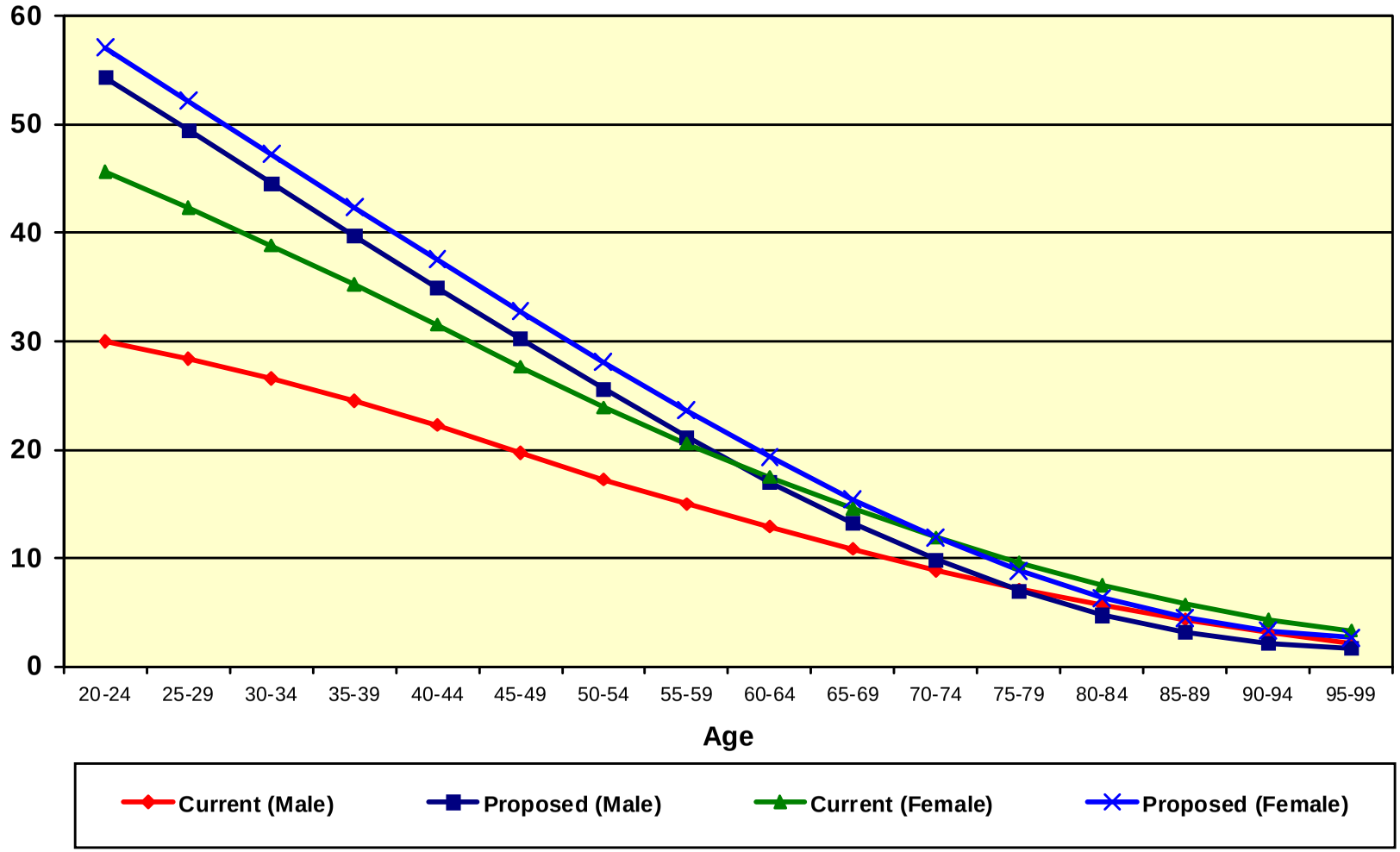
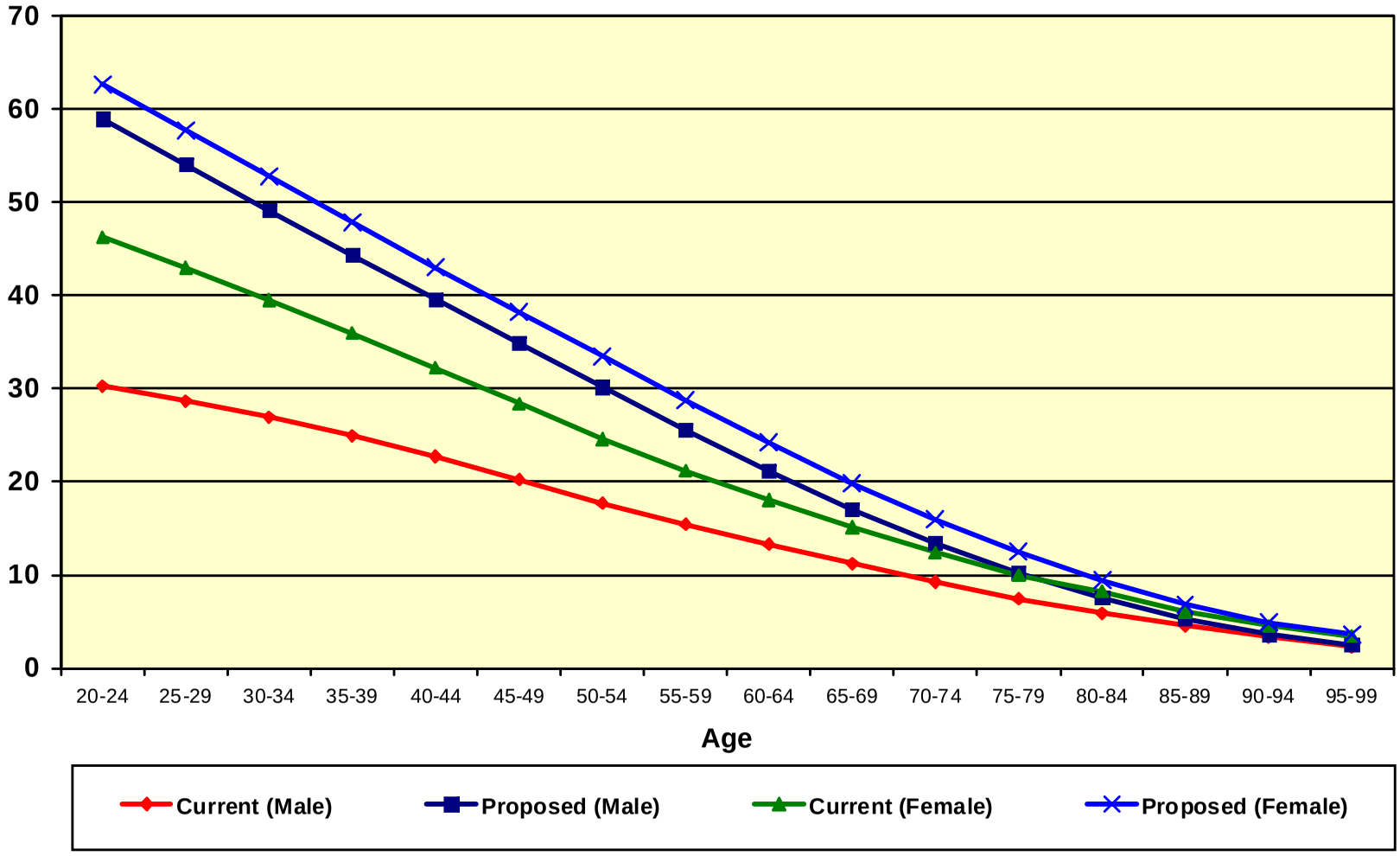


Chart 11
Life Expectancies (Disabled Safety Members)



E. TERMINATION RATES

Termination rates include all terminations for reasons other than death, disability, or retirement. Under the current assumptions there is an overall assumed incidence of total termination combined with a separate assumption for the percent of members who would elect a refund of contributions versus a deferred retirement benefit. The termination experience (total) over the last three years for General and Safety members separated between those members with under five years of service and those with five or more years of service is as follows:

Rates of Termination (General Male)
(Fewer than Five Years of Service)

Years of Service	Current Rate	Observed Rate	Proposed Rate
0	10.00%	23.96%	17.00%
1	7.00	3.09	6.00
2	7.00	3.10	6.00
3	6.00	1.44	6.00
4	6.00	16.59	6.00

Rates of Termination (General Female)
(Fewer than Five Years of Service)

Years of Service	Current Rate	Observed Rate	Proposed Rate
0	11.00%	22.60%	17.00%
1	9.00	2.31	6.00
2	7.00	2.50	6.00
3	6.00	2.54	6.00
4	6.00	19.10	6.00

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

Years of Service	Current Rate	Observed Rate	Proposed Rate
0	9.00%	32.18%	17.00%
1	6.00	1.22	4.00
2	5.00	0.63	4.00
3	4.00	1.46	4.00
4	4.00	5.16	4.00

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

Age	Current Rate	Observed Rate	Proposed Rate
20 – 24	5.00%	0.00%	6.00%
25 – 29	5.00	7.61	6.00
30 – 34	5.00	3.36	5.00
35 – 39	4.50	4.62	4.50
40 – 44	4.50	4.22	4.25
45 – 49	4.00	2.42	4.00
50 – 54	3.00	7.53	3.50
55 – 59	2.00	7.50	3.00
60 – 64	2.00	8.77	3.00
65 – 69	0.00	13.89	1.00

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

Age	Current Rate	Observed Rate	Proposed Rate
20 – 24	7.00%	0.00%	7.50%
25 – 29	7.00	8.33	7.50
30 – 34	7.00	6.66	7.00
35 – 39	5.50	4.42	5.00
40 – 44	4.50	3.62	4.50
45 – 49	4.00	3.16	4.00
50 – 54	3.00	6.65	3.50
55 – 59	2.00	5.37	3.00
60 – 64	2.00	8.29	3.00
65 – 69	0.00	7.14	1.00

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

Age	Current Rate	Observed Rate	Proposed Rate
20 – 24	4.00%	0.00%	4.00%
25 – 29	4.00	4.65	4.00
30 – 34	3.50	1.86	3.50
35 – 39	3.00	1.94	3.00
40 – 44	2.50	2.23	2.50
45 – 49	1.00	1.90	1.00
50 – 54	1.00	21.05	1.00
55 – 59	0.00	5.56	1.00
60 – 64	0.00	18.18	0.00

Chart 12 compares actual to expected total terminations over the past three years for both the current and the proposed assumptions for General Male and Female members and Safety members.

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

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

Chart 15 shows the same information as Chart 13, but for Safety members.

Chart 16 shows the current along with the proposed termination rates for General Male members with five or more years of service.

Chart 17 shows the same information as Chart 16, but for General Female members.

Chart 18 shows the same information as Chart 16, but for Safety members

Based upon the recent experience, the terminations rates for General and Safety members have been increased in most cases. In addition, among the terminations, we recommend the following assumptions for the percent of members electing a refund and the percent of members electing to leave their contributions on deposit so that they would be eligible to receive a deferred retirement benefit.

Proportion of Total Termination Assumed to Receive Refunds and Deferred Vested Benefit (%)

	Refunds			Deferred Vested Benefits		
Years of Service	Current Rate	Observed Rate	Proposed Rate	Current Rate	Observed Rate	Proposed Rate
0-4	85.00%	91.02%	90.00%	15.00%	8.98%	10.00%
5-9	30.00	27.57	30.00	70.00	72.43	70.00
10-14	30.00	24.00	30.00	70.00	76.00	70.00
15-19	30.00	28.26	30.00	71.00	71.74	70.00
20 or more	30.00	38.46	30.00	70.00	61.54	70.00

We will continue to assume that all termination rates are zero at any age where members are eligible and assumed to retire. That means that, at these ages, the members will either retire (and commence receiving a benefit) or continue working.

Chart 12
Actual Number of Terminations Compared to Expected

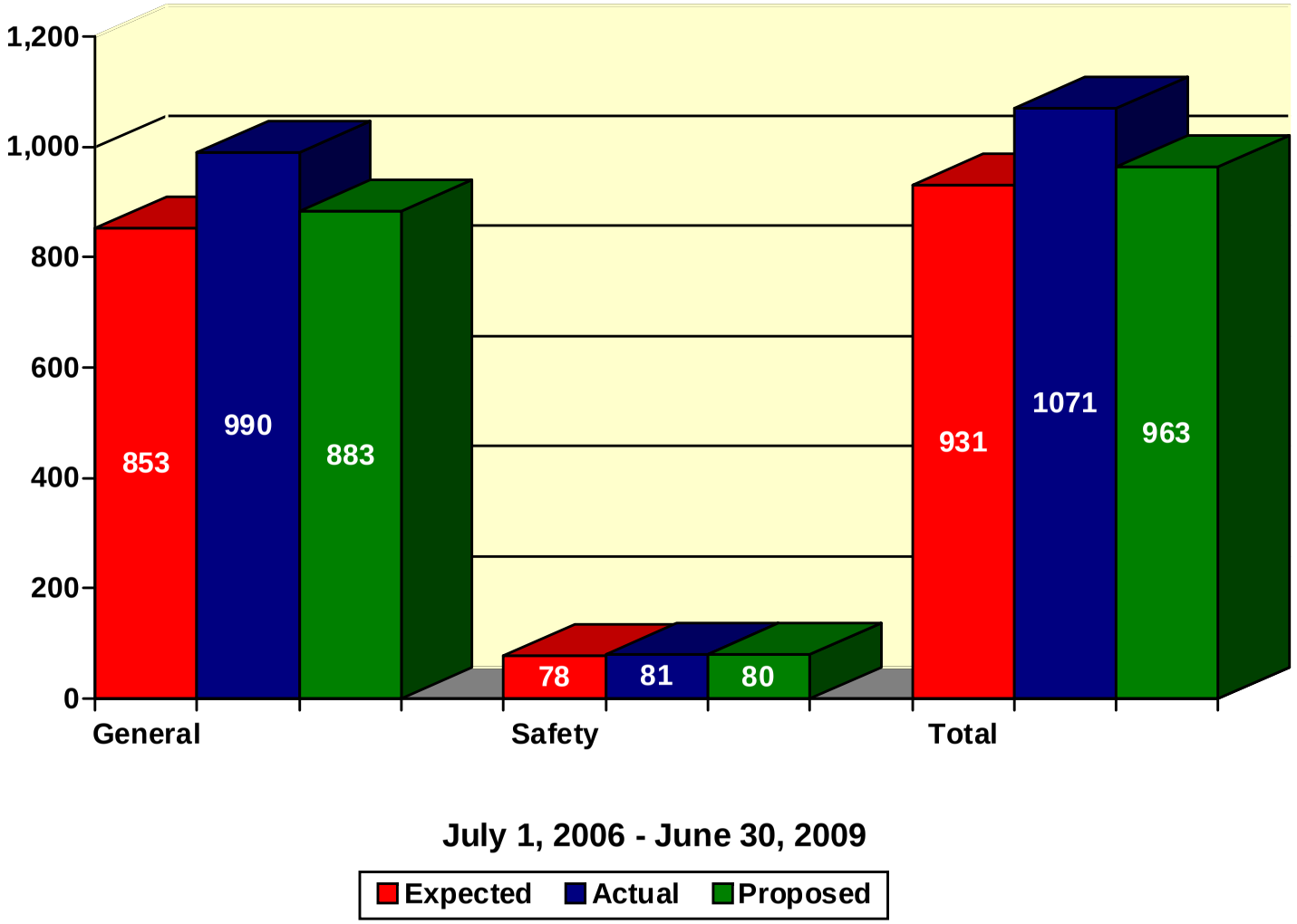


Chart 13
Termination Rates - General Male Members
(Less than Five Years of Service)

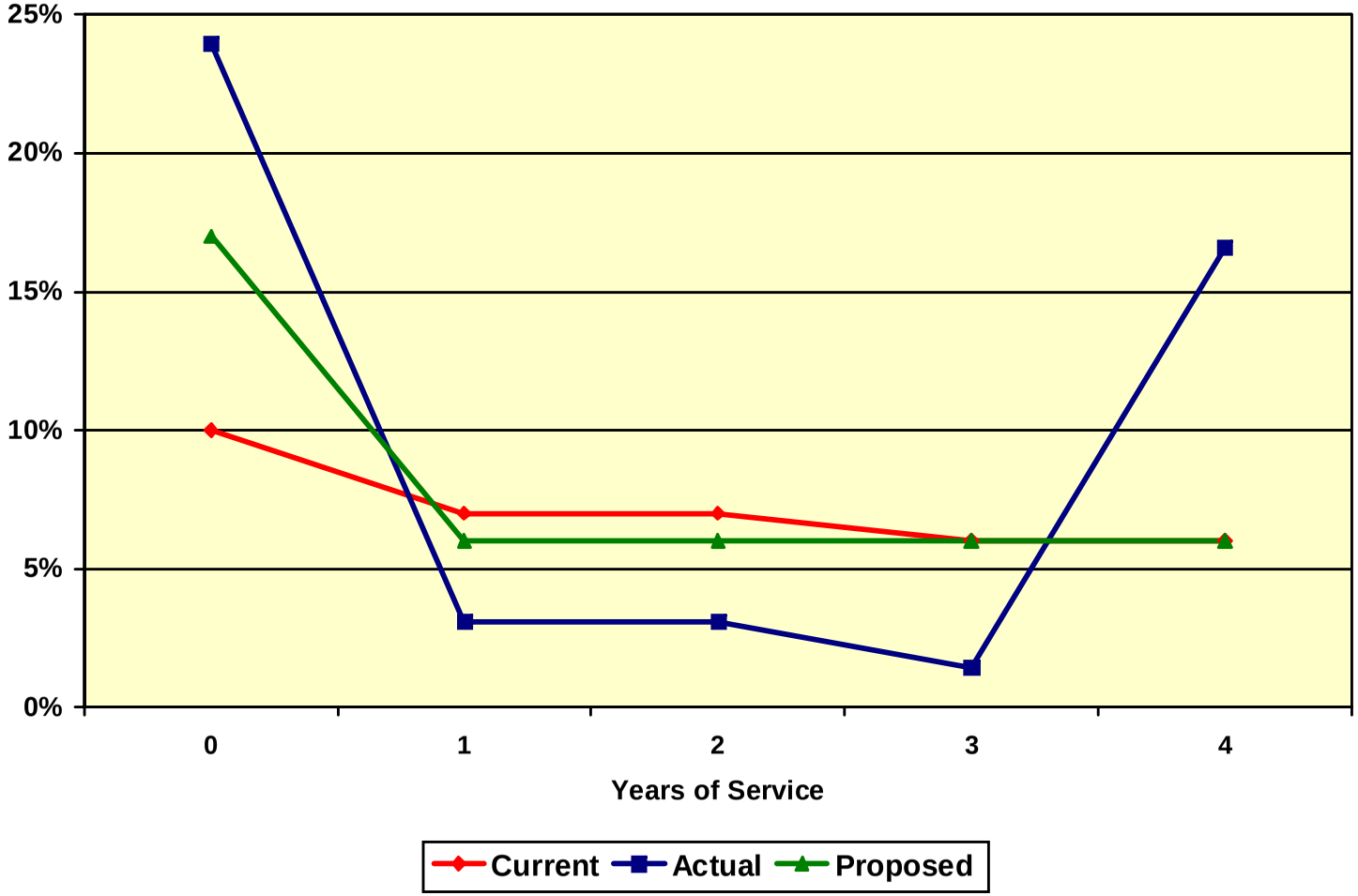


Chart 14
Termination Rates - General Female Members
(Less Than Five Years of Service)

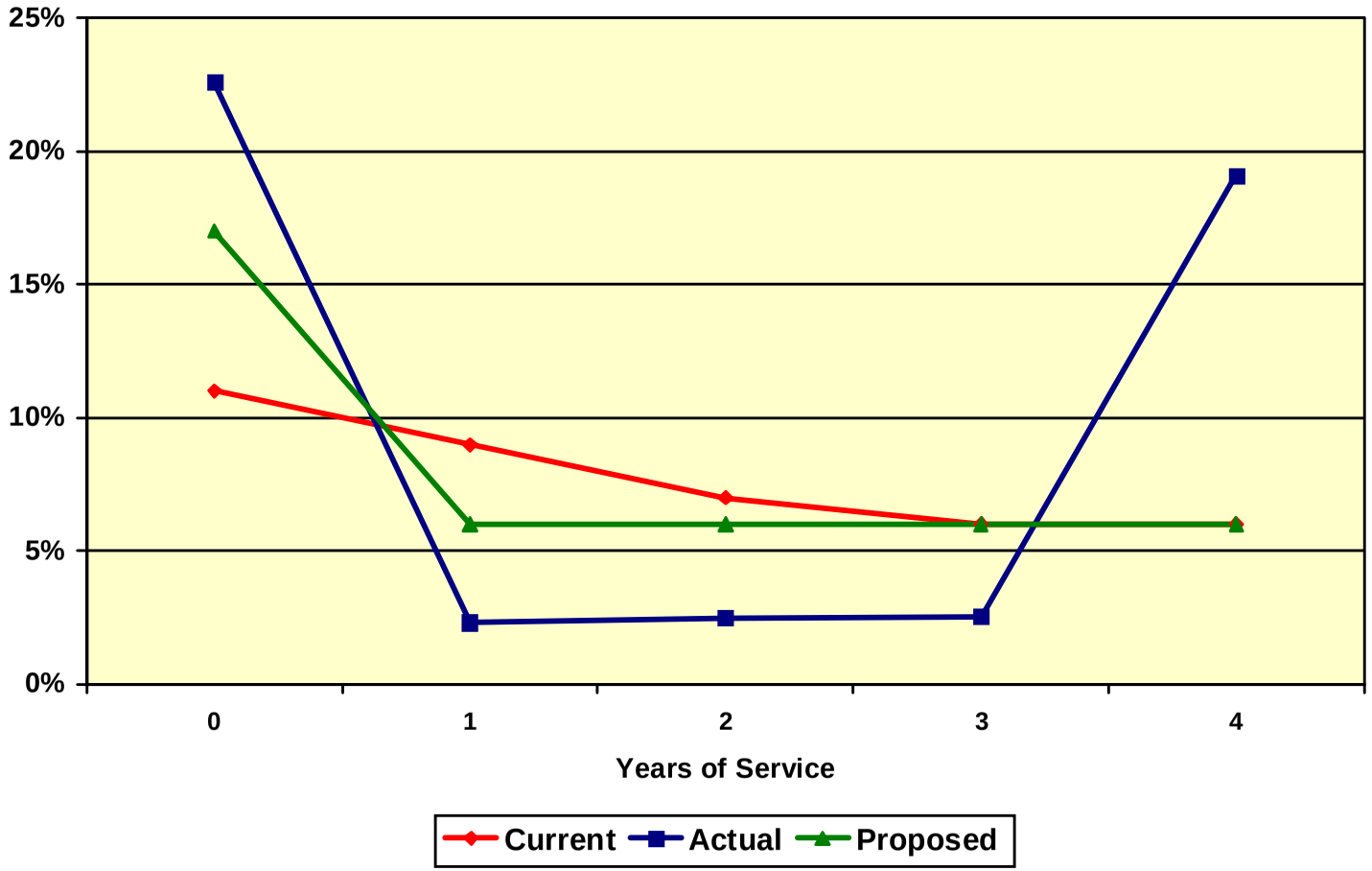


Chart 15
Termination Rates - Safety Members
(Less Than Five Years of Service)

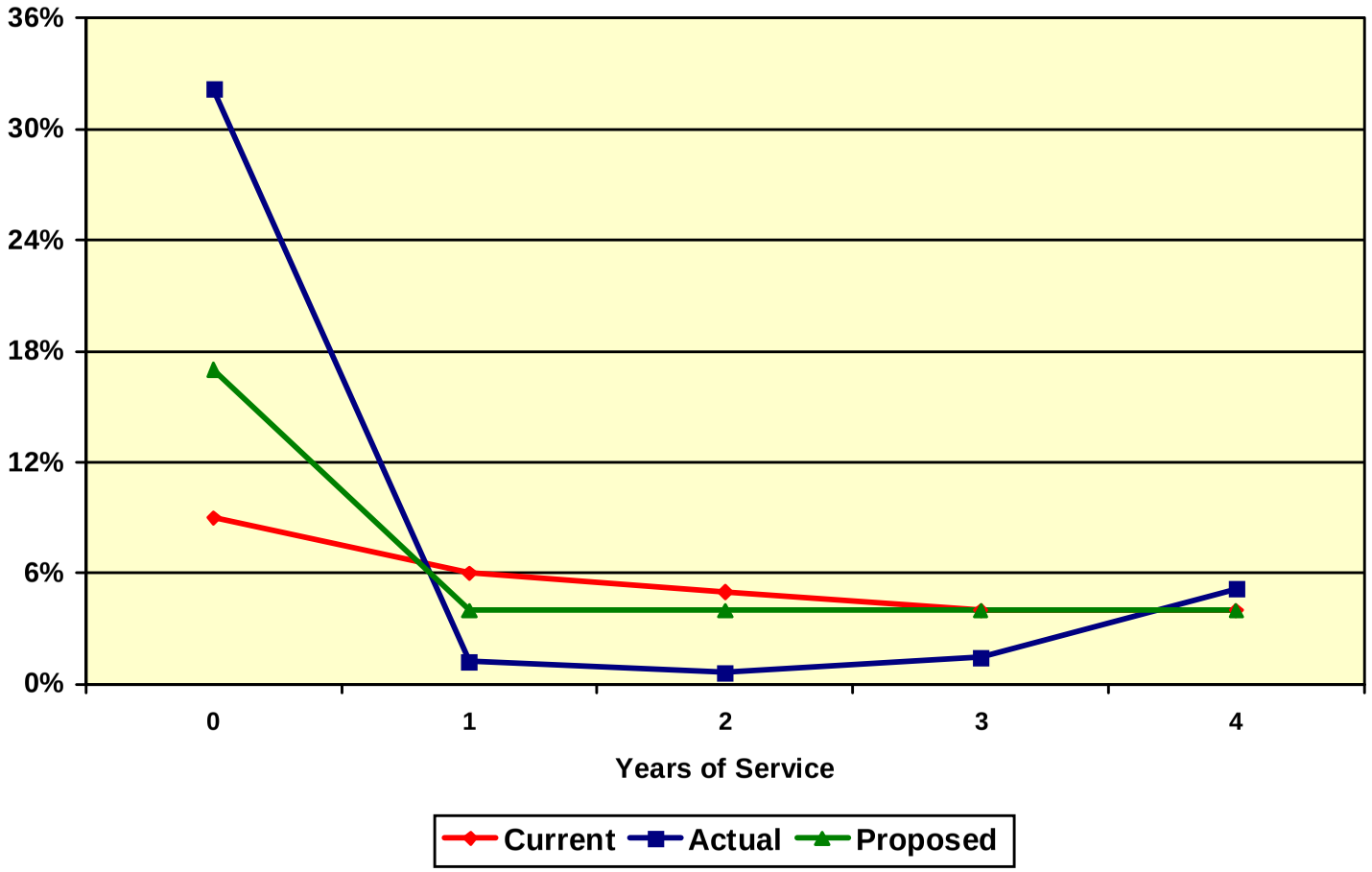


Chart 16
Termination Rates - General Male Members
(Five or More Years of Service)

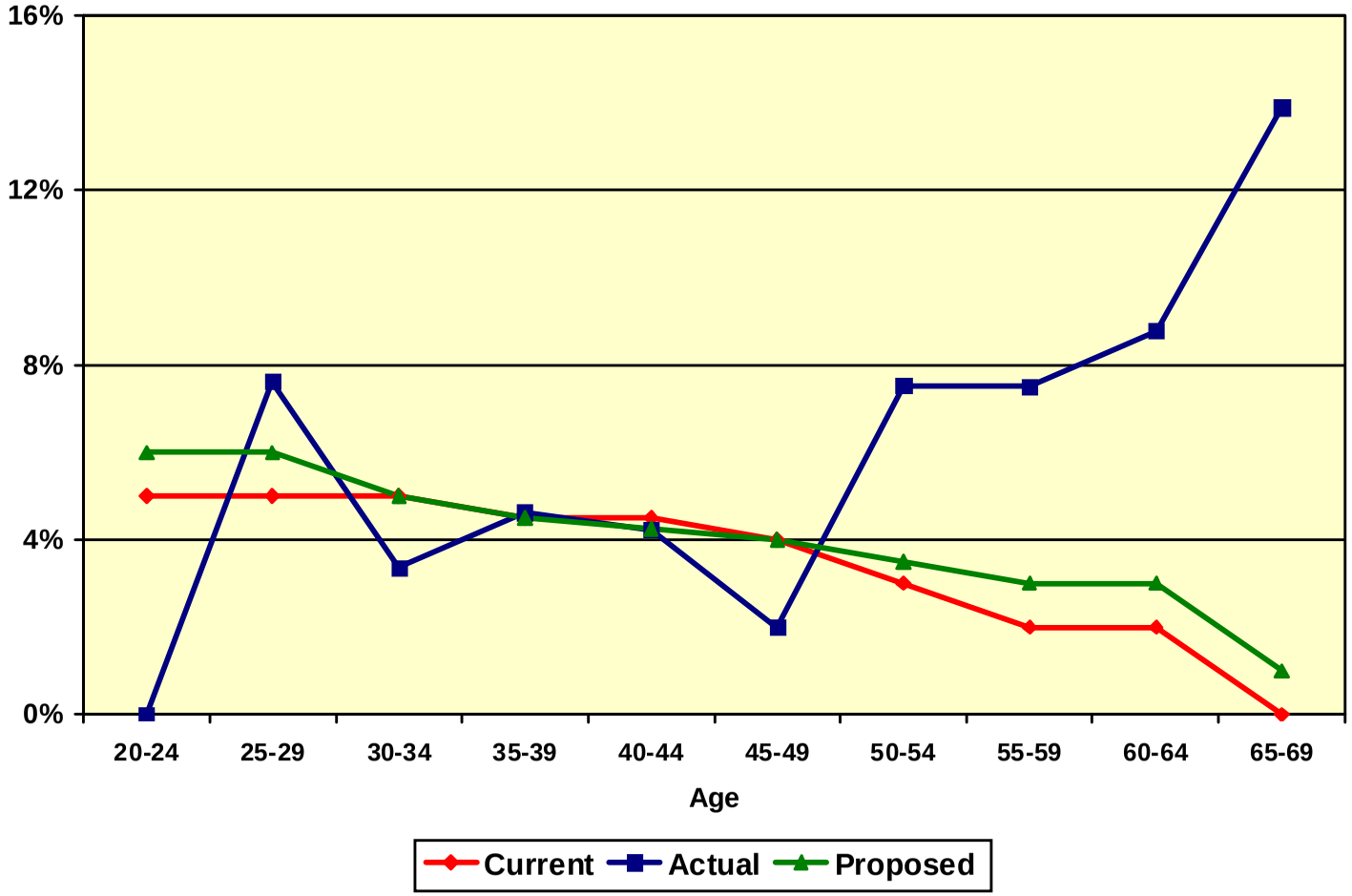


Chart 17
Termination Rates - General Female Members
(Five or More Years of Service)

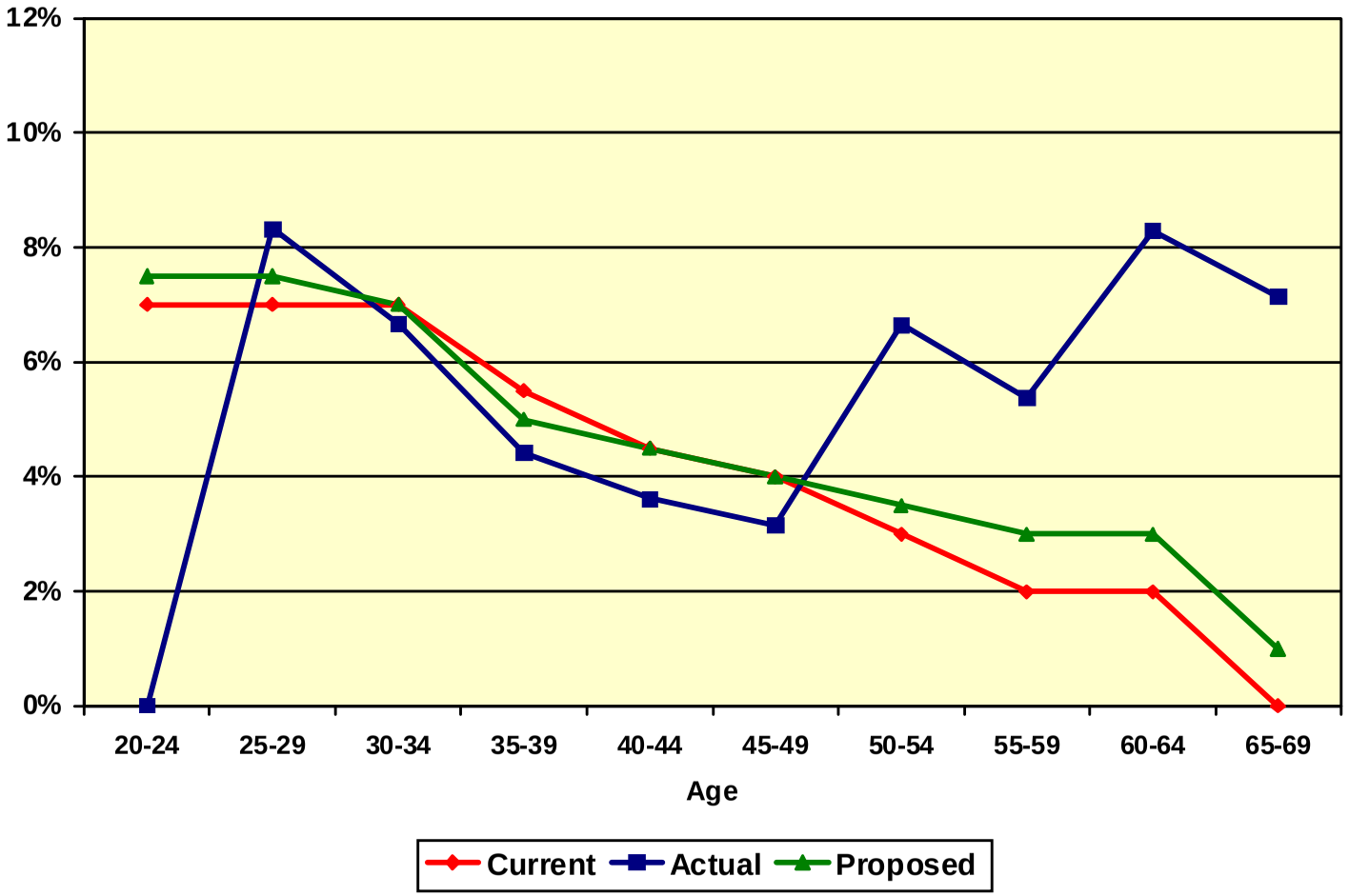
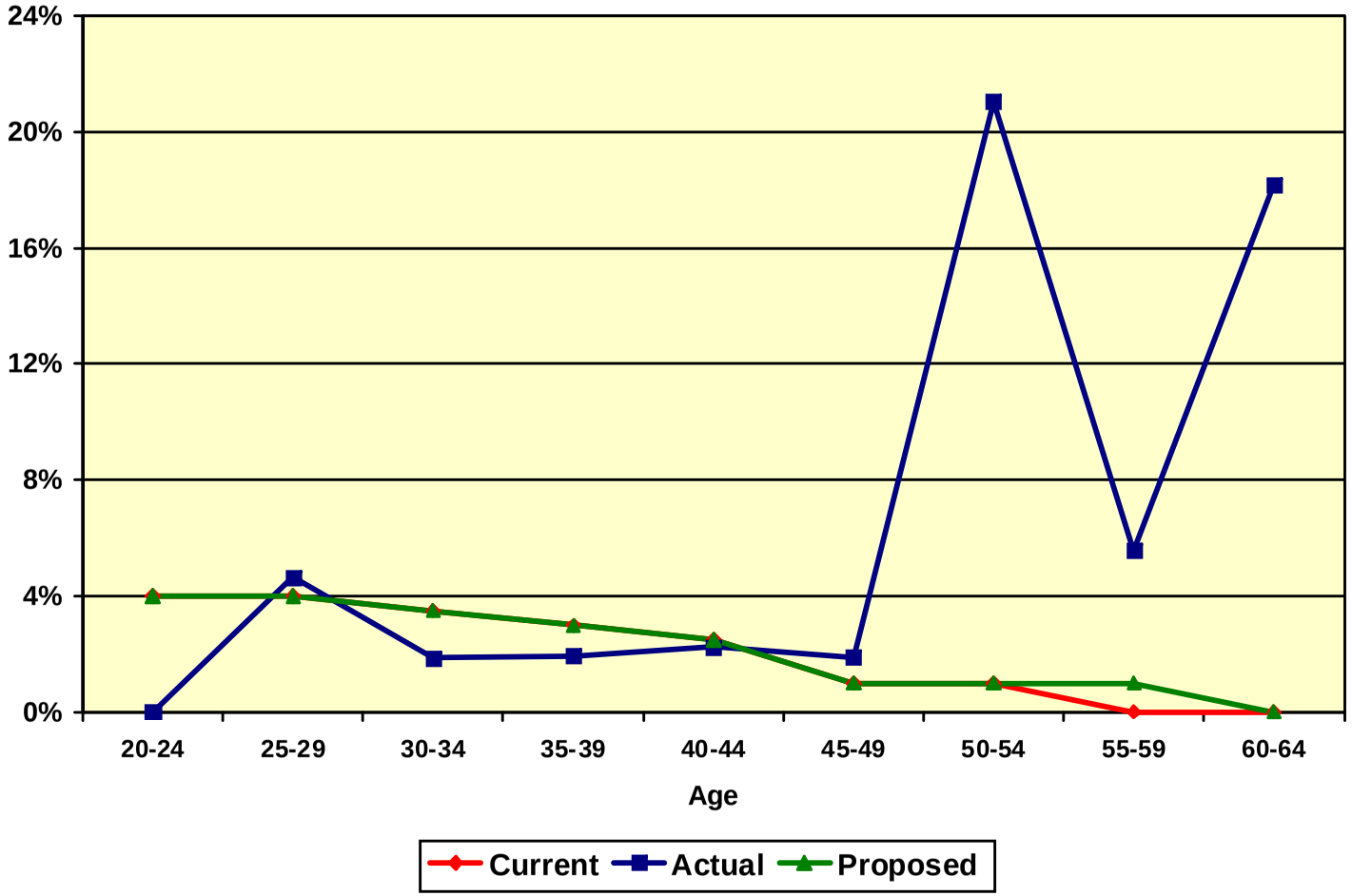


Chart 18
Termination Rates - Safety Members
(Five or More Years of Service)



F. DISABILITY INCIDENCE RATES

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

Rates of Disability Incidence (General Male)

Age	Current Rate	Observed Rate	Proposed Rate
20 – 24	0.01%	0.00%	0.01%
25 – 29	0.02	0.00	0.01
30 – 34	0.02	0.00	0.02
35 – 39	0.03	0.00	0.03
40 – 44	0.07	0.00	0.07
45 – 49	0.25	0.41	0.25
50 – 54	0.35	0.09	0.30
55 – 59	0.50	0.00	0.40
60 – 64	1.20	0.99	1.00
65 – 69	0.00	1.23	0.00

Rates of Disability Incidence (General Female)

Age	Current Rate	Observed Rate	Proposed Rate
20 – 24	0.01%	0.00%	0.01%
25 – 29	0.02	0.00	0.02
30 – 34	0.02	0.00	0.02
35 – 39	0.08	0.00	0.08
40 – 44	0.12	0.00	0.12
45 – 49	0.15	0.26	0.18
50 – 54	0.20	0.15	0.20
55 – 59	0.30	0.24	0.30
60 – 64	0.50	0.28	0.50
65 – 69	0.00	0.68	0.00

Rates of Disability Incidence (Safety)

Age	Current Rate	Observed Rate	Proposed Rate
20 – 24	0.06%	0.00%	0.05%
25 – 29	0.13	0.00	0.15
30 – 34	0.25	0.39	0.30
35 – 39	0.45	0.52	0.50
40 – 44	0.70	0.39	0.60
45 – 49	0.90	0.25	0.70
50 – 54	1.40	0.68	1.10
55 – 59	3.00	2.42	3.00
60 – 64	0.00	4.00	0.00

Chart 19 compares the actual number of ordinary and duty disabilities over the past three years to that expected under both the current and the proposed assumptions. The current disability rates were slightly adjusted to reflect the past three years experience.

Chart 20 shows actual disablement rates, compared to the assumed and the proposed rates for General Male members.

Chart 21 graphs the same information as Chart 20, but for General Female members.

Since 32% of disabled General members received a duty disability, we recommend that the current 33% assumption used to anticipate duty disability retirement be maintained. The remaining 67% of General disabled members will be assumed to receive an ordinary disability.

Chart 22 graphs the same information as Chart 20, but for Safety members.

Since 100% of disabled Safety members received a duty disability, we recommend that the current 100% assumption used to anticipate duty disability retirement be maintained. No Safety disabled members will be assumed to receive an ordinary disability.

Chart 19
Actual Number of Disabilities Compared to Expected

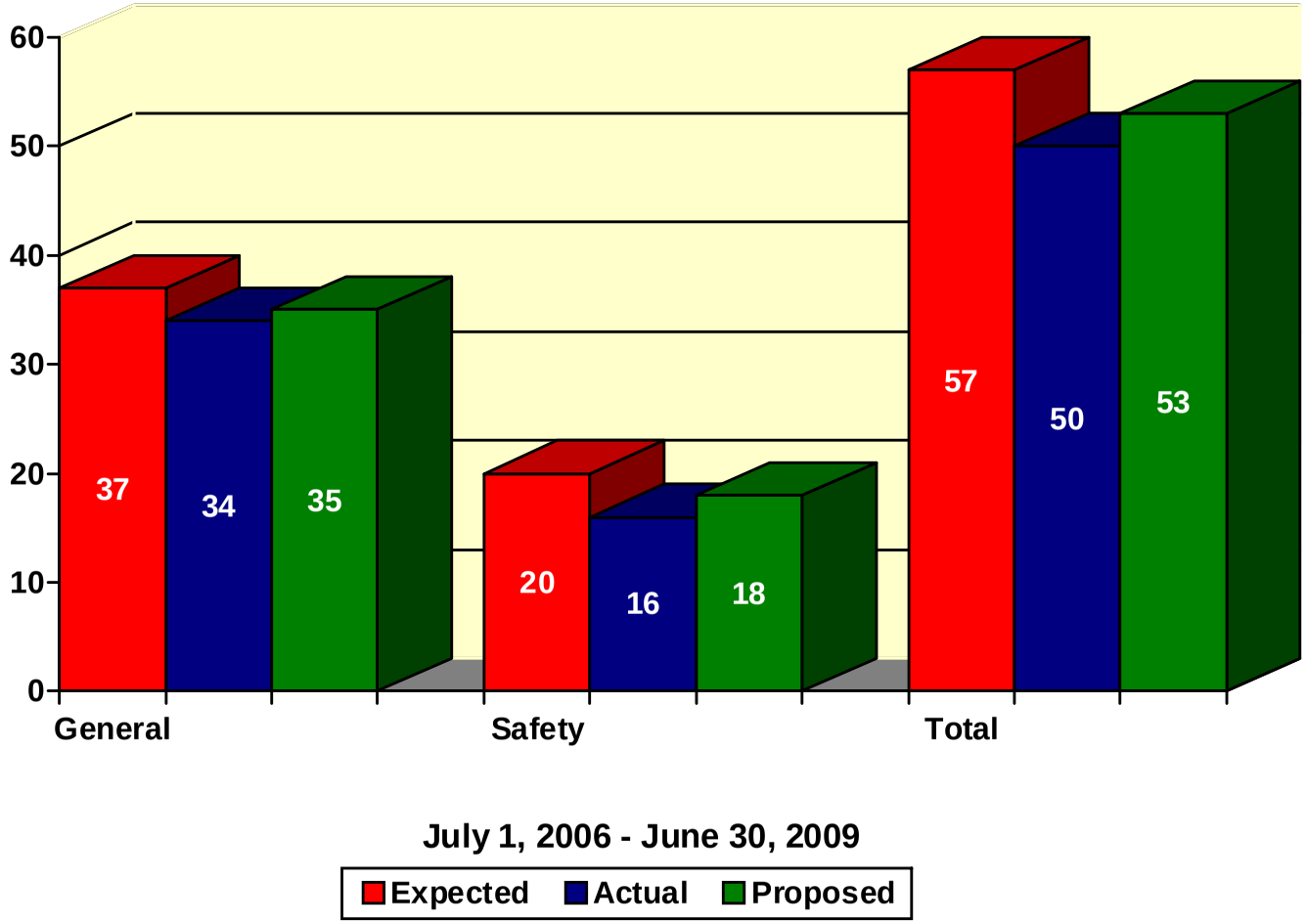


Chart 20
Disablement Rates for General Male Members

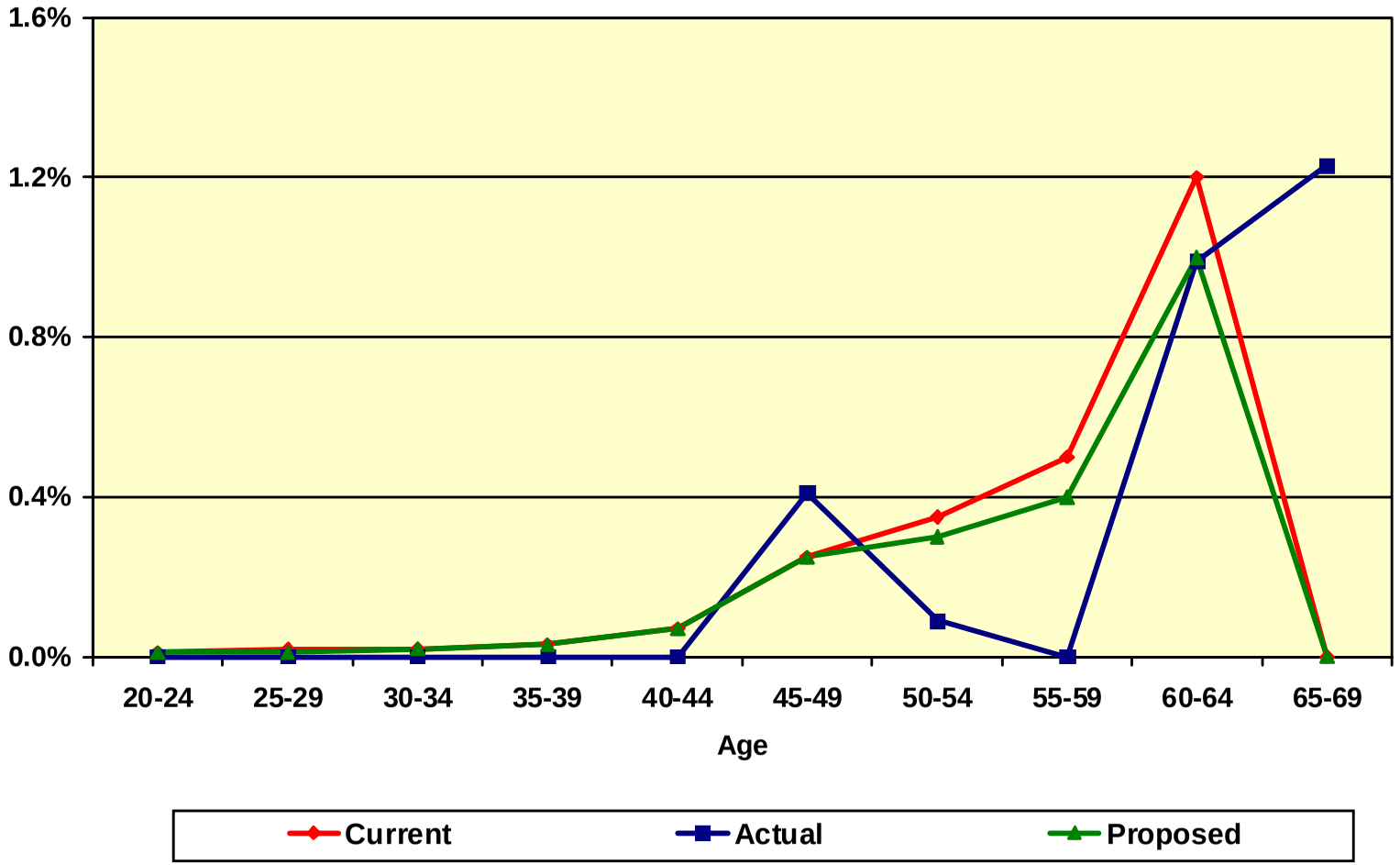


Chart 21
Disablement Rates for General Female Members

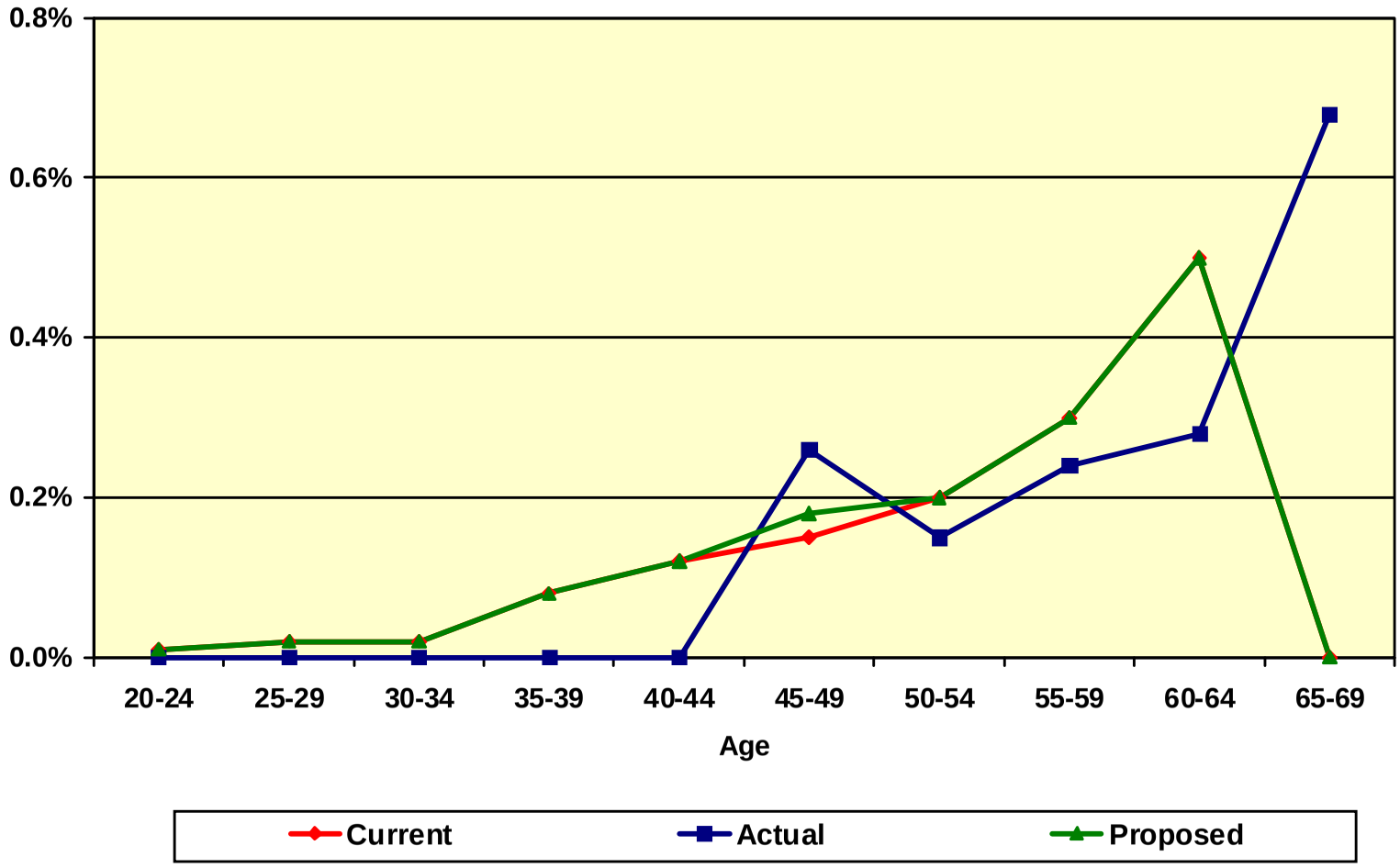
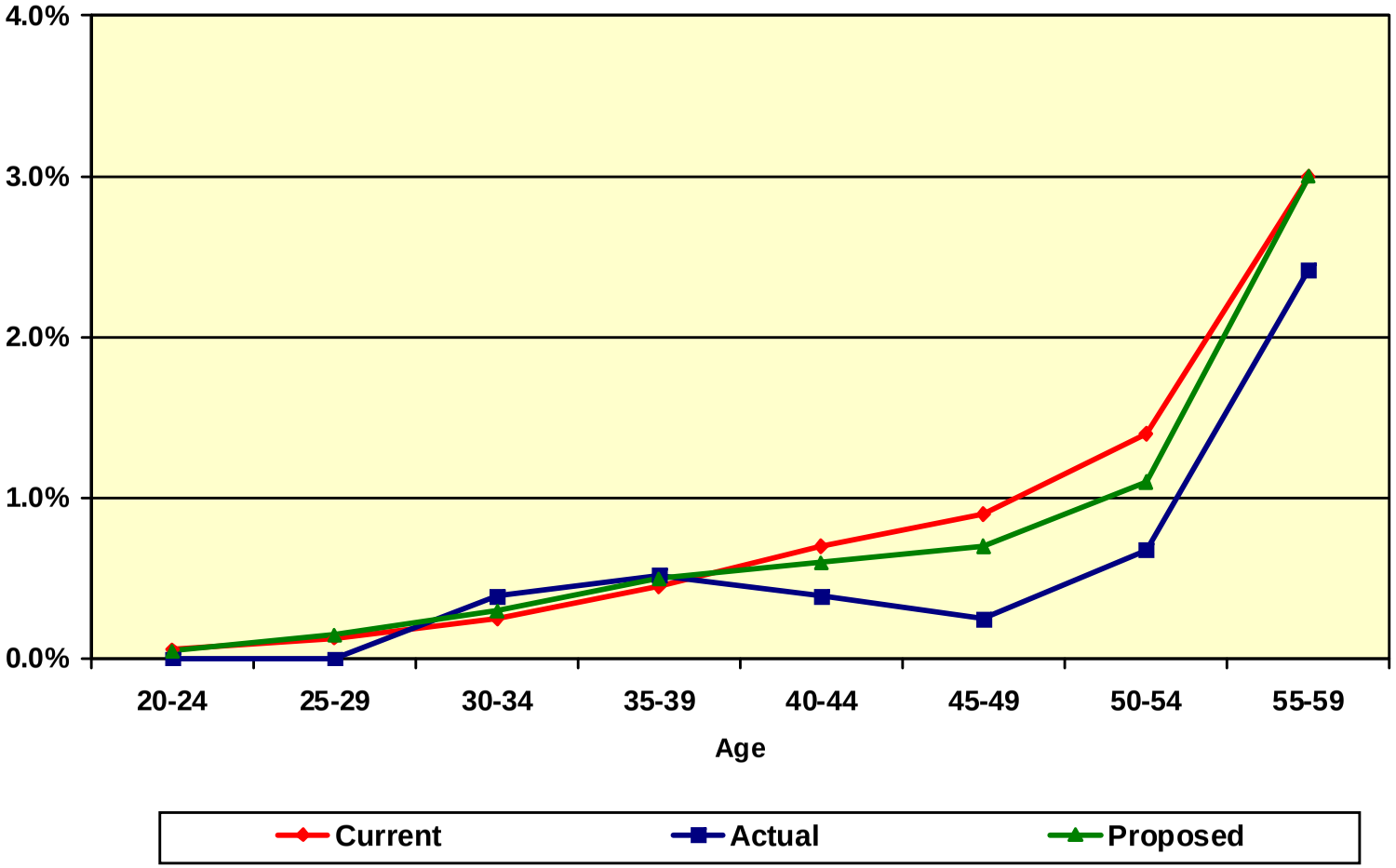


Chart 22
Disablement Rates for Safety Members



G. MERIT AND PROMOTIONAL 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 promotional increases.

The inflationary increases are assumed to follow the general inflation assumption discussed in our separate economic assumption report, where we recommended a 3.50% inflation assumption. We also discussed in that report our recommended assumption of 0.50% "across the board" pay increases. Therefore, the total inflation and real "across the board" increase of 4.00% is used as the assumed annual rate of payroll growth at which payments to the UAAL are assumed to increase.

The merit and promotional increases are determined by measuring the actual increases received by members over the experience period, net of the actual average inflationary and real "across the board" pay increases. 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 wage 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 increases in the merit and promotional assumptions for both General and Safety members. The new assumptions raise the merit and promotional increase for members with eight or more years of service from an average of about 0.90% and 1.25% per year to an average of about 1.00% and 1.50% per year for General and Safety, respectively.

The following table shows the average increases over the three-year experience period (July 1, 2006 through June 30, 2009) before removing the actual inflationary and real wage increase component:

	Average Increase (%)	
Years of Service	**General Members**	**Safety Members**
0	16.01	17.31
1	13.23	20.12
2	11.43	18.88
3	10.08	15.42
4	8.99	13.22
5	9.36	12.64
6	8.12	12.62
7	7.01	11.61
8 or more	6.20	10.65

The increase in average salary for all ages over this three-year period was about 4.80% for General members and 7.77% for Safety members. The following table shows the average merit and promotional increases for the three-year period, after removing the increases in average salary in each service category:

	Average Merit and Promotional Increase (%)	
Years of Service	**General Members**	**Safety Members**
0	11.15	9.62
1	8.44	12.24
2	6.69	11.29
3	5.40	7.40
4	4.20	5.19
5	4.19	5.01
6	3.03	4.67
7	2.17	3.85
8 or more	1.44	2.72

The following table shows the current and the proposed merit and promotional assumptions based on this recent experience:

Current vs. Proposed Merit and Promotional Salary Increase (%)

	General Members		Safety Members	
Years of Service	**Current**	**Proposed**	**Current**	**Proposed**
0	6.00	7.00	6.00	7.00
1	5.50	6.00	5.00	6.00
2	5.25	5.50	3.50	5.75
3	5.00	5.00	3.50	5.25
4	4.75	4.25	3.50	4.35
5	1.50	2.00	3.50	3.75
6	1.25	1.50	3.50	3.75
7	1.00	1.25	3.50	3.50
8 or more	0.90	1.00	1.25	1.50

Charts 23 and 24 provide a graphical comparison of the current, the actual and the proposed merit and promotional increases.

Chart 23
Merit and Promotional Salary Increase Rates for General Members

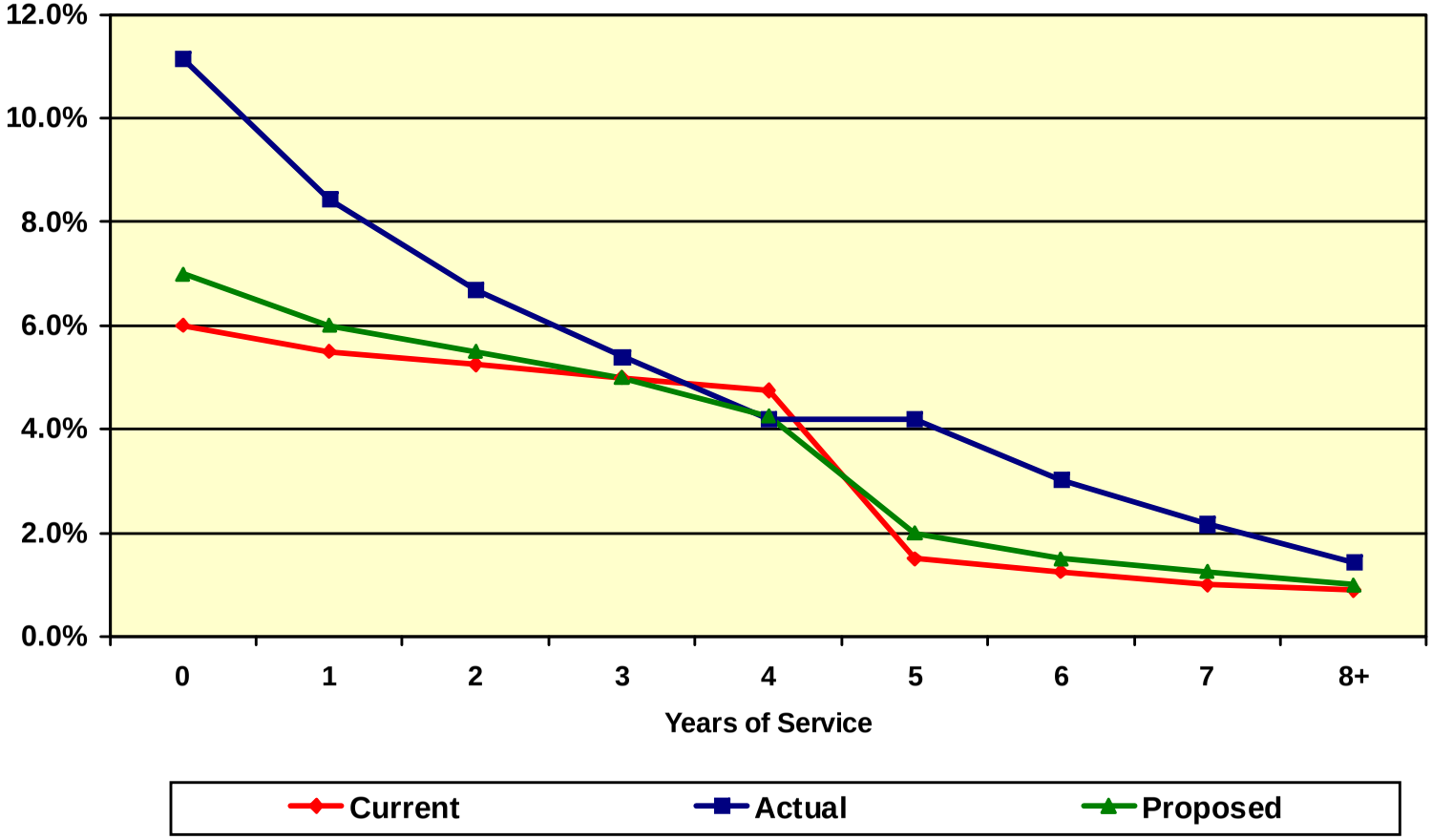
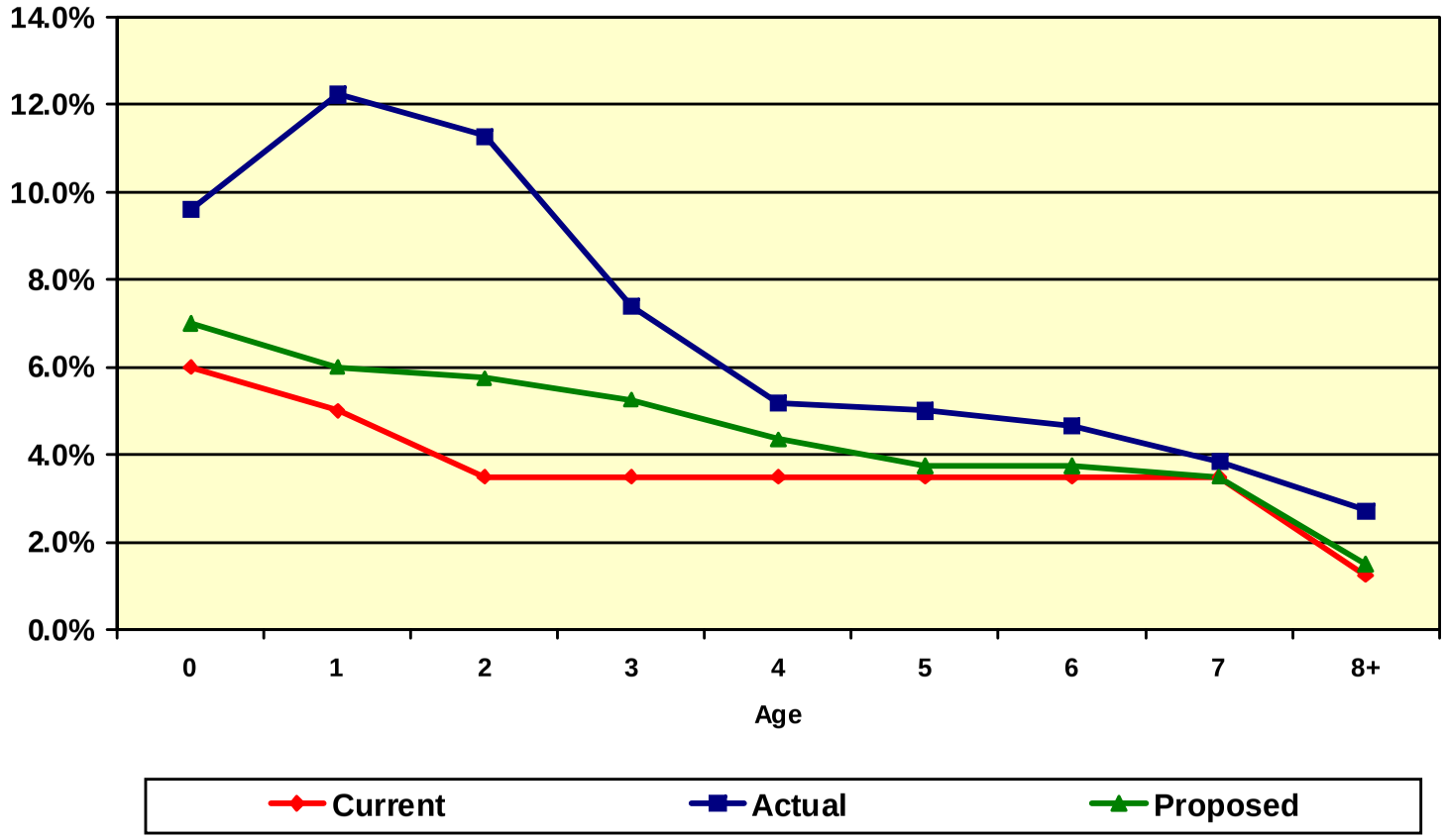


Chart 24
Merit and Promotional Salary Increase Rates for Safety Members



H. ANNUAL LEAVE CONVERSION

At retirement, members can convert their unused annual leave to increase the service credit used in the calculation of their retirement benefit. The actuarial valuation anticipates this additional benefit using an assumption to estimate the number of hours of annual leave that will be converted at retirement.

We collected information on the actual amount of annual leave balance for actives as of June 30, 2009. Consistent with the structure of the current assumption, the actual annual leave balance was expressed as a number of hours per year of service.

The tables below show the actual hours of accumulated annual leave available at retirement.

	Current	Actual	Proposed
New Annual Leave Plan (5Y)	40.00	34.28	40.00
Annual Leave Plan II (5Y)	25.00	35.85	35.00
Vacation/Sick Leave Plan (General: 5Q, 5S and 5W)	20.00	23.09	20.00
Vacation/Sick Leave Plan (Safety: 5Q, 5S and 5W)	45.00	42.01	45.00

We understand that members in the Annual Leave Plan IV (5P) and Annual Leave Plan V (5N) are allowed to transfer hours to their Time Off Bank (5O). Since the hours in the Time Off Bank are frozen, with the exception of some one-time adjustments, we will continue to assume no future addition to the Time Off Bank hours and a member will only convert his/her frozen Time Off hours to service credit.

APPENDIX A

CURRENT ACTUARIAL ASSUMPTIONS

Mortality Rates:

Healthy: For General Members and all Beneficiaries: RP-2000 Healthy Annuitant Mortality Table, with adjustment for white collar workers.

For Safety Members: RP-2000 Healthy Annuitant Mortality Table, with adjustment for blue collar workers set back two years.

Disabled: For General Members: RP-2000 Disabled Annuitant Mortality Table set back one year.

For Safety Members: RP-2000 Disabled Annuitant Mortality Table set back two year.

Member Contribution Rates: For General Members: RP-2000 Healthy Annuitant Mortality Table, with adjustment for white collar workers weighted 1/3 male and 2/3 female.

For Safety Members: RP-2000 Healthy Annuitant Mortality Table with adjustment for blue collar workers set back two years weighted 5/6 male and 1/6 female.

Termination Rates Before Retirement:

Rate (%)

Mortality

	General[1]		Safety[2]	
Age	**Male**	**Female**	**Male**	**Female**
25	0.04	0.02	0.04	0.02
30	0.04	0.03	0.04	0.02
35	0.06	0.05	0.09	0.04
40	0.90	0.06	0.13	0.07
45	0.13	0.10	0.16	0.12
50	0.20	0.16	0.21	0.17
55	0.33	0.26	0.33	0.24
60	0.56	0.47	0.64	0.38
65	1.11	0.87	1.23	0.80

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

(2) Rates shown are for non-service deaths. An additional 0.10% per year is used to predict service connected death for Safety members (male and female).

Termination Rates Before Retirement (continued):

Age	Rate (%) Disability		
	General[(1)]		Safety[(2)]
	Male	Female	Male and Female
20	0.01	0.01	0.01
25	0.01	0.01	0.10
30	0.02	0.02	0.20
35	0.02	0.06	0.37
40	0.05	0.10	0.60
45	0.18	0.14	0.82
50	0.31	0.18	1.20
55	0.44	0.26	2.36
60	0.92	0.42	1.20

(1) One-third of General disabilities are assumed to be duty disabilities. The other two-thirds are assumed to be ordinary disabilities.

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

Termination Rates Before Retirement (continued):

Rate (%)

Total Termination (< 5 Years of Service)

Years of Service	General		Safety
	Male	Female	Male and Female
0	10.00	11.00	9.00
1	7.00	9.00	6.00
2	7.00	7.00	5.00
3	6.00	6.00	4.00
4	6.00	6.00	4.00

Rate (%)

Total Termination (5+ Years of Service)

Age	General		Safety
	Male	Female	Male and Female
20	5.00	7.00	4.00
25	5.00	7.00	4.00
30	5.00	7.00	3.70
35	4.70	6.10	3.20
40	4.50	4.90	2.70
45	4.20	4.20	1.60
50	3.40	3.40	1.00
55	2.40	2.40	0.00
60	2.00	2.00	0.00

Proportion of Total Termination Assumed to Receive Refunds and Deferred Vested Benefits (%)

Years of Service	Refunds	Deferred Vested Benefits
0-4	85.00	15.00
5-9	30.00	70.00
10-14	30.00	70.00
15-19	30.00	70.00
20 or more	30.00	70.00

Retirement Rates:

	Rate (%)				
Age	General Tier 1 Male	General Tier 1 Female	General Tier 2 Male & Female	General Tier 3 Male & Female	Safety Tiers 1 and 2 Male & Female
45	0.00	0.00	0.00	0.00	1.00
46	0.00	0.00	0.00	0.00	1.00
47	0.00	0.00	0.00	0.00	1.00
48	0.00	0.00	0.00	0.00	1.00
49	0.00	0.00	0.00	0.00	3.00
50	4.00	4.00	3.00	3.00	5.00
51	4.00	4.00	3.00	3.00	6.00
52	4.00	4.00	3.60	3.60	9.00
53	4.00	4.00	3.60	3.60	14.00
54	4.00	4.00	4.20	4.20	25.00
55	7.00	10.00	8.40	8.40	45.00
56	11.00	12.00	10.00	10.00	35.00
57	16.00	12.00	10.00	10.00	25.00
58	20.00	15.00	10.00	10.00	30.00
59	25.00	16.00	10.00	15.00	40.00
60	30.00	22.00	15.00	19.20	100.00
61	30.00	25.00	15.00	19.20	100.00
62	34.00	40.00	25.00	34.20	100.00
63	34.00	25.00	24.00	23.70	100.00
64	34.00	22.00	24.00	23.70	100.00
65	43.00	30.00	35.00	43.30	100.00
66	48.00	35.00	34.00	33.30	100.00
67	53.00	40.00	34.00	33.30	100.00
68	60.00	45.00	35.00	40.00	100.00
69	70.00	50.00	35.00	46.70	100.00
70	100.00	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 40% of future General and 55% of future Safety deferred vested members will continue to work for a reciprocal employer. For these members, we assume 4.90% and 5.25% compensation increases per annum for General and Safety members, respectively.
Future Benefit Accruals:	1.0 year of service per year of employment.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Percent Married:	80% of male members; 55% of female members.
Age of Spouse:	Wives are 3 years younger than their husbands.
Annual Leave Conversion:	The following assumptions for service from unused annual leave balance at retirement are used:
New Annual Leave Plan	40 hours per year of service.
Annual Leave Plan II	25 hours per year of service.
Vacation/Sick Leave Plans	20 hours per year of service for General and 45 hours per year of service for Safety.
Annual Leave IV Plan or the Old Annual Leave Plan	Based on actual hours in a member's frozen time off bank.
Net Investment Return:	8.00%; net of administration and investment expenses.
Employee Contribution Crediting Rate:	3.00%, compounded semi-annually.
Consumer Price Index:	Increase of 3.75% per year, retiree COLA increases due to CPI, subject to a 3.00% maximum charge per year for all General and Safety.

Salary Increases:

Annual Rate of Compensation Increase (%)

Inflation: 3.75%; plus "across the board" salary increases of 0.25% per year; plus the following merit and promotional increases.

Service	General	Safety
0	6.00	6.00
1	5.50	5.00
2	5.25	3.50
3	5.00	3.50
4	4.75	3.50
5	1.50	3.50
6	1.25	3.50
7	1.00	3.50
8 or more	0.90	1.25

APPENDIX B

PROPOSED ACTUARIAL ASSUMPTIONS

Mortality Rates:

Healthy: For General Members and all Beneficiaries: RP-2000 Healthy Annuitant Mortality Table, with adjustment for white collar workers set back two years.

For Safety Members: RP-2000 Healthy Annuitant Mortality Table, with adjustment for blue collar workers set back three years.

Disabled: For General Members: RP-2000 Healthy Annuitant Mortality Table, with adjustment for white collar workers set forward four years.

For Safety Members: RP-2000 Healthy Annuitant Mortality Table, with adjustment for white blue collar workers set back three years.

Member Contribution Rates: For General Members: RP-2000 Healthy Annuitant Mortality Table, with adjustment for white collar workers set back two years weighted 35% male and 65% female set back two years.

For Safety Members: RP-2000 Healthy Annuitant Mortality Table with adjustment for blue collar workers set back three years weighted 80% male and 20% female.

Termination Rates Before Retirement:

	Rate (%) Mortality			
	General[(1)]		Safety[(1)]	
Age	Male	Female	Male	Female
25	0.04	0.02	0.04	0.02
30	0.04	0.02	0.04	0.02
35	0.05	0.04	0.09	0.04
40	0.08	0.06	0.12	0.06
45	0.11	0.08	0.15	0.11
50	0.17	0.13	0.20	0.16
55	0.27	0.21	0.30	0.22
60	0.45	0.37	0.56	0.34
65	0.85	0.68	1.08	0.68

(1) All pre-retirement deaths are assumed to be ordinary deaths.

Termination Rates Before Retirement (continued):

	Rate (%)		
	Disability		
Age	General[1]		Safety[2]
	Male	Female	Male and Female
20	0.01	0.01	0.01
25	0.01	0.02	0.11
30	0.02	0.02	0.24
35	0.03	0.06	0.42
40	0.05	0.10	0.56
45	0.18	0.16	0.66
50	0.28	0.19	0.94
55	0.36	0.26	2.24
60	0.76	0.42	1.20

(1) *One-third of General disabilities are assumed to be duty disabilities. The other two-thirds are assumed to be ordinary disabilities.*

(2) *100% of Safety disabilities are assumed to be duty disabilities.*

Termination Rates Before Retirement (continued):

Rate (%)

Total Termination (< 5 Years of Service)

Years of Service	General		Safety
	Male	Female	Male and Female
0	17.00	17.00	17.00
1	6.00	6.00	4.00
2	6.00	6.00	4.00
3	6.00	6.00	4.00
4	6.00	6.00	4.00

Rate (%)

Total Termination (5+ Years of Service)

Age	General		Safety
	Male	Female	Male and Female
20	6.00	7.50	4.00
25	6.00	7.50	4.00
30	5.40	7.20	3.70
35	4.70	5.80	3.20
40	4.35	4.70	2.70
45	4.10	4.20	1.60
50	3.70	3.70	1.00
55	3.20	3.20	1.00
60	3.00	3.00	0.00

Proportion of Total Termination Assumed to Receive Refunds and Deferred Vested Benefits (%)

Years of Service	Refunds	Deferred Vested Benefits
0-4	90.00	10.00
5-9	30.00	70.00
10-14	30.00	70.00
15-19	30.00	70.00
20 or more	30.00	70.00

Retirement Rates:

Age	Rate (%) General Tier 1 Male	General Tier 1 Female	General Tier 2 Male & Female	General Tier 3 Male & Female	Safety Tiers 1 and 2 Male & Female
45	0.00	0.00	0.00	0.00	1.00
46	0.00	0.00	0.00	0.00	1.00
47	0.00	0.00	0.00	0.00	1.00
48	0.00	0.00	0.00	0.00	1.00
49	0.00	0.00	0.00	0.00	3.00
50	3.00	4.00	3.00	3.00	5.00
51	3.00	4.00	3.00	3.00	5.00
52	3.00	4.00	3.60	3.60	8.00
53	4.00	4.00	3.60	3.60	15.00
54	4.00	5.00	4.20	4.20	25.00
55	9.00	10.00	8.40	8.40	35.00
56	13.00	12.00	10.00	10.00	25.00
57	17.00	13.00	10.00	10.00	25.00
58	20.00	15.00	10.00	10.00	25.00
59	20.00	16.00	10.00	15.00	30.00
60	30.00	18.00	15.00	19.20	100.00
61	30.00	22.00	15.00	19.20	100.00
62	30.00	25.00	25.00	34.20	100.00
63	30.00	25.00	24.00	23.70	100.00
64	30.00	25.00	24.00	23.70	100.00
65	40.00	35.00	35.00	43.30	100.00
66	50.00	35.00	34.00	33.30	100.00
67	50.00	40.00	34.00	33.30	100.00
68	50.00	45.00	35.00	40.00	100.00
69	50.00	50.00	35.00	46.70	100.00
70	100.00	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 40% of future General and 60% of future Safety deferred vested members will continue to work for a reciprocal employer. For these members, we assume 5.00% and 5.50% compensation increases per annum for General and Safety members, respectively.
Future Benefit Accruals:	1.0 year of service per year of employment.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Percent Married:	80% of male members; 55% of female members.
Age of Spouse:	Wives are 3 years younger than their husbands.
Annual Leave Conversion:	The following assumptions for service from unused annual leave balance at retirement are used:
New Annual Leave Plan	40 hours per year of service.
Annual Leave Plan II	35 hours per year of service.
Vacation/Sick Leave Plans	20 hours per year of service for General and 45 hours per year of service for Safety.
Annual Leave IV Plan or the Old Annual Leave Plan	Based on actual hours in a member's frozen time off bank.
Net Investment Return:	7.75%; net of administration and investment expenses.
Employee Contribution Crediting Rate:	3.00%, compounded semi-annually.
Consumer Price Index:	Increase of 3.50% per year, retiree COLA increases due to CPI subject to a 3.00% maximum charge per year for all General and Safety.

Salary Increases:

Annual Rate of Compensation Increase (%)		
Inflation: 3.50%; plus "across the board" salary increases of 0.50% per year; plus the following merit and promotional increases.		
Service	**General**	**Safety**
0	7.00	7.00
1	6.00	6.00
2	5.50	5.75
3	5.00	5.25
4	4.25	4.35
5	2.00	3.75
6	1.50	3.75
7	1.25	3.50
8 or more	1.00	1.50

FRESNO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

Review of Economic Actuarial Assumptions for the June 30, 2010 Actuarial Valuation

SEGAL
THE SEGAL COMPANY

100 Montgomery Street, Suite 500
San Francisco, CA 94104

MAY 2010

SEGAL

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May 25, 2010

Board of Retirement
Fresno County Employees' Retirement Association
1111 H Street
Fresno, CA 93721

Re: Review of Economic Actuarial Assumptions for the June 30, 2010 Actuarial Valuation

Dear Members of the Board:

We are pleased to submit this report of our review of the June 30, 2010 economic actuarial assumptions for the Fresno County Employees' Retirement Association. This report includes our recommendations and the analysis supporting their development.

Please note that we have also reviewed the non-economic actuarial experience for the three-year period from July 1, 2006 to June 30, 2009. Based on that review, the results and the associated assumptions recommended for the June 30, 2010 valuation are provided in a separate report.

We are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

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

Sincerely,

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

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

MYM/kek

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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 projected experience, 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. Adjusting contributions as gains or losses occur without making a change in the assumptions is appropriate if the deviation from projections is considered temporary and if, over the long run, experience is expected to 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 to maintain adequate funding, while fulfilling benefit commitments to participants already retired and to those near retirement. The actuarial assumptions 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 review the economic actuarial assumptions. The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 27, "Selection of Economic Assumptions for Measuring Pension Obligations." This Standard of Practice puts forth guidelines for the selection of the economic actuarial assumptions utilized in a pension plan actuarial valuation.

We are recommending changes in the economic assumptions currently used by the Board. Our recommendations for the economic actuarial assumptions for the June 30, 2010 Actuarial Valuation are as follows:

Investment Return - The estimated average future net rate of return on current and future assets of the Association as of the valuation date. This rate is used to discount liabilities.

Recommendation: Reduce the current 8.00% investment return assumption to 7.75% per annum.

Inflation – Future increases in the cost-of-living index which drives investment returns and active member salary increases, as well as COLA increases to retired employees.

Recommendation: Reduce the current 3.75% inflation assumption to 3.50% per annum.

Individual Salary Increases - Increases in the salary of a member between the date of the valuation to the date of separation from active service. This assumption has three components:

- Inflationary salary increases.
- Real "across the board" salary increases.
- Promotional and merit increases.

Recommendation: Reduce the current inflationary salary increase assumption from 3.75% to 3.50% per annum consistent with our recommended general inflation assumption but increase the real "across the board" salary increase assumption from 0.25% to 0.50%. This means that the combined inflationary and real "across the board" salary increases will remain unchanged at 4.00% per annum. The recommended promotional and merit increase assumptions are provided in our June 30, 2009 triennial experience study report.

Section II provides some background on basic principles and the methodology used for the review of the economic actuarial assumptions. A detailed discussion of each of the economic assumptions and reasons behind the recommendations is found in Section III.

II. BACKGROUND AND METHODOLOGY

In this report, we analyzed the "economic" assumptions only. Our analysis of the "non-economic" assumptions for the June 30, 2010 valuation will be provided in a separate report. The primary economic assumptions reviewed are inflation, investment return and salary increases.

Economic Assumptions

Economic assumptions consist of:

Inflation - Increases in the price of goods and services. The inflation assumption reflects the basic return that investors expect from securities markets. It also reflects the expected basic salary increase for active employees and drives increases in the allowances of retired members.

Investment Return – Expected long term rate of return on the Association's investments after expenses. This assumption has a significant impact on contribution rates.

Salary Increases – In addition to inflationary increases, it is assumed that salaries will also grow by "across the board" real pay increases in excess of price inflation. It is also assumed that employees will receive raises above these average increases as they advance in their careers. These are commonly referred to as promotional and merit increases. Payments to amortize any Unfunded Actuarial Accrued Liability (UAAL) are assumed to increase each year by the price inflation rate plus any "across the board" pay increases that are assumed.

The setting of these assumptions is described in Section III.

III. ECONOMIC ASSUMPTIONS

The investment return assumption is comprised of two components: (i) Inflation; and (ii) Real Rate of Investment Return.

Inflation

Unless an investment grows at least as fast as prices increase, investors will experience a reduction in the inflation-adjusted value of their investment. There may be times when "riskless" investments return more or less than inflation, but over the long term, investment market forces will generally require an issuer of fixed income securities to maintain a minimum return which protects investors from inflation.

The inflation assumption is long term in nature, so it is set using primarily historical information. Following is an analysis of 15 and 30 year moving averages of historical inflation rates:

Historical Consumer Price Index – 1930 to 2009

(U.S. City Average - All Urban Consumers)

	25th Percentile	Median	75th Percentile
15 year moving averages	2.7%	3.5%	4.8%
30 year moving averages	3.3%	4.3%	5.0%

The average inflation rates have continued to decline gradually over the last several years due to the relatively low inflationary period in the 1990s and early 2000s. However, the inflation rates for the past few years have started to show some increase. Also, the 15-year averages during the period are lower as they do not include the high inflation years of the mid-1970s and early 1980s.

FCERA's investment consultant, Wurts & Associates, anticipates an annual inflation rate of 3.25%. Note that, in general, investment consultants use a time horizon for this assumption that is shorter than the time horizon we use for the actuarial valuation.

In the 2009 public fund survey published by the National Association of State Retirement Administrators, the median inflation assumption used by 113 large public retirement funds in their 2008 valuations has remained unchanged from the 3.50% used in the 2007 valuations.

Based on all of the above information, we recommend that the current 3.75% annual inflation assumption be reduced to 3.50% for the June 30, 2010 actuarial valuation.

Retiree Cost-of-Living Increases

In our last review of the economic assumptions as of June 30, 2007, consistent with the 3.75% annual inflation assumption adopted by the Board for that valuation, the Board adopted a 3.00% retiree cost-of-living adjustment for all General and Safety.

We are recommending that the current retiree cost-of-living assumption (i.e., 3.00% per year) be continued in the June 30, 2010 valuation.

Real Rate of Investment Return

This component represents the portfolio's incremental investment market returns over inflation. Theory has it that, as an investor takes a greater investment risk, the return on the investment is expected to also be greater, at least in the long run. This additional return is expected to vary by asset class and empirical data supports that expectation. For that reason, the real rate of return assumptions are developed by asset class. Therefore, the real rate of return assumption for a retirement association's portfolio will vary with the Board's asset allocation among asset classes.

Following is the Association's most recently adopted target asset allocation and the assumed real rate of return assumptions by asset class. The first column of real rate of return assumptions are determined by netting Wurts' total 2010 return assumptions by their assumed 3.25% for inflation. The second column of returns represents the average of a sample of real rate of return assumptions. The sample includes the expected annual real rates of return provided to us by Wurts and by eight other investment advisory firms retained by Segal's California public sector clients and are based on projected arithmetic returns provided by the investment advisory firms. We believe these averages are a reasonable forecast of long term future market returns. The Wurts assumptions are used for FCERA's Hedge Funds, Alternative Investment – TALF and Private Equity.

FCERA's Target Asset Allocation and Assumed Arithmetic Real Rate of Return Assumptions by Asset Class and for the Portfolio

Asset Class	Percentage of Portfolio	Wurts' Assumed Real Rate of Return[1]	Average from a Sample of Consultants to Segal's Public Sector Clients' Real Rates of Return[2]
Large Cap U.S. Equity	24%	6.03%	6.45%
Small Cap U.S. Equity	8%	6.67%	6.98%
Developed International Equity	18%	6.92%	6.95%
Emerging Markets Equity	2%	10.17%	9.29%
U.S. Core Fixed Income	14%	0.63%	1.77%
Opportunistic Fixed Income	6%	4.35%	5.04%
Global Fixed Income	1%	1.65%	1.81%
Hedge Funds	4%	4.50%	4.50%[3]
TIPS	2%	1.72%	1.94%
Alternative Investment - TALF	5%	7.00%	7.00%[3]
Commodities	3%	5.95%	5.66%
Real Estate	6%	4.66%	4.83%
Private Equity	7%	10.17%	10.17%[3]
Total Portfolio	100%	5.53%	5.85%

[1] Derived by netting Wurts' 2010 rate of return assumptions by their assumed 3.25% inflation rate.

[2] Including the county retirement associations of Fresno, Sacramento, Orange, San Bernardino, Alameda, Contra Costa, San Diego, the LA City Employees' Retirement System and the City of Fresno Retirement Systems.

[3] Wurts' assumption is used for these asset classes to more closely reflect the underlying investments made specifically for FCERA.

Please note that the above are representative of "indexed" returns and do not include any additional returns ("alpha") from active management. This is consistent with the Actuarial Standard of Practice No. 27, Section 3.6.3.e, which states:

> "Investment Manager Performance - Anticipating superior (or inferior) investment manager performance may be unduly optimistic (pessimistic). Few investment managers consistently achieve significant above-market returns net of expenses over long periods."

The following are some observations about the returns provided above:

1. The investment consultants to our California public sector clients have each provided us with their expected real rates of return for each asset class, over various future periods of time. However, in general, the returns available from investment consultants are projected over time periods shorter than the durations of a retirement plan's liabilities.

2. Using a sample average of expected real rates of return allows the Association's investment return assumption to reflect a broader range of capital market information and should help reduce year to year volatility in the Association's investment return assumption.

3. Therefore, we recommend that the 5.85% portfolio real rate of return be used to determine the Association's investment return assumption. This is 0.06% lower than the return we used three years ago to prepare the recommended investment return assumption for the June 30, 2007 valuation. This is caused by less optimistic assumptions provided by the investment consultants for certain asset classes that are offset somewhat by the changes made to the asset allocation.

Association Expenses

The real rate of return assumption for the portfolio needs to be adjusted for administrative and investment expenses expected to be paid from investment income.

The following table provides these expenses in relation to the actuarial value of assets for the five years ending June 30, 2009.

Administrative and Investment Expenses as a Percentage of Actuarial Value of Assets
(All dollars in 000's)

FYE	Actuarial Value of Assets	Administrative Expenses	Investment Expenses	Administrative %	Investment %	Total %
2005	$2,337,311	$2,484	$8,883	0.11%	0.38%	0.49%
2006	2,462,841	2,865	10,228	0.12	0.42	0.54
2007	2,692,591	3,299	11,739	0.12	0.44	0.56
2008	2,942,900	3,569	13,191	0.12	0.45	0.57
2009	2,940,486	3,855	10,092	0.13	0.34	0.47
					Average	0.53%

The average expenses percentage over this five year period is 0.53%. Based on this experience, we believe a future expense assumption of 0.55% is reasonable. This assumption is higher than the 0.50% assumption used in our last review and will be re-examined as new data becomes available.

Risk Adjustment

The real rate of return assumption for the portfolio is adjusted to reflect the potential risk of shortfalls in the return assumptions. The Association's asset allocation determines this portfolio risk, since risk levels also are expected to vary by asset class. This portfolio risk is incorporated into the real rate of return assumption through a risk adjustment.

The purpose of the risk adjustment is to increase the likelihood of achieving the actuarial investment return assumption in the long term. The 5.85% expected real rate of return developed earlier in this report was based on expected mean or average returns. This means there is a 50% chance of the actual return being at least as great as the average. The risk adjustment is intended to increase that probability.

Three years ago, the Board adopted an investment return assumption of 8.00%. Together with an annual standard deviation of 11.28% (provided by Wurts), that return implied a risk adjustment of 1.16%, reflecting a confidence level of 65% that the actual average

return over 15 years would not fall below the assumed return, assuming that the distribution of returns over that period follows the normal statistical distribution.[1]

If we use the same 65% confidence level to set this year's risk adjustment (based on a portfolio return standard deviation of 10.77%, provided by Wurts), the result is a risk adjustment of 1.11%. Together with the other investment return components developed above, this would result in an investment return assumption of 7.69%.

Alternatively, if we use a risk adjustment of 1.05% (corresponding to a confidence level of 64%), together with the other investment return components, this produces a net investment return assumption of 7.75%, which while greater than 7.69% is still lower than the current assumption of 8.00%.

As we have discussed in prior years, the risk adjustment model and associated confidence level is most useful as a means for comparing how the Association has positioned itself over periods of time. The use of a lower 64% confidence level should be considered in context with other factors, including:

- As noted above, the confidence level is more of a relative measure than an absolute measure, and so can be reevaluated and reset for future comparisons.

- The confidence level is based on the standard deviation of the portfolio that is determined and provided to us by Wurts. The standard deviation is a statistical measure of the future volatility of the portfolio and so is itself based on assumptions about future portfolio volatility and can be considered somewhat of a "soft" number.

- A lower level of inflation should reduce the overall risk of failing to meet the investment return assumption. Lowering the confidence level to some extent could be justified as consistent with the change in the inflation assumption.

[1] The theory that long term investment returns follow a Normal distribution is debatable; however, we believe the Normal distribution assumption is not unreasonable for purposes of setting the risk adjustment.

- As with any model, the results of the risk adjustment model should be evaluated for reasonableness and consistency. This is discussed in the following "Test of Risk Adjustment" section, including (1) a discussion of the relationship between the inflation assumption and the risk adjustment and (2) a comparison with assumptions adopted by similarly situated public sector retirement sections.

Taking into account the factors above, our recommendation is for a change in the net investment return assumption from 8.00% to 7.75%. Again, this return implies a risk adjustment of 1.05%, reflecting a confidence level of 64% that the actual average return over 15 years would not fall below the assumed return.

Recommended Investment Return Assumption

The following table summarizes the components of the investment return assumption developed in the previous discussion.

Calculation of Investment Return Assumption

Assumption Component	Recommended Value
Inflation	3.50%
Plus Portfolio Real Rate of Return	5.85%
Minus Expense Adjustment	(0.55%)
Minus Risk Adjustment	(1.05%)
Total	7.75%

Based on this analysis, we recommend that the investment return assumption be reduced from 8.00% to 7.75% per annum.

Test of Risk Adjustment

The original development of the risk adjustment component of our investment earnings assumption model arose from our experience with many retirement boards over many years. Quite simply, combining the boards' inflation assumption with the real return and expense components produced – and produces – a substantially higher assumed return than

what the boards actually adopt, regardless of the consulting actuary or the methods involved in the process.

In addition to the generally risk adverse attitude of retirement boards noted above, we believe another reason for this involves the inflation assumption. As noted earlier, the inflation assumption for actuarial valuations is generally longer term than that used by investment consultants. For many years, that has lead to higher actuarial valuation inflation assumptions. A higher inflation assumption has a conservative effect - higher current cost - on the wage increase and COLA assumption, but is less conservative as part of the investment earnings assumption. In effect, the risk adjustment compensates for this by offsetting the effect of the higher inflation assumption on assumed investment earnings.

One way to test the reasonableness of the risk adjustment incorporated in our recommendation is to compare our risk adjusted investment return against the expected net investment return that would result from using the average of all the capital market assumptions -- including the lower inflation assumption -- of the investment consultants in our sample.

Here is the comparison. It shows that the difference between our recommended return and that derived using the average of all the capital market assumptions of the investment consultants in our sample comes from the inflation assumptions and the risk adjustment.

Assumption Element:	Risk Adjusted Method	Average of Investment Consultant Sample	Difference
Inflation	3.50%	2.73%	0.77%
Risk Adjustment	(1.05%)	0.00%	(1.05%)
Real Rate of Return	5.85%	5.85%	0.00%
Expenses	(0.55%)	(0.55%)	0.00%
Total	7.75%	8.03%	(0.28%)

The 0.28% (28 basis points) difference between the two calculations represents about a 4% higher confidence level under the higher inflation, risk adjusted method, as compared to the lower inflation result without the risk adjustment. This means that the risk adjustment provides a higher confidence level even under the lower inflation scenario assumed by the investment consultants.

Comparing with Other Public Retirement Systems

One final test of the recommended investment return assumption is to compare it against those used by other public retirement systems, both in California and nationwide.

We note that this 7.75% investment return assumption is within the most common range for this assumption among most California public sector retirement systems. That range, with few exceptions, is from 7.75% to 8.00%. In particular two of the largest California systems, CalPERS and LACERA, use a 7.75% earnings assumption.

The following table compares the FCERA recommended net investment return assumptions against those of the nationwide public retirement systems that participated in the National Association of State Retirement Administrators (NASRA) public fund survey published in 2009:

Assumption	**FCERA**	**NASRA Public Fund Survey Published in 2009**		
		Low*	Median	High*
Net Investment Return	7.75%	7.25%	8.00%	8.50%
* After eliminating very lowest and highest as outliers				

As you can see, the recommended return assumption is below the median. The detailed survey results show 49 systems at 8.00%, 28 at 7.50% or 7.75%, and 30 at 8.25% or 8.50%. The survey also notes that "as with inflation assumptions, investment return assumptions for many plans have been reduced in recent years."

The recommended assumption of 7.75% continues to provide for some risk margin within the risk adjustment model and is consistent with the Association's current practice relative to other public systems.

Salary Increase Assumption

Salary increases impact plan costs in two ways: (i) by increasing members' benefits (since benefits are a function of the members' highest average pay) and future normal cost collections; and (ii) by increasing total active member payroll which in turn generates higher UAAL amortization payments (or higher amortization credits if the UAAL is negative). These two impacts are discussed separately below.

As an employee progresses through his or her career, increases in pay are expected to come from three sources:

1. Inflation – Unless pay grows at least as fast as consumer prices grow, employees will experience a reduction in their standard of living. There may be times when pay increases lag or exceed inflation, but over the long term, labor market forces will require an employer to maintain its employees' standards of living.

   As discussed earlier in this report, we are recommending that the assumed rate of inflation be reduced from 3.75% to 3.50% per annum. This inflation component will be used as part of the salary increase assumption.

2. Real "Across the Board" Pay Increases – These increases are sometimes termed productivity increases since they are considered to be derived from the ability of an organization or an economy to produce goods and services in a more efficient manner. As that occurs, at least some portion of the value of these improvements can provide a source for pay increases. These increases are typically assumed to extend to all employees "across the board." The State and Local Government Workers Employment Cost Index produced by the Department of Labor provides evidence that real "across the board" pay increases have averaged about 0.7% - 1.0% annually during the last 10 - 20 years.

The most recent salary increase experience indicates that actual average salary increases were higher than the actual change in CPI for most years:

Valuation Date	Actual Average Increase[(1)]	Actual Change in CPI[(2)]
June 30, 2006	6.44%	3.42%
June 30, 2007	5.85%	3.17%
June 30, 2008	5.74%	3.49%
June 30, 2009	4.11%	-0.38%
Average	5.54%	2.43%

(1) Reflects the increase in average salary for members at the beginning of the year versus those at the end of the year. It does not reflect the average salary increases received by members who worked the full year.

(2) Based on the change in the annual average CPI for the Western Region compared to the prior year.

We recommend increasing the real "across the board" salary increase assumption from 0.25% to 0.50% for the June 30, 2010 actuarial valuation so that the combined inflation and "across the board" salary increase assumption remains unchanged at 4.00%.

3. Promotional and Merit Increases – As the name implies, these increases come from an employee's career advances. This form of pay increase differs from the previous two, since it is specific to the individual. For FCERA, there are service specific promotional and merit increases. We have reviewed this promotional and merit component as part of the triennial experience study as of June 30, 2009.

   Recommended promotional and merit assumptions are provided as part of our triennial experience study as of June 30, 2009.

All three of these forces are incorporated into a salary increase assumption that is applied in the actuarial valuation to project future benefits and future normal cost contribution collections.

Active Member Payroll

Projected active member payrolls are used to develop the UAAL contribution rate. Future values are determined as a product of the number of employees in the workforce and the average pay for all employees. The average pay for all employees increases only by inflation and real "across the board" pay increases. The promotional and merit increases are not an influence, because this average pay is not specific to an individual.

For the June 30, 2010 valuation, we recommend that the active member payroll increase assumption remain unchanged at 4.00% annually, consistent with the combined inflation and "across the board" salary increase assumptions. This is the same as the prior valuation.

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