Alameda County Employees' Retirement Association

ACTUARIAL EXPERIENCE STUDY

Analysis of Actuarial Experience During the Period December 1, 2007 through November 30, 2010

SEGAL

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July 27, 2011

Board of Retirement
Alameda County Employees' Retirement Association
475 14th Street, Suite 1000
Oakland, California 94612-1900

Re: Review of Non-economic Actuarial Assumptions for the December 31, 2011 Actuarial Valuation

Dear Members of the Board:

We are pleased to submit this report of our review of the actuarial experience of the Alameda 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.

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, FCA, EA
Vice President and Associate Actuary

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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 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 one three year study 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, pre-retirement mortality, healthy life mortality, disabled life mortality, turnover (vested and withdrawal of contributions), disability (service connected and non-service connected), salary increases and terminal pay.

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: General Tier 1 rates are adjusted at a few ages to more closely reflect recent actual experience showing slightly earlier retirements. General Tier 2 rates have been lowered to reflect later retirements, since actual retirements were less than expected over the experience study period. Safety Tier 1 rates have been increased to reflect earlier retirements, as the actual number of retirements before age 60 was more than expected. The rates for Safety Tier 2 (also used for Safety Tier 2D members) have been increased at the lower ages and decreased at the higher ages to more closely reflect recent actual experience. No adjustments have been made to the General Tier 3 and Safety Tier 2C rates, because very little data is available for these two new tiers.

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

Recommendation: For General healthy retirees, we recommend changing the assumption from the RP-2000 Combined Healthy Mortality Tables set back one year for males and females to the RP-2000 Combined Healthy Mortality Tables set back two years for males and one year for females (i.e., no change for females). For Safety healthy retirees, we recommend changing the assumption from the RP-2000 Combined Healthy Mortality Tables set back two years for males and females to the RP-2000 Combined Healthy Mortality Tables set back two years for males (i.e., no change for males) and one year for females. The pre-retirement mortality assumption is set to be consistent with the table used for post-service retirement mortality. All pre-retirement deaths are assumed to be non-service connected. For General disabled retirees, we recommend maintaining the assumption of the RP-2000 Combined

Healthy Mortality Tables set forward four years. For Safety disabled retirees, we recommend changing the assumption from the RP-2000 Combined Healthy Mortality Tables set forward three years to the RP-2000 Combined Healthy Mortality Tables set forward two years. These changes for healthy and disabled retirees generally reflect longer life expectancies.

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

Recommendation: The termination rates for members with less than five years of service have been decreased for General and Safety members. For General members with five or more years of service the termination rates have been increased at the older ages. For Safety members with five or more years of service the termination rates have been maintained in most cases. For members with less than five years of service, the assumption is changed to anticipate that only 70% of the members would withdraw and receive a refund (current assumption is 80%). For members with five or more years of service, the assumption is changed to anticipate that 40% of members would withdraw and receive a refund (current assumption is 30%).

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

Recommendation: The rates have been decreased for General members and for Safety members at the younger ages. For Safety members at the older ages, the rates have been 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 rates have been restructured from an age-based assumption to a service-based assumption. In addition, the rates have been increased for the early years of service and decreased for the later years of service.

Terminal Pay – Additional earnings that is expected to be received when the member retires.

Recommendation: The assumption has been lowered for Safety Tier 1 service retirements and for all General and Safety disability retirements.

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. 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 promotion 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 left 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 have generally been reviewed on an annual basis. The economic assumptions that we would recommend for the December 31, 2011 valuation are provided in a separate report.

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.

General Tier 1 rates are adjusted at a few ages to more closely reflect recent actual experience showing slightly earlier retirements. General Tier 2 rates have been lowered to reflect later retirements, since actual retirements were less than expected over the experience study period. Safety Tier 1 rates have been increased to reflect earlier retirements, as the actual number of retirements before age 60 was more than expected. The rates for Safety Tier 2 (also used for Safety Tier 2D members) have been increased at the lower ages and decreased at the higher ages to more closely reflect recent actual experience. No adjustments have been made to the General Tier 3 and Safety Tier 2C rates, because very little data is available for these two new tiers.

The service (non-disability) retirement experience for the active participants over the past three years (from December 1, 2007 to November 30, 2010) is provided on the following pages.

The rates of actual General Tier 1 retirements compared to both the rates expected for the last three years and the proposed rates are as follows:

Actual and Expected Rates of Retirement for General Tier 1 Members
(From December 1, 2007 to November 30, 2010)

Rate (%)

Age	Actual Retirements	Current Expected Retirements	Proposed Expected Retirements
50	3.08	3.00	3.00
51	0.91	3.00	3.00
52	4.65	3.00	3.00
53	1.27	3.00	3.00
54	1.64	4.00	3.00
55	6.19	6.00	6.00
56	5.61	8.00	8.00
57	7.11	10.00	10.00
58	12.83	10.00	10.00
59	13.55	13.00	13.00
60	17.21	20.00	20.00
61	22.99	20.00	20.00
62	46.43	30.00	35.00
63	29.41	30.00	30.00
64	28.26	30.00	30.00
65	29.41	35.00	35.00
66	34.78	30.00	30.00
67	21.43	25.00	25.00
68	22.22	20.00	20.00
69	0.00	45.00	40.00
70 and over	24.14	100.00	100.00

The rates of actual General Tier 2 retirements compared to both the rates expected for the last three years and the proposed rates are as follows:

Actual and Expected Rates of Retirement for General Tier 2 Members
(From December 1, 2007 to November 30, 2010)

Rate (%)

Age	Actual Retirements	Current Expected Retirements	Proposed Expected Retirements
50	0.49	2.00	2.00
51	1.68	2.00	2.00
52	0.97	2.00	2.00
53	0.73	2.00	2.00
54	1.90	3.00	2.00
55	2.71	3.00	3.00
56	1.40	4.00	3.00
57	3.26	5.00	4.00
58	3.23	6.00	5.00
59	5.82	6.00	5.00
60	2.84	6.00	5.00
61	7.98	8.00	8.00
62	17.35	20.00	20.00
63	14.55	16.00	16.00
64	16.23	20.00	18.00
65	20.90	25.00	22.00
66	21.43	20.00	20.00
67	25.32	20.00	20.00
68	26.67	30.00	30.00
69	29.41	40.00	35.00
70 and over	15.25	100.00	100.00

The rates of actual General Tier 3 retirements compared to both the rates expected for the last three years and the proposed rates are as follows:

Actual and Expected Rates of Retirement for General Tier 3 Members
(From December 1, 2007 to November 30, 2010)

Rate (%)

Age	Actual Retirements	Current Expected Retirements	Proposed Expected Retirements
50	0.00	6.00	6.00
51	0.00	3.00	3.00
52	0.00	5.00	5.00
53	0.00	6.00	6.00
54	0.00	6.00	6.00
55	0.00	12.00	12.00
56	0.00	13.00	13.00
57	0.00	13.00	13.00
58	16.67	14.00	14.00
59	100.00	16.00	16.00
60	0.00	21.00	21.00
61	100.00	20.00	20.00
62	0.00	30.00	30.00
63	0.00	25.00	25.00
64	0.00	25.00	25.00
65	0.00	30.00	30.00
66	0.00	25.00	25.00
67	0.00	25.00	25.00
68	0.00	25.00	25.00
69	0.00	50.00	50.00
70 and over	0.00	100.00	100.00

The rates of actual Safety Tier 1 retirements compared to both the rates expected for the last three years and the proposed rates are as follows:

Actual and Expected Rates of Retirement for Safety Tier 1 Members (From December 1, 2007 to November 30, 2010)

Rate (%)

Age	Actual Retirements	Current Expected Retirements[(1)]	Proposed Expected Retirements[(1)]
50	38.46	35.00	35.00
51	22.22	25.00	25.00
52	25.00	25.00	25.00
53	38.89	30.00	35.00
54	33.33	35.00	40.00
55	58.82	35.00	40.00
56	40.00	35.00	40.00
57	33.33	35.00	40.00
58	33.33	40.00	40.00
59	16.67	40.00	40.00
60 and over	32.35	100.00	100.00

(1) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

The rates of actual Safety Tier 2 retirements compared to both the rates expected for the last three years and the proposed rates are as follows:

Actual and Expected Rates of Retirement for Safety Tier 2 Members
(From December 1, 2007 to November 30, 2010)

Rate (%)

Age	Actual Retirements	Current Expected Retirements[(1)]	Proposed Expected Retirements[(1)]
50	13.64	4.00	10.00
51	11.67	4.00	10.00
52	11.11	5.00	10.00
53	9.52	5.00	10.00
54	16.67	6.00	10.00
55	10.26	10.00	10.00
56	12.90	15.00	15.00
57	26.92	20.00	20.00
58	25.00	10.00	20.00
59	12.50	15.00	20.00
60	13.04	60.00	40.00
61	16.00	60.00	40.00
62	4.35	60.00	40.00
63	11.76	60.00	40.00
64 and over	26.19	100.00	100.00

(1) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Currently the retirement rates for Safety Tier 2 members are also used for Safety Tier 2D. Note that we do not yet have any retirement experience for Safety Tier 2C and Tier 2D members, so we recommend maintaining the current retirement rates for Safety Tier 2C and utilizing the proposed Safety Tier 2 rates for Safety Tier 2D. We will monitor this assumption as experience develops for these two tiers. The current and proposed retirement rates for Safety Tier 2C and Tier 2D are as follows:

Expected Rates of Retirement for Safety Tier 2C and Tier 2D Members

Rate (%)

Age	Safety Tier 2C Current and Proposed Expected Retirements[(1)]	Safety Tier 2D Current Expected Retirements[(1)]	Safety Tier 2D Proposed Expected Retirements[(1)]
50	4.00	4.00	10.00
51	2.00	4.00	10.00
52	2.00	5.00	10.00
53	3.00	5.00	10.00
54	6.00	6.00	10.00
55	10.00	10.00	10.00
56	12.00	15.00	15.00
57	20.00	20.00	20.00
58	10.00	10.00	20.00
59	15.00	15.00	20.00
60	60.00	60.00	40.00
61	60.00	60.00	40.00
62	60.00	60.00	40.00
63	60.00	60.00	40.00
64	100.00	100.00	100.00

(1) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Chart 1 compares actual experience with the current and proposed rates of retirement for General Tier 1 members. Chart 2 displays the same data for General Tier 2 members, Chart 3 for General Tier 3 members, Chart 4 for Safety Tier 1 members, Chart 5 for Safety Tier 2 members.

In the prior valuation, deferred vested General and Safety members were assumed to retire at age 58 and 55, respectively. The average age at retirement over the three-year study period was 61 for General and 58 for Safety. We recommend increasing the General assumption to age 59 and the Safety assumption to age 56.

Please note that for members who terminate with less than five years of service and are not vested, we assume that they will retire at age 70 for both General and Safety if they decide to leave their contributions on deposit as permitted by §31629.5.

Chart 1
Retirement Rates - General Tier 1 Members

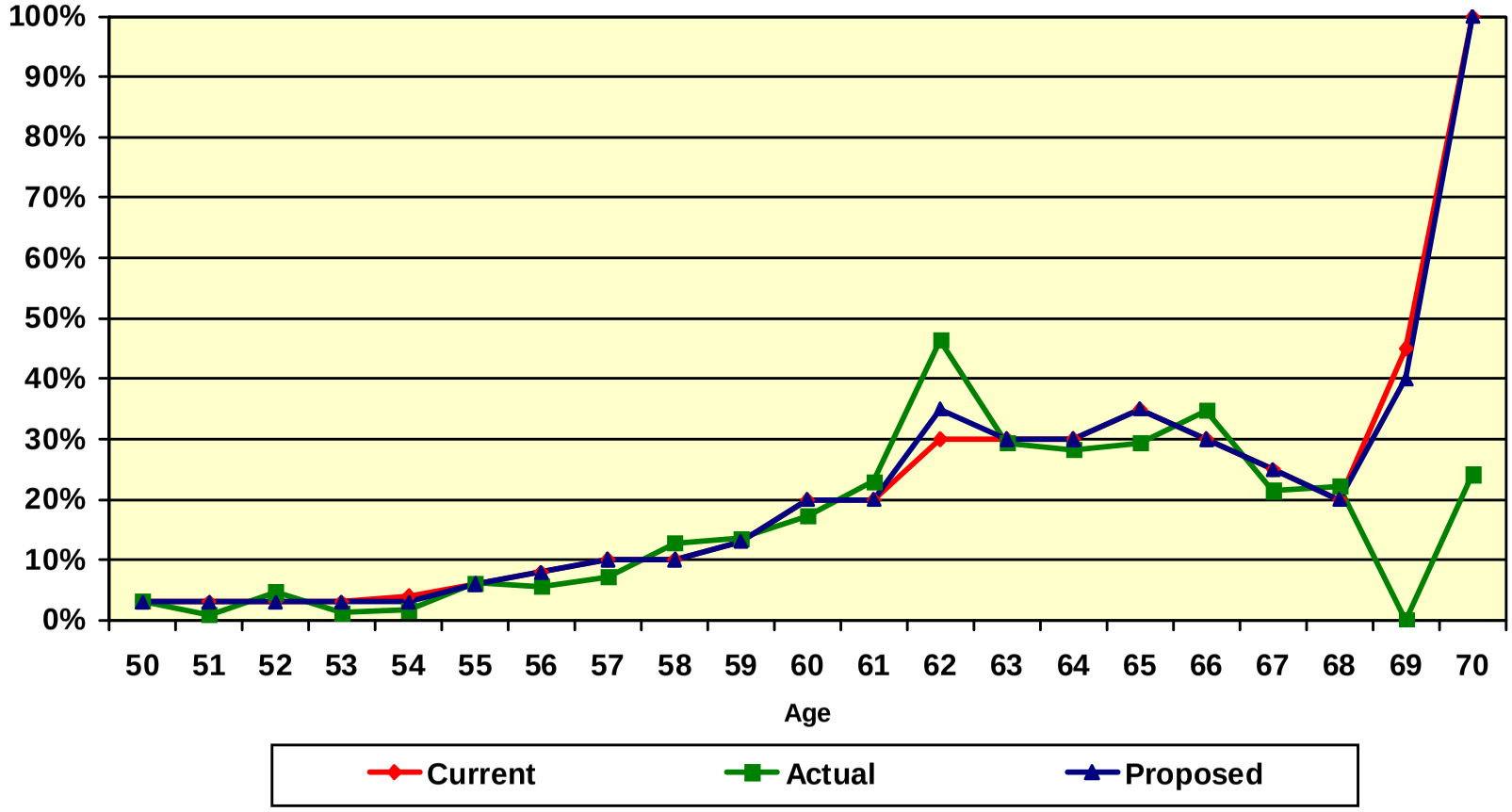

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Chart 2
Retirement Rates - General Tier 2 Members

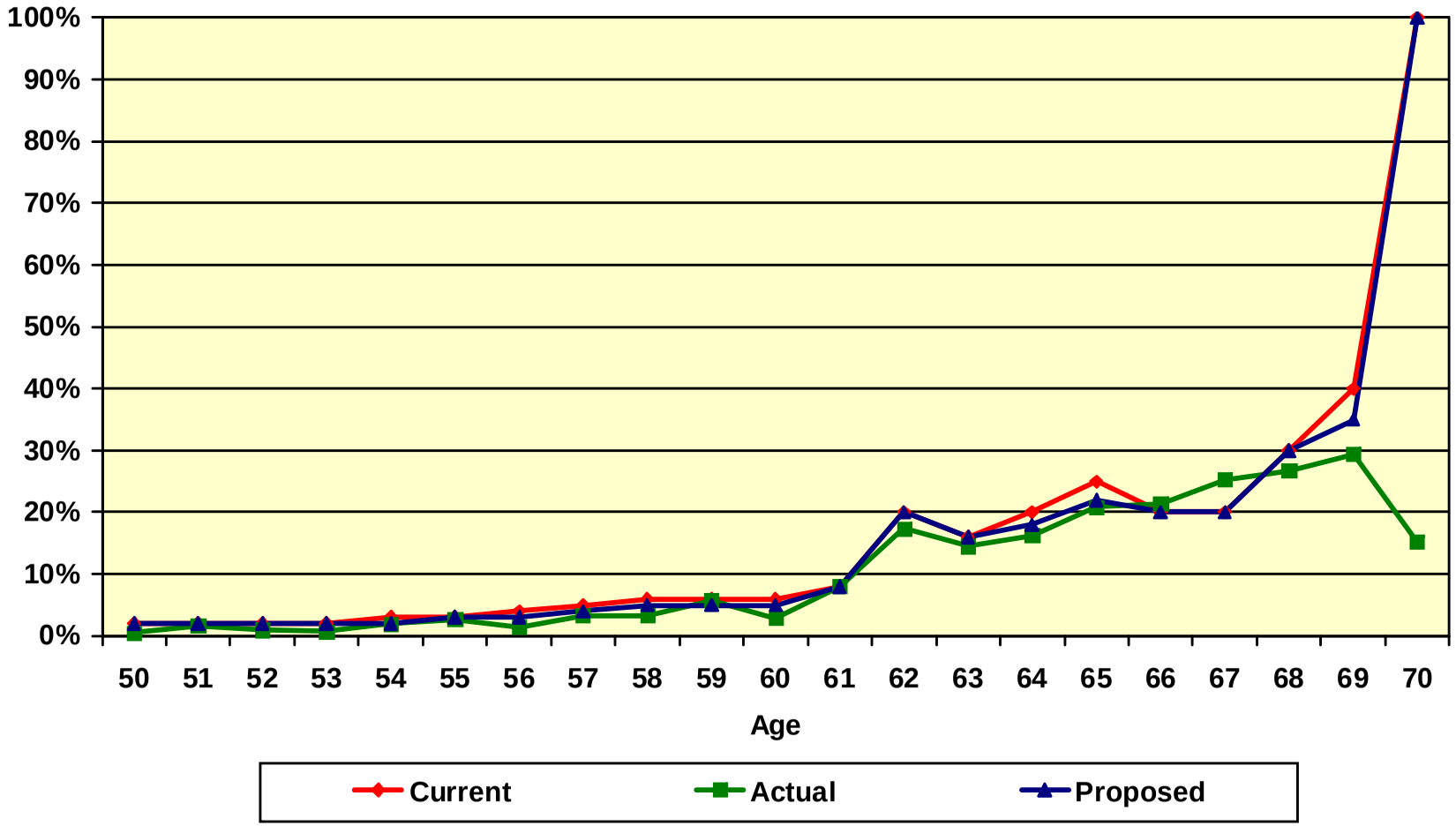

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Chart 3
Retirement Rates - General Tier 3 Members

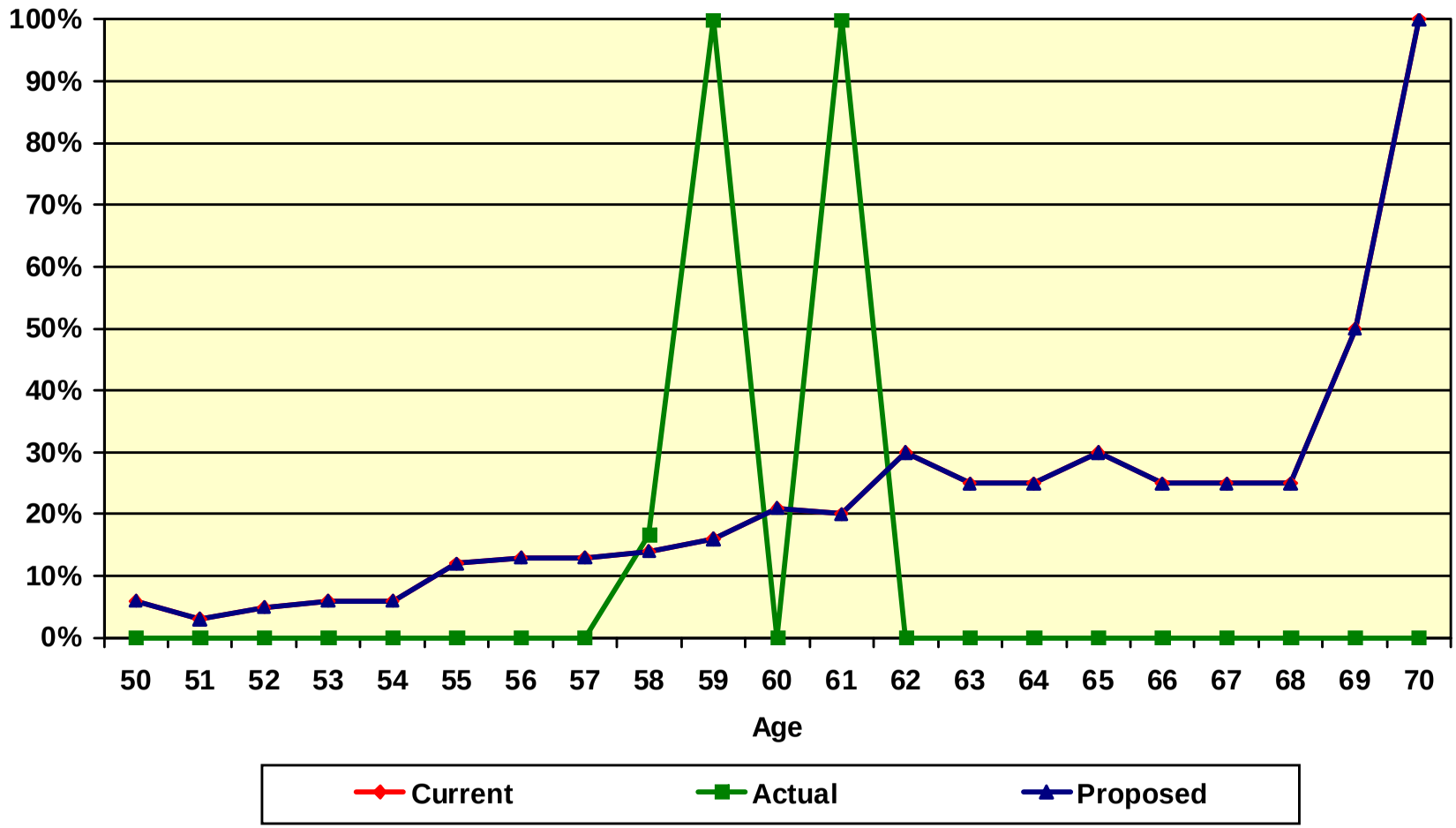

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Chart 4
Retirement Rates - Safety Tier 1 Members

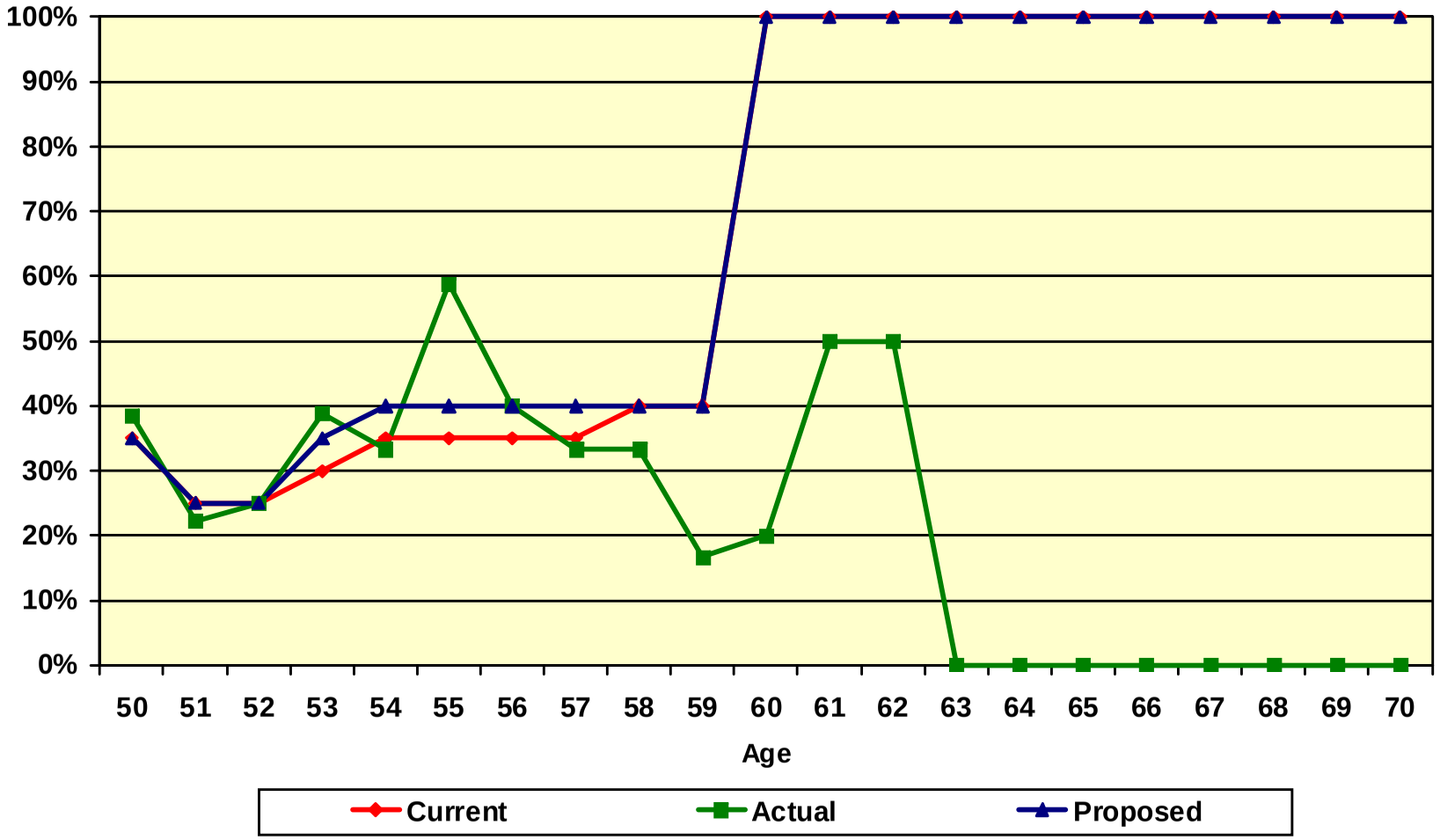

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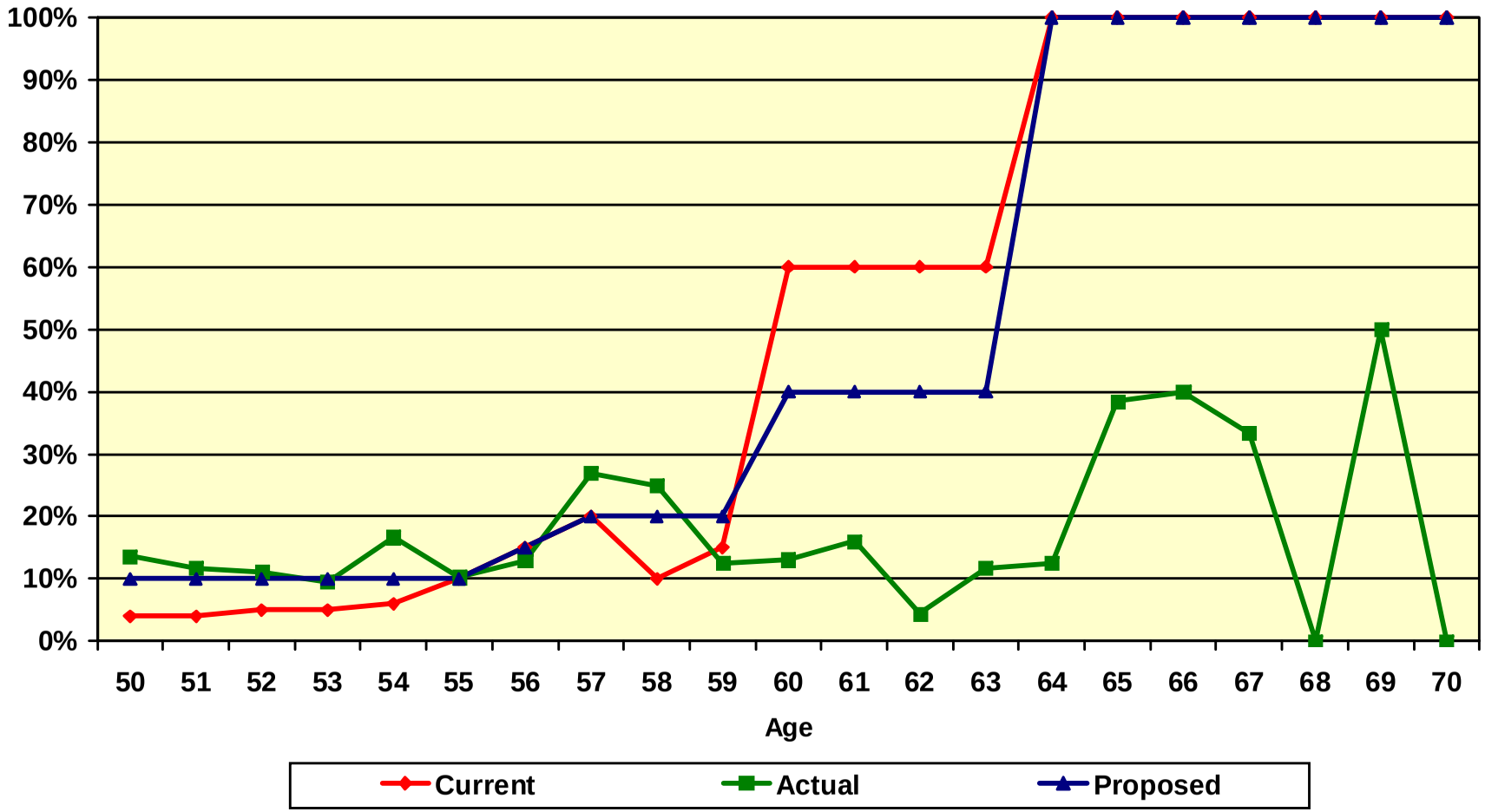
Chart 5
Retirement Rates - Safety Tier 2 Members



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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 a disability pension). The tables currently being used for both General and Safety post-service retirement mortality rates are the RP-2000 Combined Healthy Mortality Tables for Males and Females. The tables are set back one year for General members and all beneficiaries, and set back two years for Safety members.

The table that we recommend for the General and Safety male members and all male beneficiaries is the RP-2000 Combined Healthy Mortality Table for Males set back two years. For General and Safety female members and all female beneficiaries, we recommend continued use of the RP-2000 Combined Healthy Mortality Table for Females set back one year.

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 and post-retirement mortality will follow the same tables. All pre-retirement deaths are assumed to be non-service connected.

Post-Retirement Mortality (Service Retirements)

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

	General – Healthy			Safety – Healthy		
Year Ending 11/30	Actual Deaths	Current Expected Deaths	Proposed Expected Deaths	Actual Deaths	Current Expected Deaths	Proposed Expected Deaths
2008	167	162	155	14	11	11
2009	199	164	157	13	11	12
2010	164	163	156	13	12	12
Total	530	489	468	40	34	35
Actual/Expected		108%	113%		118%	114%

Actuarial Standards of Practice strongly encourage that mortality assumptions reflect the expectation of continued mortality improvement in the future. To achieve this, we prefer to include a margin of at least 10% (i.e., an actual/expected ratio of at least 110%) in our proposed mortality assumptions. Even under this practice, based on experience from the past 3 years, it may appear that our proposed assumption to predict one year of life expectancy improvement for General male members may not be necessary. However, our recommendation is based on our review of the post-retirement mortality experience for healthy retired members over the prior 6-year period (i.e., from the current and the past experience study periods), so as to see how mortality has improved over a longer period. The actual and expected deaths over the 6-year period are as follows:

	Male Members		Female Members	
Group	Actual Deaths	Current Expected Deaths	Actual Deaths	Current Expected Deaths
General	396	403	606	547
Safety	61	55	6	7
Total	457	458	612	554
Actual/Expected		100%		110%

If we include beneficiary mortality experience for the most recent 3-year period, then the combined actual and expected deaths over the 6-year period for the members and the 3-year period for the beneficiaries are as follows:

	Male Members and Beneficiaries		Female Members and Beneficiaries	
Group	Actual Deaths	Current Expected Deaths	Actual Deaths	Current Expected Deaths
Total	504	492	739	670
Actual/Expected		102%		110%

As noted above, in order to reflect the expectation of continued mortality improvement in the future, we prefer to include a margin of at least 10% (i.e., an actual/expected ratio of at least 110%) in our proposed mortality assumptions. This preferred margin leads to our recommendation of a one-year improvement in the General male and a one-year decrease

in the Safety female mortality assumptions. This results in our recommendation of the RP-2000 Combined Healthy Mortality Tables for Males set back two years for all male members and beneficiaries and the RP-2000 Combined Healthy Mortality Tables for Females set back one year for all female members and beneficiaries.

Chart 6 compares actual to expected deaths for General members under the current and proposed assumptions for all pensioners over the last three years.

Chart 7 has the same comparison for Safety members.

Chart 8 shows the life expectancies under the current and the proposed tables for General Members.

Chart 9 has the same information for Safety members.

The proposed assumptions reflect recent experience and provide margin for future mortality improvements. We will continue to monitor this experience closely in future studies.

Mortality Table for Member Contributions

We recommend that the mortality table used for determining contributions for General members be changed from the RP-2000 Combined Healthy Mortality Table set back one year for males and females, weighted 30% male and 70% female, to the RP-2000 Combined Healthy Mortality Table set back two years for males and one year for females, weighted 30% male and 70% female. This is based on the proposed mortality table for General members and the actual sex distribution for the current General members.

For Safety members, we recommend the mortality table be changed from the RP-2000 Combined Healthy Mortality Table set back two years for males and females, weighted 75% male and 25% female, to the RP-2000 Combined Healthy Mortality Table set back two years for males and one year for females, weighted 75% male and 25% female. This is based on the proposed mortality table for Safety members and the actual sex distribution for the current Safety members.

Chart 6
Post - Retirement Deaths (General)
Non - Disabled Members

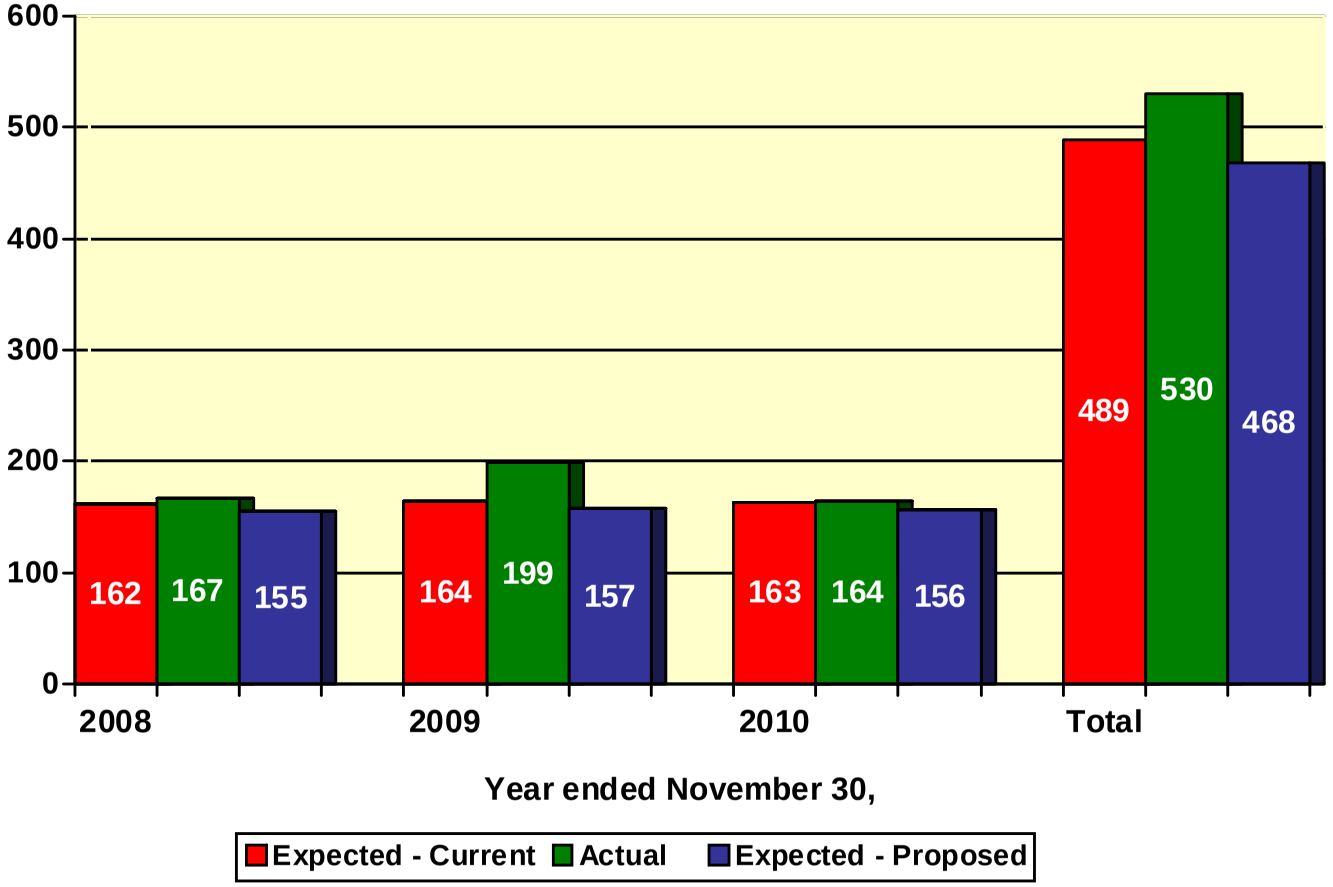

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Chart 7
Post - Retirement Deaths (Safety)
Non - Disabled Members

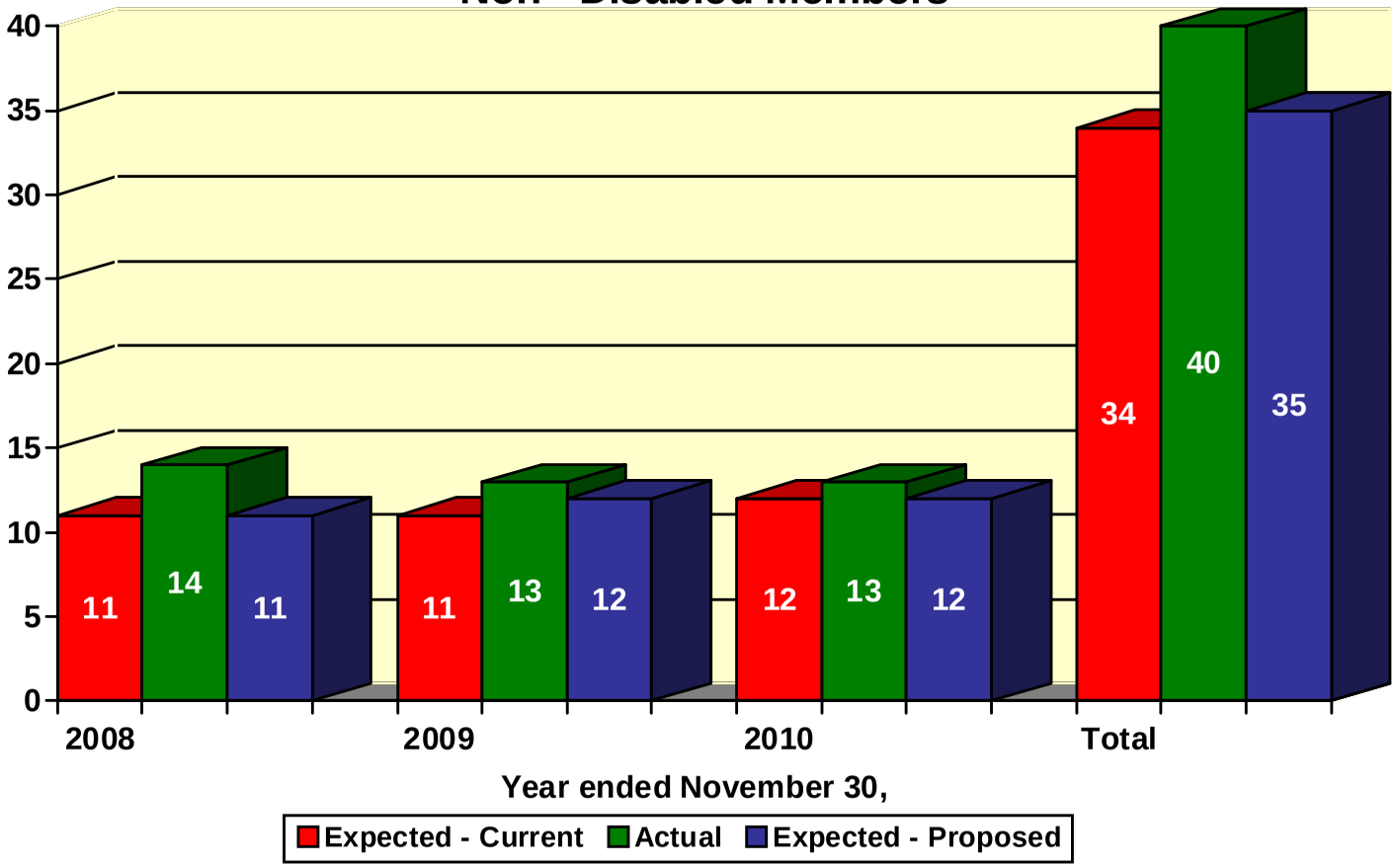

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Chart 8
Life Expectancies (General)

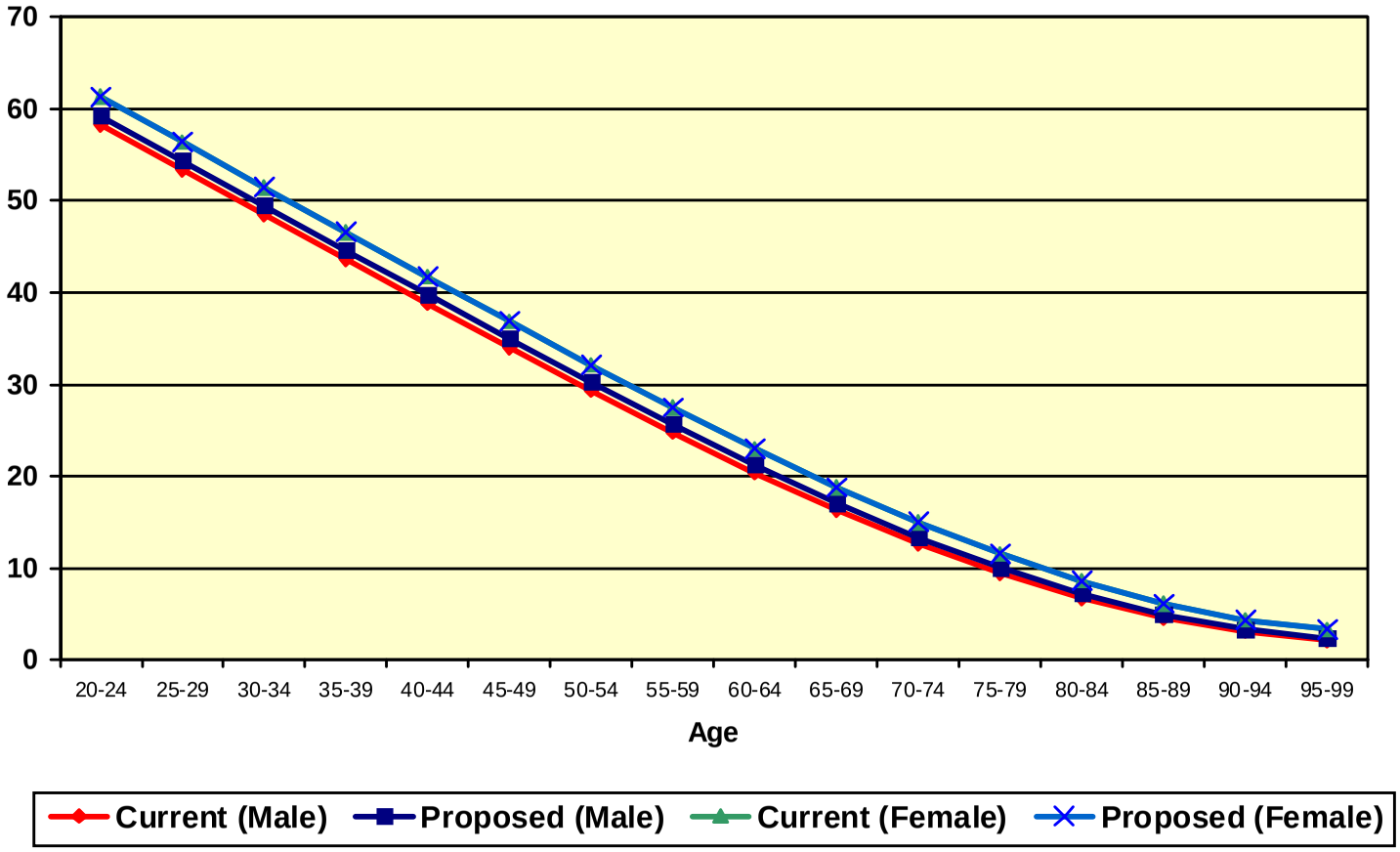

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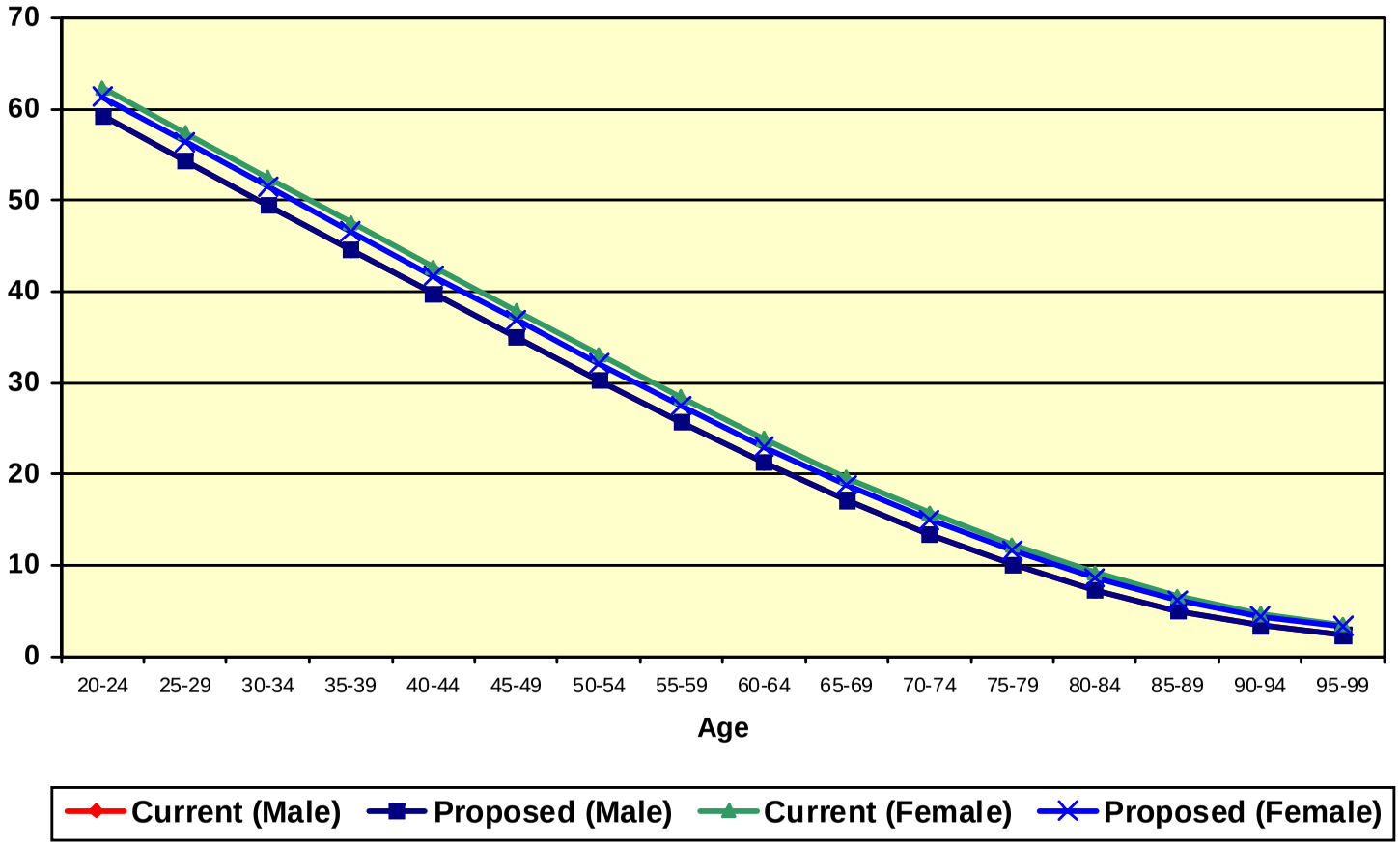
Chart 9
Life Expectancies (Safety)



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D. MORTALITY RATES - DISABLED

Since death rates for disabled members are typically higher than for healthy members, a different mortality assumption is used. The table currently being used for General members is the RP-2000 Combined Healthy Mortality Tables for Males and Females set forward four years. For Safety members, the RP-2000 Combined Healthy Mortality Tables for Males and Females set forward three years is used.

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

	General – Disability			Safety – Disability		
Ending 11/30	Actual Deaths	Current Expected Deaths	Proposed Expected Deaths	Actual Deaths	Current Expected Deaths	Proposed Expected Deaths
2008	10	14	14	5	2	2
2009	21	14	14	0	3	2
2010	19	14	14	1	4	4
Total	50	42	42	6	9	8
Actual/Expected		119%	119%		67%	75%

We have also reviewed the post-retirement mortality experience for disabled members over the prior 6-year period to see how mortality has improved over a longer period. The actual and expected deaths over the 6-year period are as follows:

	General – Disability		Safety – Disability	
Group	Actual Deaths	Current Expected Deaths	Actual Deaths	Current Expected Deaths
Total	89	81	14	15
Actual/Expected		110%		93%

Based on the combined experience for the last 6-year period, we recommend that the mortality table for disabled General members remain unchanged (i.e., the RP-2000 Combined Healthy Mortality Tables for Males and Females set forward four years). For Safety, we recommend the RP-2000 Combined Healthy Mortality Tables for Males and Females set forward two years. Note that the recommended table for disabled Safety

members will provide our preferred margin of 10% when viewed in combination with healthy Safety members.

Chart 10 compares actual to expected deaths under both the current and proposed assumptions for disabled General members over the last three years.

Chart 11 compares actual to expected deaths under both the current and proposed assumptions for disabled Safety members over the last three years.

Charts 12 and 13 show the life expectancies under both the current and proposed tables for General and Safety, respectively.

Chart 10
Post - Retirement Deaths
Disabled General Members

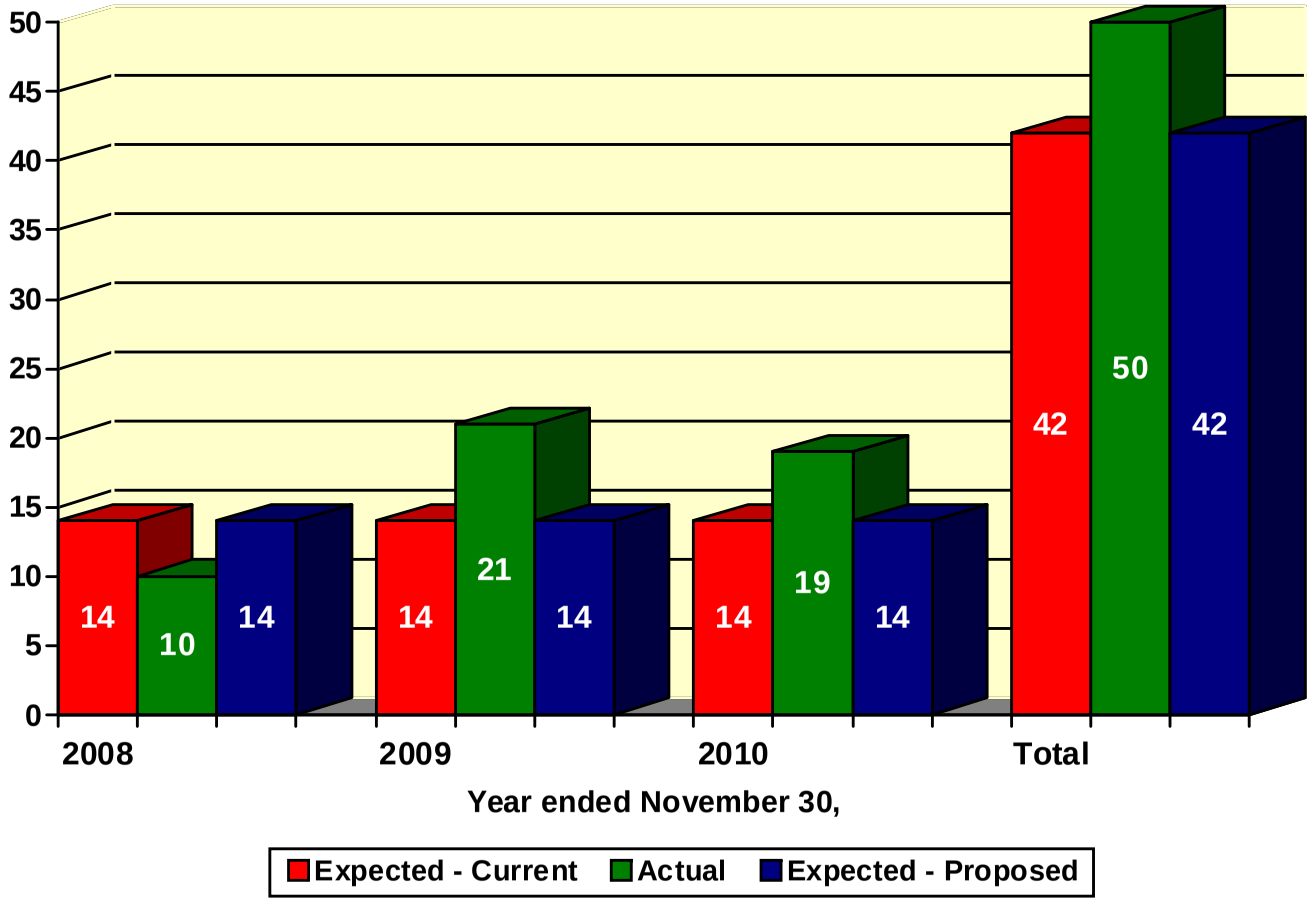

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Chart 11
Post - Retirement Deaths
Disabled Safety Members

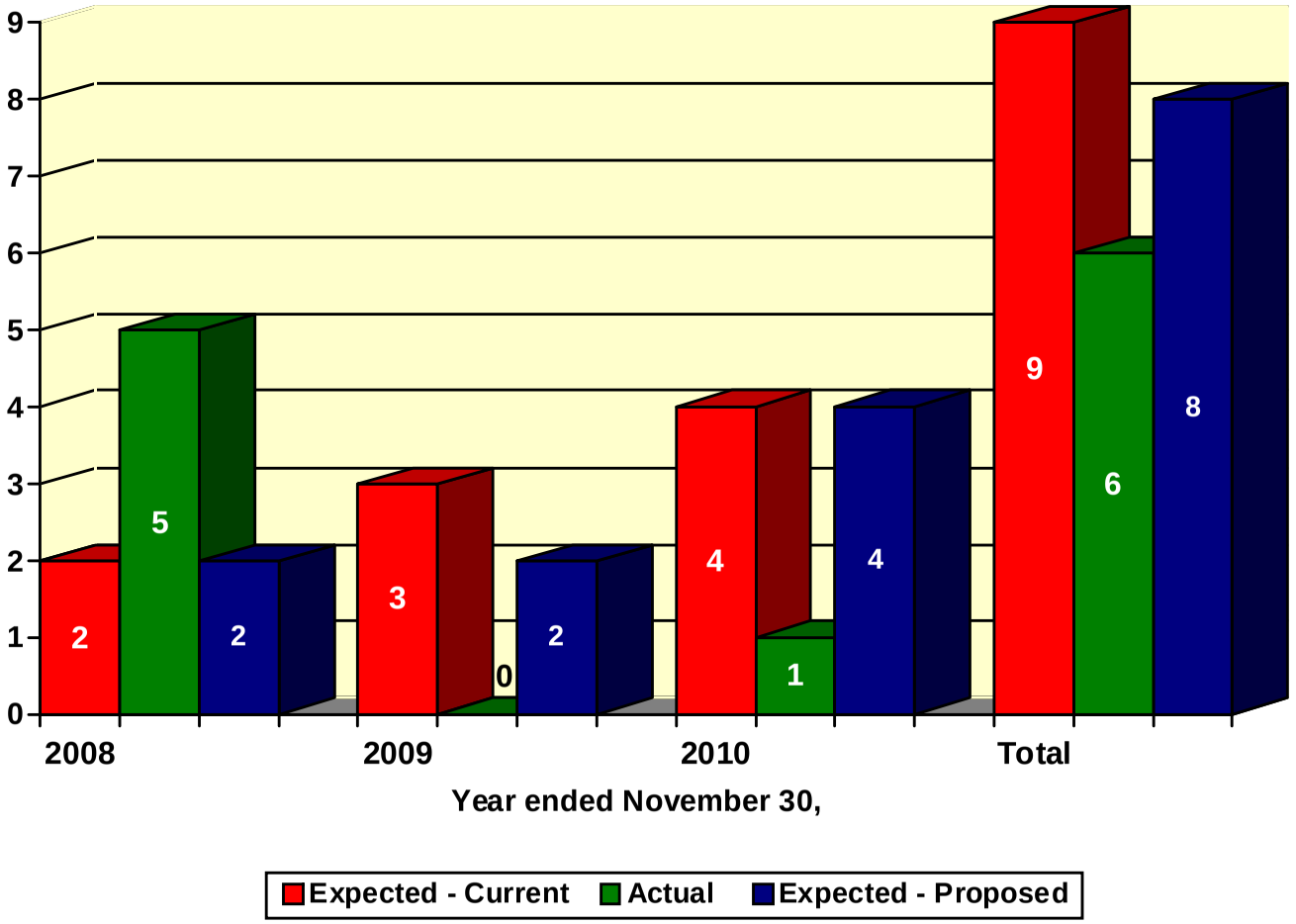

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Chart 12
Life Expectancies (General Disabled)

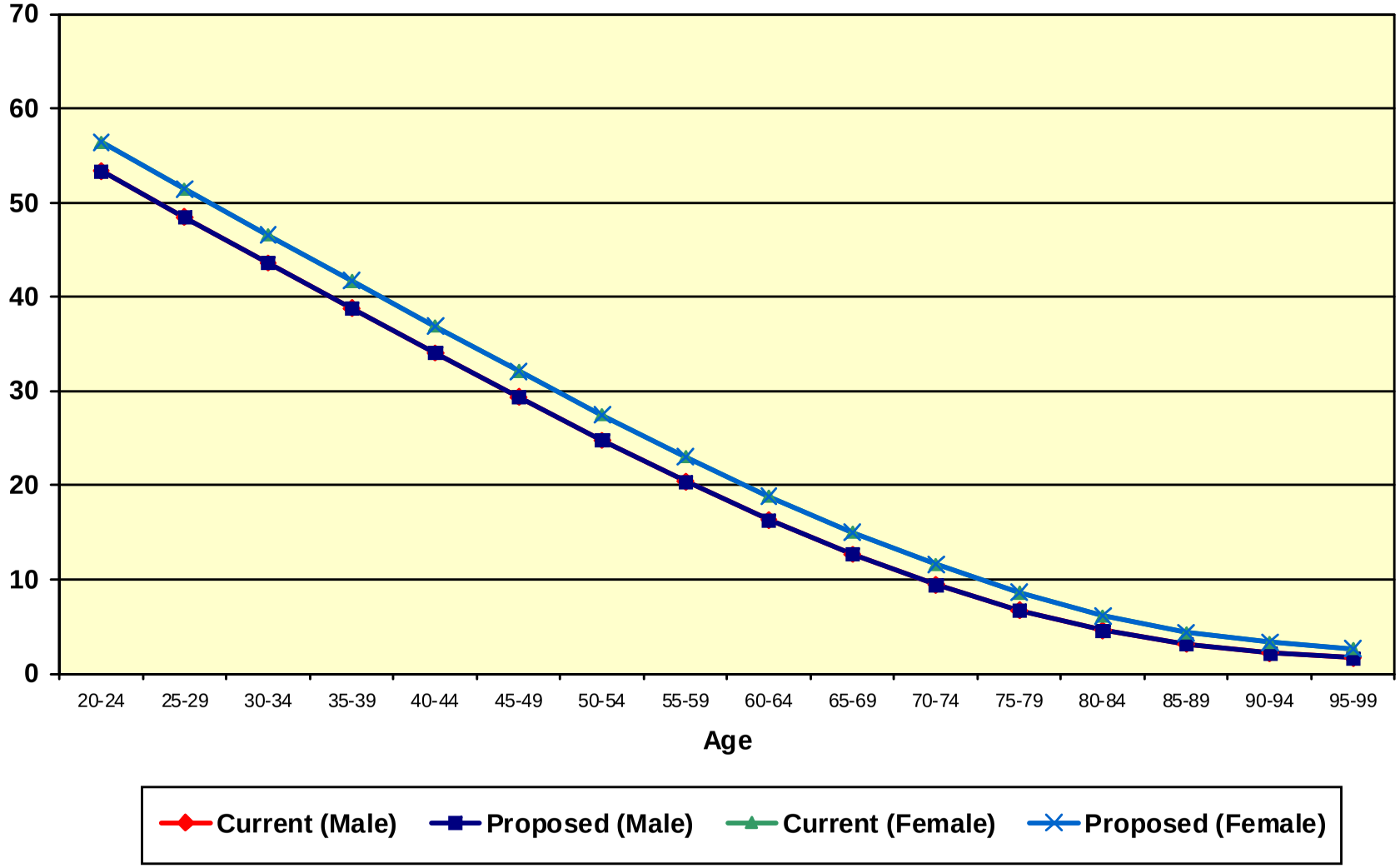

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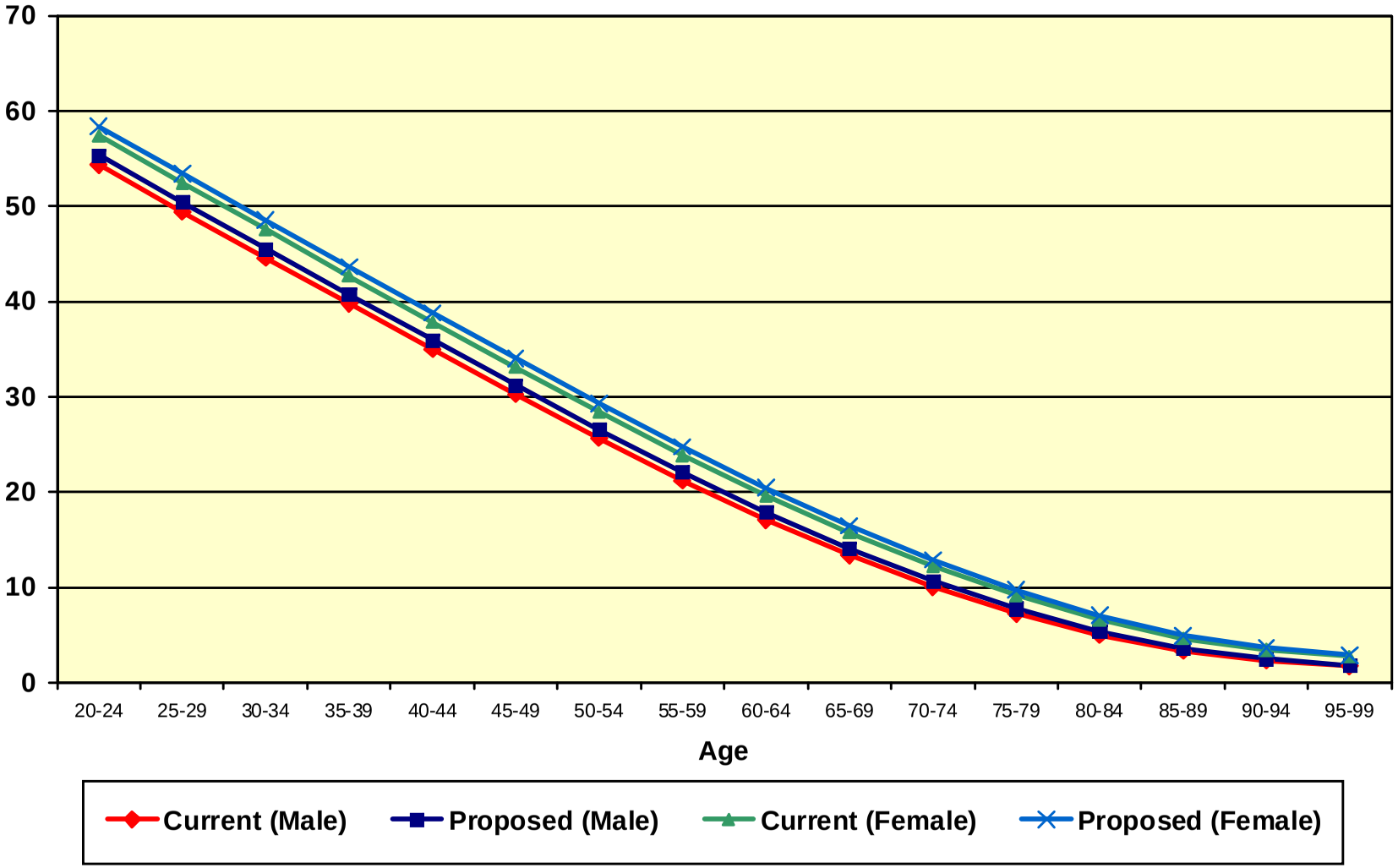
Chart 13
Life Expectancies (Safety Disabled)



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E. TERMINATION RATES

Termination rates include all terminations for reasons other than death, disability, or retirement. Under the current assumption structure there is a separate set of assumptions for members with less than five years of service and members with five or more years of service. There is also another set of assumptions to anticipate the percentage of members who will withdraw their contributions and members who will leave their contributions on deposit and receive a deferred vested benefit. The termination experience over the last three years for General and Safety members split 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)
(Fewer than Five Years of Service)

Years of Service	Observed Rate	Current Rate	Proposed Rate
0	13.09%	13.00%	13.00%
1	7.74	10.00	9.00
2	5.56	9.00	8.00
3	4.61	7.00	6.00
4	4.37	5.00	5.00

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

Years of Service	Observed Rate	Current Rate	Proposed Rate
0	5.99%	5.00%	5.00%
1	1.66	5.00	3.00
2	1.79	5.00	3.00
3	1.69	3.00	2.00
4	1.38	3.00	2.00

Rates of Termination (General)

(Five or More Years of Service)

Age	Observed Rate	Current Rate	Proposed Rate
20 – 24	0.00%	5.00%	5.00%
25 – 29	8.28	5.00	5.00
30 – 34	2.64	5.00	5.00
35 – 39	3.08	4.50	4.50
40 – 44	1.97	3.20	3.20
45 – 49	1.99	2.10	2.10
50 – 54	3.76	1.80	2.00
55 – 59	4.63	1.50	2.00
60 – 64	4.00	1.00	2.00
65 – 69	7.73	1.00	2.00

Rates of Termination (Safety)

(Five or More Years of Service)

Age	Observed Rate	Current Rate	Proposed Rate
20 – 24	0.00%	3.00%	2.00%
25 – 29	1.72	3.00	2.00
30 – 34	1.20	2.00	2.00
35 – 39	0.91	1.50	1.00
40 – 44	1.14	1.00	1.00
45 – 49	0.27	1.00	1.00
50 – 54	0.00	1.00	1.00
55 – 59	6.38	1.00	1.00
60 – 64	4.17	0.00	0.00

Chart 14 compares actual to expected terminations of the past three years for both the current and proposed assumptions for General members and Safety members.

Chart 15 shows the current along with the proposed termination rates for General members with less than five years of service.

Chart 16 shows the same information as Chart 14, but for Safety members.

Chart 17 shows the current along with the proposed termination rates for General members with five or more years of service.

Chart 18 shows the same information as Chart 17, but for Safety members.

Based upon the recent experience, the termination rates for members with less than five years of service have been decreased for General and Safety members. For General members with five or more years of service we have increased the termination rates at the older ages. For Safety members with five or more years of service we have maintained the termination rates in most cases. We also continue to 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.

The following table shows the recommended percentages for members who are anticipated to withdraw their contributions and members who will leave their contributions on deposit and receive a deferred vested benefit. The current assumption is that 80% of all members who terminate with less than five years of service would withdraw and receive a refund and 20% would choose a deferred vested benefit. For the members with five or more years of service, the current assumption is that 30% would withdraw and receive a refund and 70% would receive a deferred vested benefit.

	Members with Fewer than Five Years of Service					
Group	Observed Withdrawal	Observed Vested Termination	Current Withdrawal	Current Vested Termination	Proposed Withdrawal	Proposed Vested Termination
General	64%	36%	80%	20%	70%	30%
Safety	55%	45%	80%	20%	70%	30%

	Members with Five or More Years of Service					
Group	Observed Withdrawal	Observed Vested Termination	Current Withdrawal	Current Vested Termination	Proposed Withdrawal	Proposed Vested Termination
General	42%	58%	30%	70%	40%	60%
Safety	58%	42%	30%	70%	40%	60%

Chart 14
Actual Number of Terminations Compared to Expected

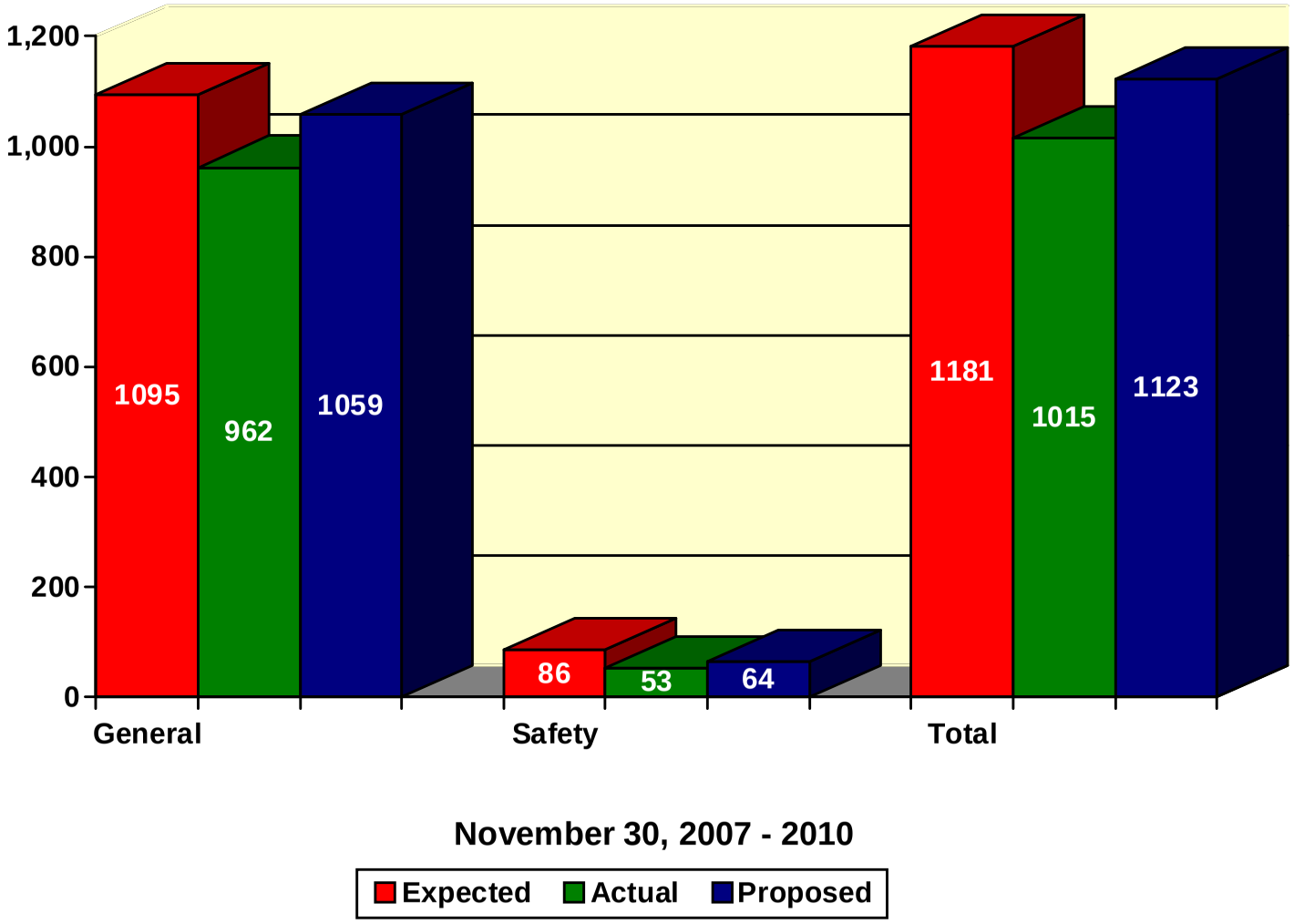

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Chart 15
Termination Rates - General Members
(Fewer than 5 Years of Service)

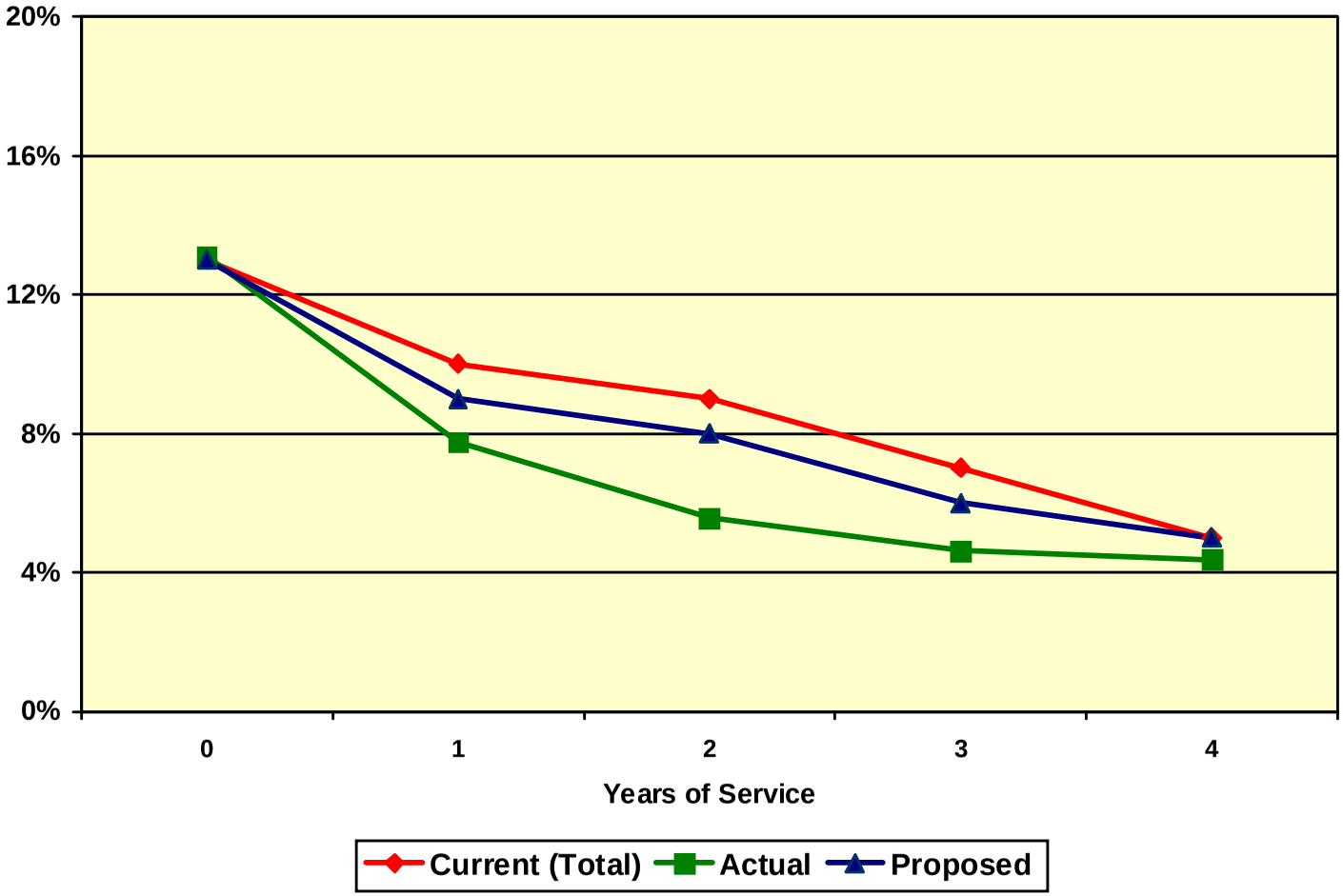

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Chart 16
Termination Rates - Safety Members
(Fewer Than 5 Years of Service)

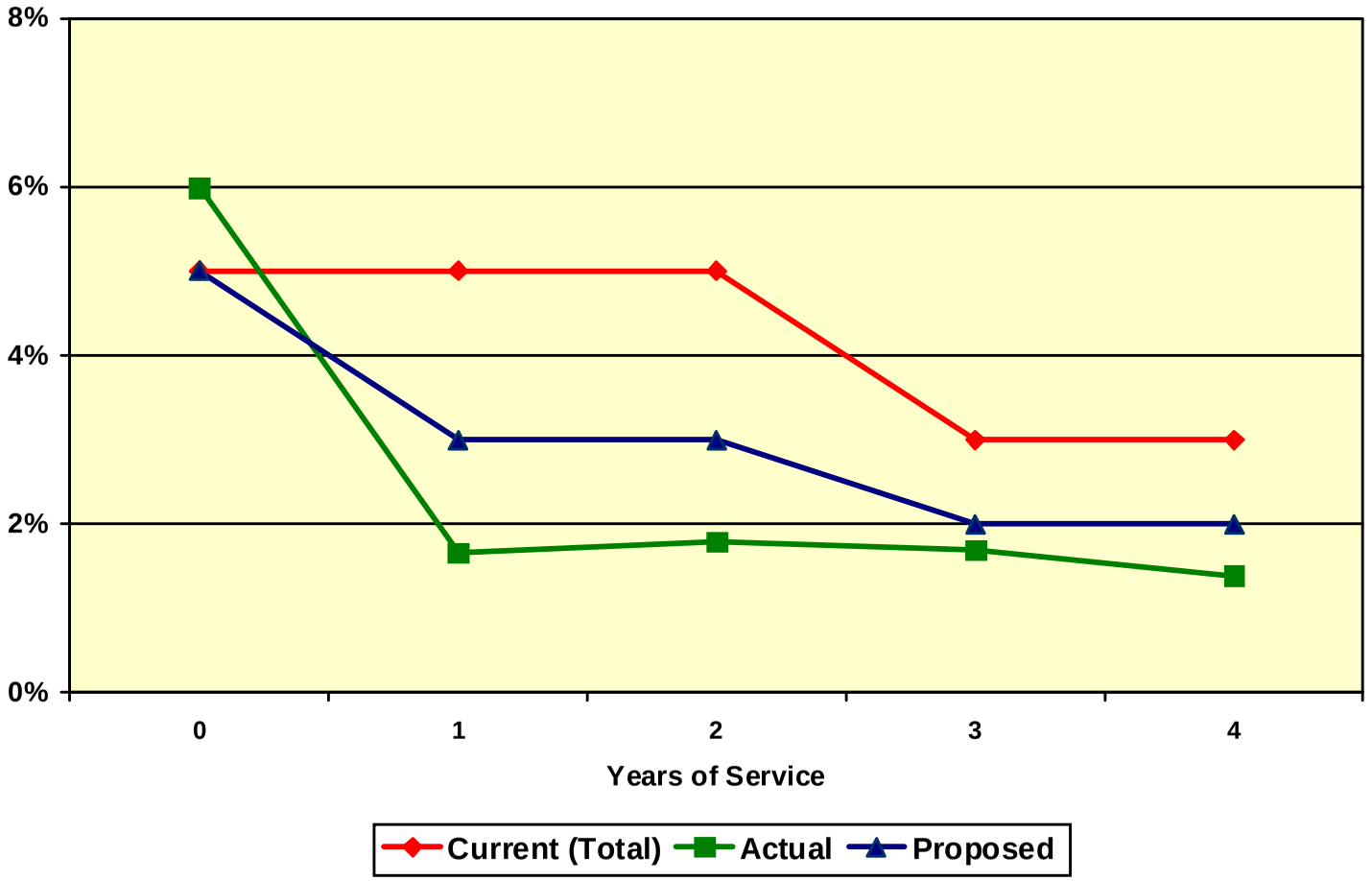

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Chart 17
Termination Rates - General Members
(5 or More Years of Service)

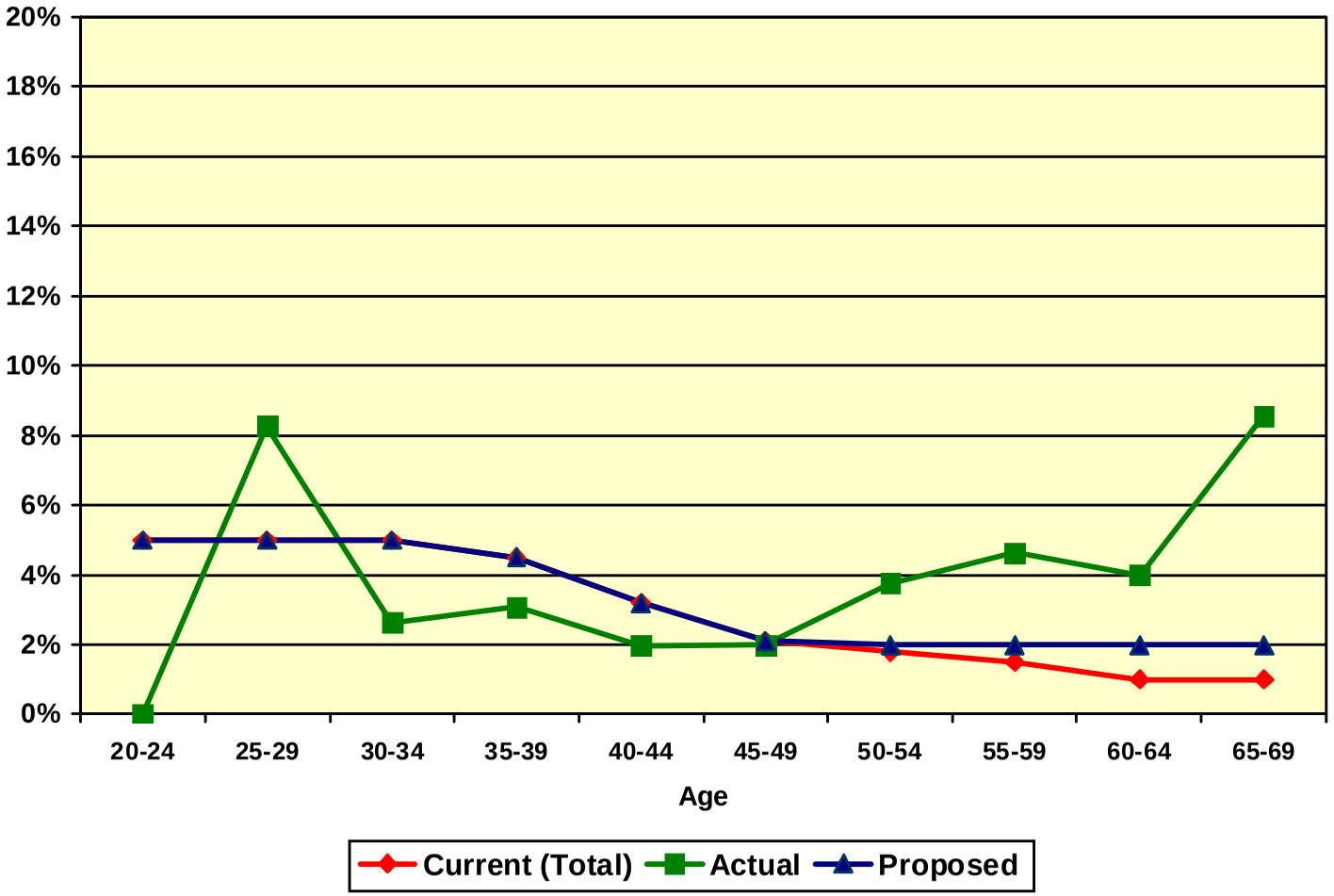

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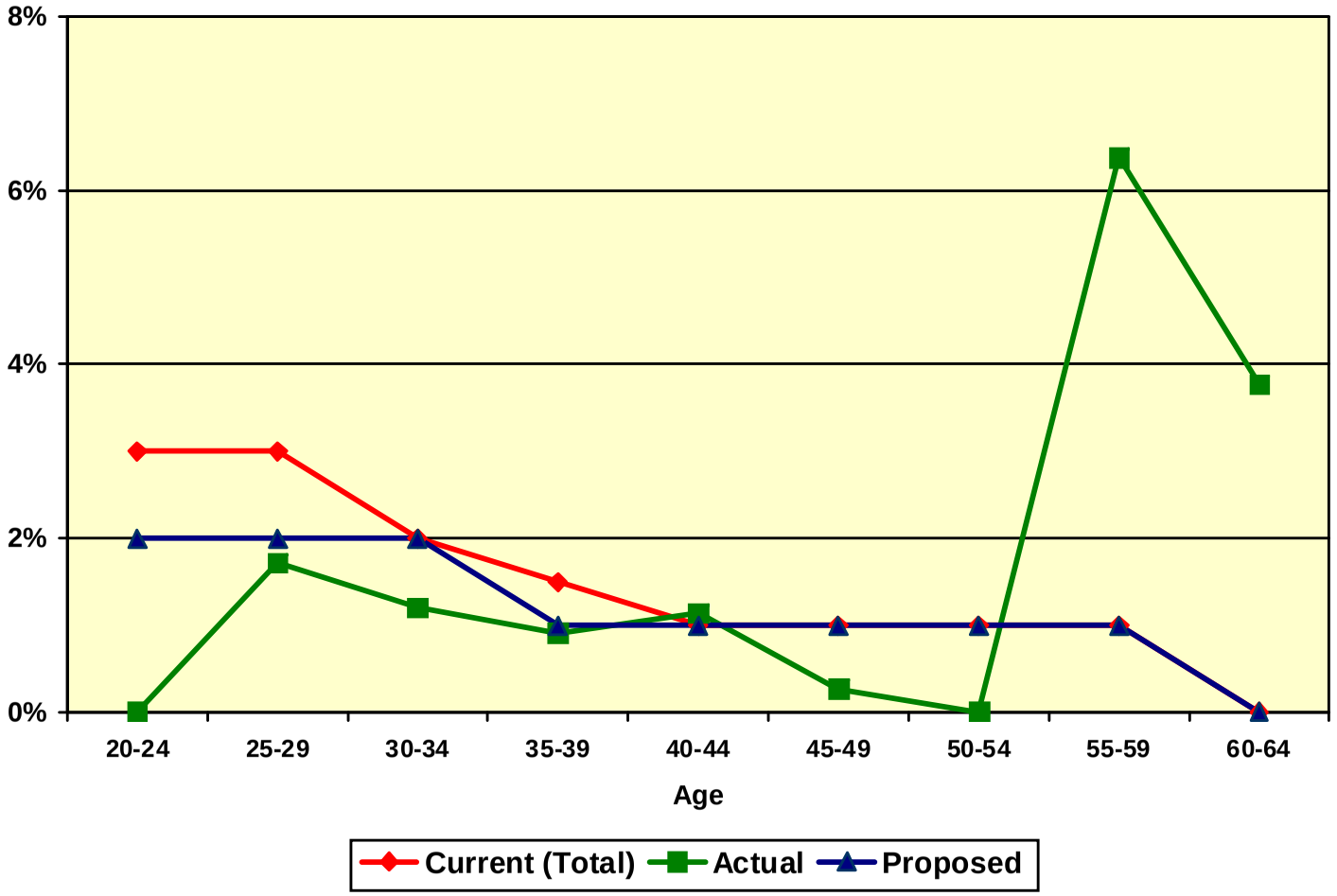
Chart 18
Termination Rates - Safety Members
(5 or More Years of Service)



F. DISABILITY INCIDENCE RATES

When a member becomes disabled, he or she may be entitled to either 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 combined service-connected and non-service connected disability incidence:

Rates of Disability Incidence (General)

Age	Observed Rate	Current Rate	Proposed Rate
20 – 24	0.00%	0.00%	0.00%
25 – 29	0.00	0.02	0.01
30 – 34	0.00	0.10	0.05
35 – 39	0.06	0.20	0.10
40 – 44	0.08	0.30	0.20
45 – 49	0.12	0.40	0.25
50 – 54	0.24	0.55	0.40
55 – 59	0.17	0.75	0.50
60 – 64	0.40	0.90	0.65
65 – 69	0.25	1.20	0.75

Rates of Disability Incidence (Safety)

Age	Observed Rate	Current Rate	Proposed Rate
20 – 24	0.00%	0.00%	0.00%
25 – 29	0.00	0.00	0.00
30 – 34	0.15	0.40	0.40
35 – 39	0.23	0.50	0.50
40 – 44	0.25	0.70	0.50
45 – 49	0.00	1.10	0.50
50 – 54	1.24	1.50	1.50
55 – 59	3.07	1.80	2.20
60 – 64	1.04	0.00	2.20

Chart 19 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. Please note that we have reflected in the observed disability incidences those members whose applications for a disability retirement are pending as of the end date of the experience study. Consistent with the last experience study, we have applied a 75% probability to anticipate the number that will be granted a disability benefit.

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

Since 59% of all new disabled General members have received a service connected disability, we recommend that 70% of the proposed rates be used to anticipate service connected disability retirement. The remaining 30% of the rates will be used to anticipate non-service connected disability. This assumption was reduced from 80%.

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

Since 96% of all new disabled Safety members have received a service connected disability, we recommend that 100% of the proposed rates be used to anticipate service connected disability retirement. This assumption remains unchanged.

Chart 19
Actual Number of Disabilities Compared to Expected

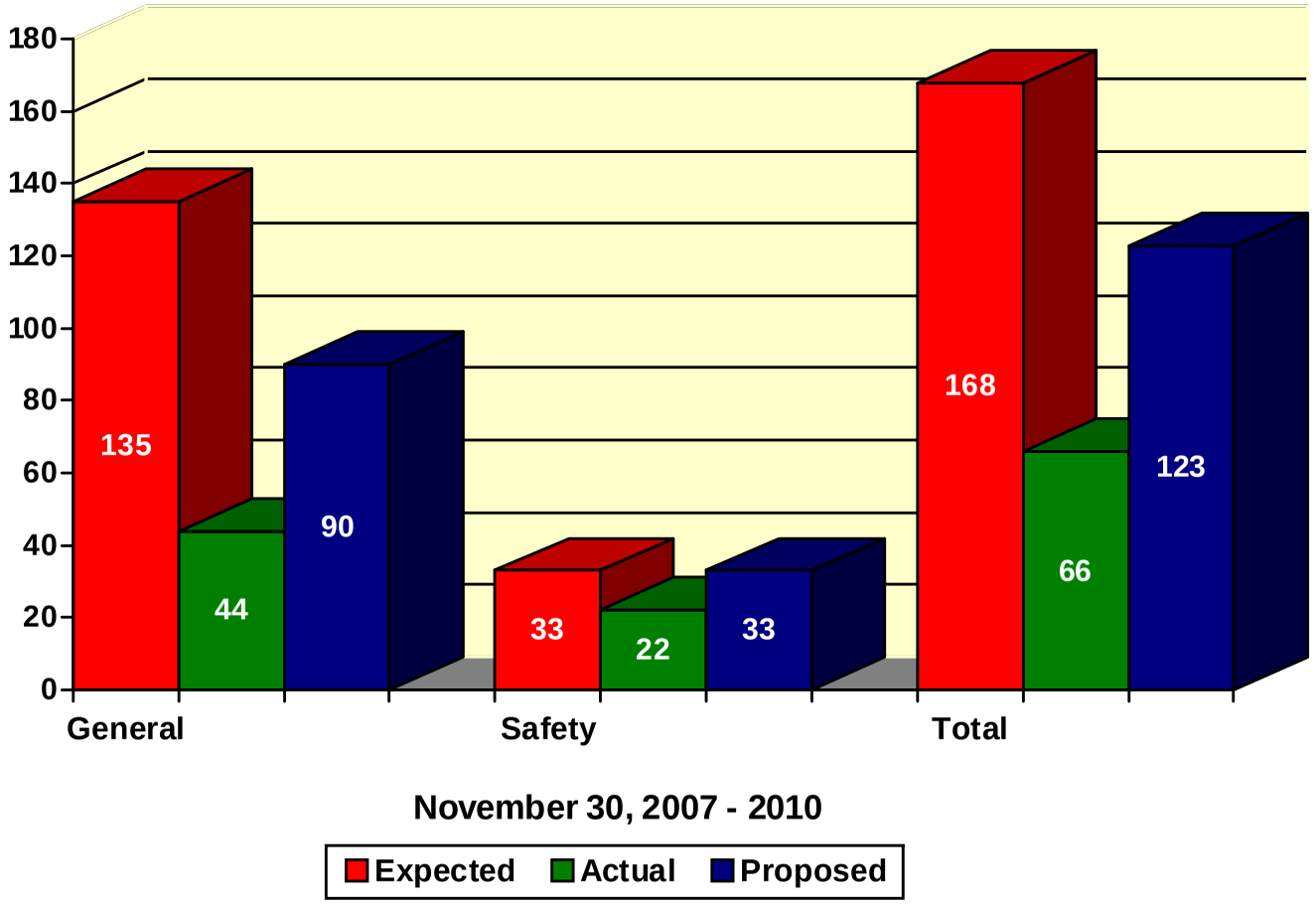


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Chart 20
Disablement Rates for General Members

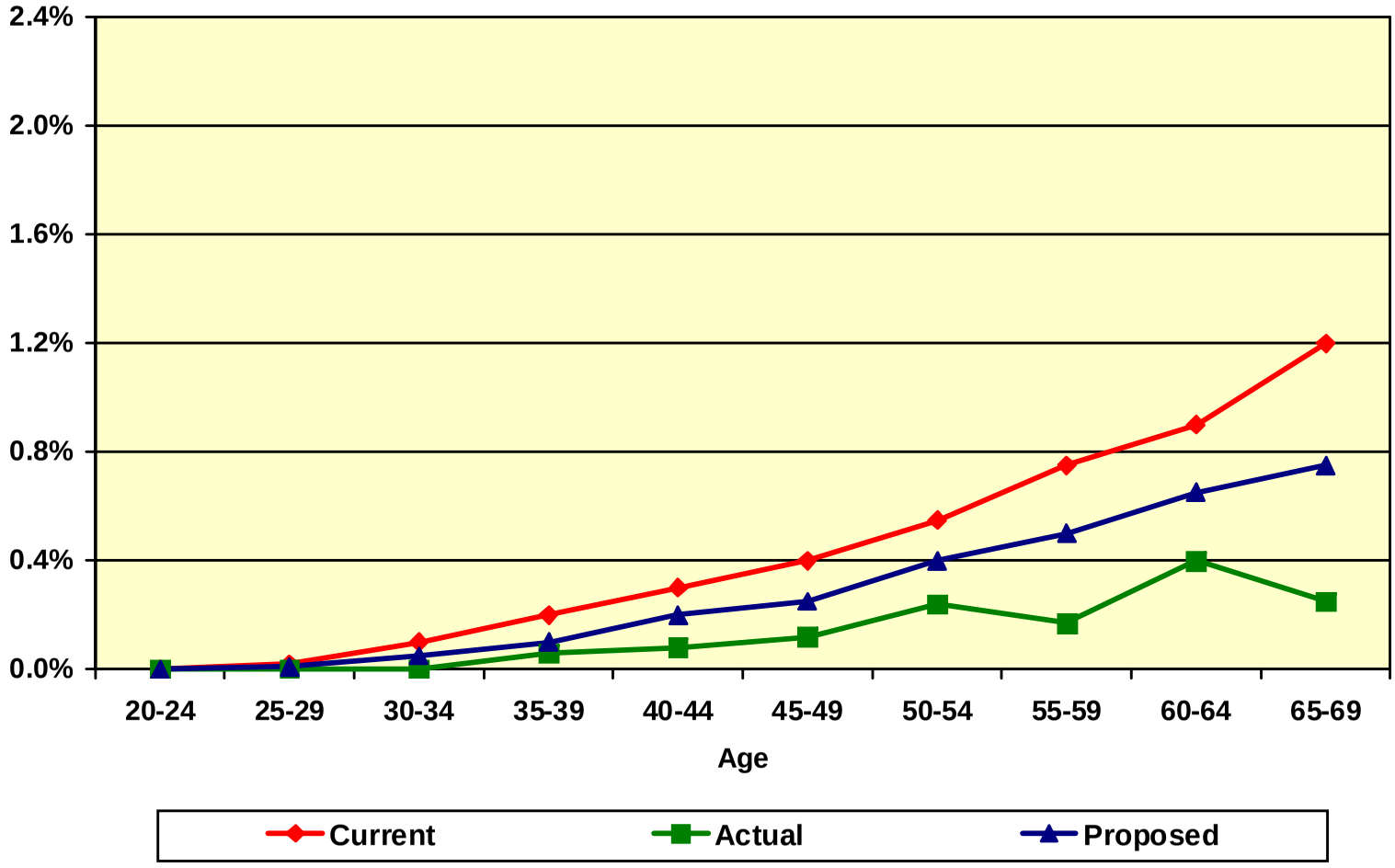

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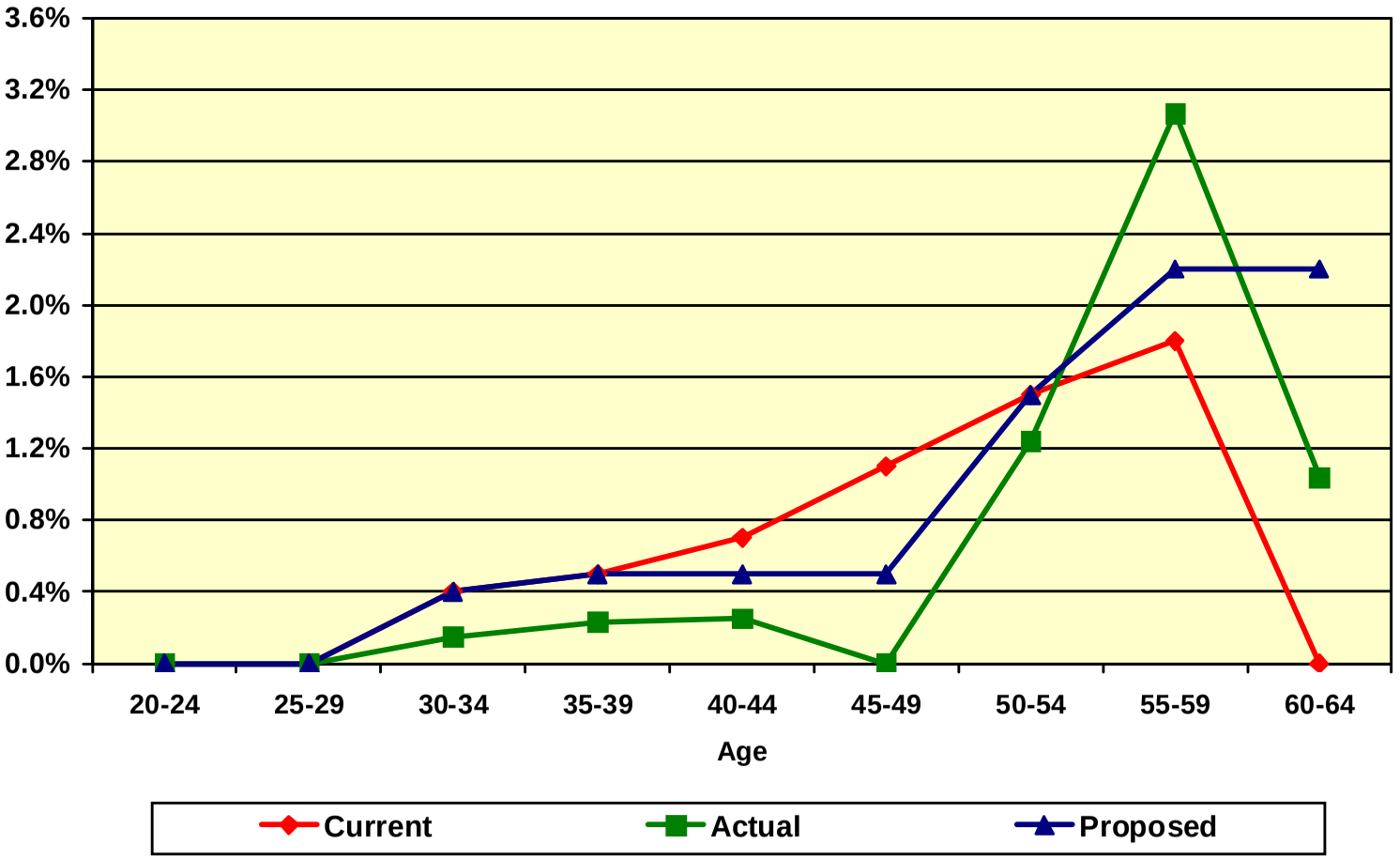
Chart 21
Disablement Rates for Safety Members



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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.

For the December 31, 2010 valuation, the Board adopted an inflation assumption of 3.50% and an "across the board" increase assumption of 0.50%. Therefore, the total assumed inflation and real "across the board" pay increase (i.e., wage inflation) assumed in the December 31, 2010 valuation was 4.00%; that 4.00% assumption was used as the assumed annual rate of payroll growth at which payments to the UAAL are assumed to increase. For the December 31, 2011 valuation, we are continuing to recommend the same 3.50% inflation and 0.50% "across the board" increase assumptions. The analysis supporting our recommendations is provided in a separate report.

The annual merit and promotional increases are determined by measuring the actual increases received by members over the experience period, net of the inflationary and real "across the board" pay increases. Increases are measured separately for General and Safety members. This is accomplished by:

- Measuring each continuing member's actual salary increase over each year of the experience period;
- Categorizing these increases according to member demographics;
- Removing the wage inflation component from these increases (estimated as the increase in the members' average salary during the year for all members);

- 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."

Note that based on our recent experience both with ACERA and with similar public retirement systems, merit and promotional increases are generally correlated more closely with service than with age. For this reason, we have restructured the merit and promotional increases from an age-based assumption to a service-based assumption. Consistent with that restructuring, we have recommended an increase in the service-based assumption at the early years of an employee's career and a decrease in the service based assumption for the later years of service.

The following table shows the average increases over the three-year experience period (December 1, 2007 through November 30, 2010) before removing the inflationary component:

Average Actual Increase (%)

Service Group	General Members	Safety Members
0-1	7.94	14.45
1-2	9.36	15.87
2-3	7.88	12.11
3-4	6.03	8.31
4-5	6.25	7.05
5-6	6.64	8.84
6-7	6.08	6.87
7-8	5.53	5.04
8-9	4.56	5.06
9-10	4.41	5.29
10-11	4.32	4.94
11 and over	4.26	4.83

The annual increase in average salary over this three-year period was about 4.25% for General members and 4.87% for Safety members. The following table shows the average merit and promotional increases for the three-year period:

Average Actual Merit and Promotional Salary Increase (%)

Service Group	General Members	Safety Members
0-1	3.23	8.38
1-2	5.15	10.04
2-3	3.80	7.86
3-4	2.29	4.35
4-5	2.13	3.37
5-6	1.79	3.15
6-7	1.42	1.15
7-8	1.17	0.25
8-9	0.52	0.17
9-10	0.53	0.43
10-11	0.37	0.27
11 and over	0.02	0.03

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

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

	General Members		Safety Members	
Service Group	**Current[(1)]**	**Proposed**	**Current[(1)]**	**Proposed**
0-1	2.29	3.20	3.09	6.20
1-2	2.15	3.20	3.14	6.20
2-3	2.04	2.90	2.96	5.40
3-4	1.93	2.10	2.75	3.60
4-5	1.78	2.00	2.54	3.00
5-6	1.68	1.70	2.18	2.70
6-7	1.62	1.50	2.03	1.60
7-8	1.57	1.40	1.98	1.10
8-9	1.49	1.00	1.85	1.00
9-10	1.44	1.00	1.76	1.00
10-11	1.38	0.90	1.69	1.00
11 and over	1.10	0.60	1.35	0.70

[(1)] *The current assumption is an age-based assumption. The results provided above are calculated by taking the weighted average of the age-based assumptions for members within each of the specified year of service category. For a table of the current age-based increases, see Appendix A.*

Charts 22 and 23 provide a graphical comparison of the current, actual experience and proposed merit and longevity increases.

Chart 22
Merit and Promotional Salary Increase Rates for General Members

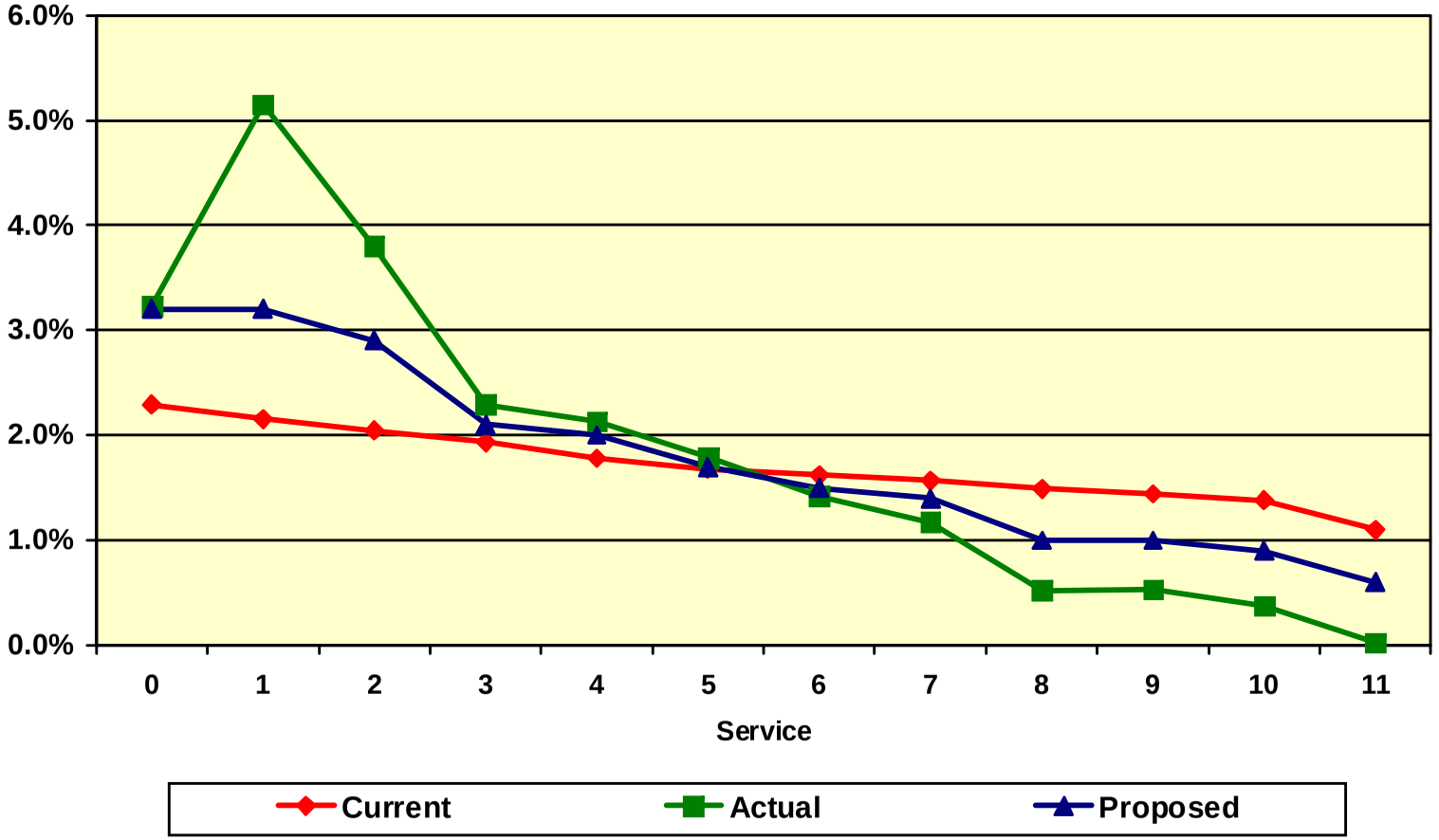

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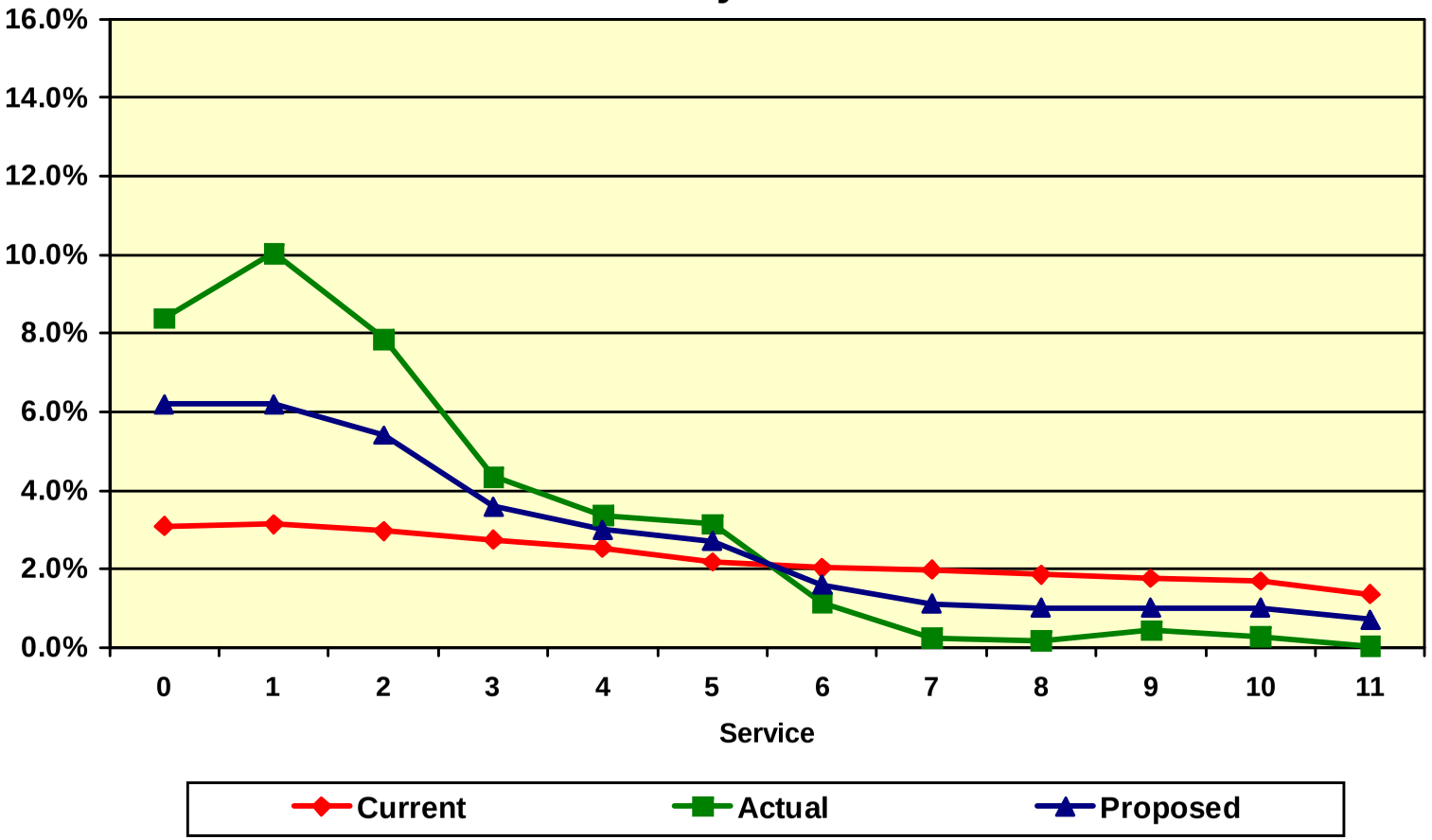
Chart 23
Merit and Promotional Salary Increase Rates for Safety Members



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H. TERMINAL PAY

Under the Ventura Settlement, employers agreed to include several additional pay elements as Earnable Compensation. 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 the following table, we have summarized the observed vacation and sick leave cashout from members who retired from service during December 2007 – November 2008, December 2008 – November 2009, and December 2009 – November 2010. Note that there was no experience observed for General Tier 3, Safety Tier 2C, or Safety Tier 2D members. In the current valuation, General Tier 3 shares the same terminal pay assumption as General Tier 1 as both of these Tiers use final 3-year average compensation. Similarly, Safety Tier 2C and Safety Tier 2D share the same terminal pay assumption as Safety Tier 2.

Observed Terminal Pay Percentages

	December 2007 – November 2008		December 2008 – November 2009		December 2009 – November 2010	
Membership Category	**Number of Retirees**	**Terminal Pay***	**Number of Retirees**	**Terminal Pay***	**Number of Retirees**	**Terminal Pay***
General Tier 1	111	8.1%	105	8.4%	115	8.9%
General Tier 2	98	3.4%	87	3.1%	176	3.8%
Safety Tier 1	29	6.2%	25	9.4%	17	6.7%
Safety Tier 2	18	3.1%	29	5.1%	44	3.8%

* *The total of vacation and sick leave cashout expressed as a percent of final average compensation before such cashout.*

The current and recommended terminal pay assumptions for members who are expected to retire from service are as follows:

	Terminal Pay Assumptions for Service Retirement	
Member Category	**Current Assumptions**	**Recommended Assumptions**
General Tier 1	8.0%	8.0%
General Tier 2	3.0%	3.0%
General Tier 3	8.0%	8.0%
Safety Tier 1	9.5%	8.5%
Safety Tier 2	4.0%	4.0%
Safety Tier 2C	4.0%	4.0%
Safety Tier 2D	4.0%	4.0%

Our recommended assumptions are based on the average of the terminal pay observed for the 2007-2010 retirees.

We have also received data to analyze the terminal pay assumptions for disabled retirees. The results are as follows:

	Observed Terminal Pay Percentages	
	3-Year Period Combined	
Member Category	**Number of Retirees**	**Terminal Pay***
General Tier 1	3	6.4%
General Tier 2	23	0.6%
Safety Tier 1	7	0.6%
Safety Tier 2	10	1.3%

** The total of vacation and sick leave cashout expressed as a percent of final average compensation before such cashout.*

The current and recommended terminal pay assumptions for members who are expected to retire from disability are as follows:

	Terminal Pay Assumptions for Disability Retirement	
Member Category	**Current Assumptions**	**Recommended Assumptions**
General Tier 1	7.0%	6.5%
General Tier 2	2.8%	1.4%
General Tier 3	7.0%	6.5%
Safety Tier 1	8.5%	6.4%
Safety Tier 2	2.8%	2.1%
Safety Tier 2C	2.8%	2.1%
Safety Tier 2D	2.8%	2.1%

Based on the actual experience from the past 3-year period, we are recommending a slight decrease in the terminal pay assumption for General Tier 1. For General Tier 2, the actual incidences of disability retirement and cashouts of terminal pay over the 3-year period were quite small. Based on our discussion with ACERA's staff, we understand that General members would generally use up some of their vacation and sick leave while they work through the disability application process. As such, we are recommending that the current General Tier 2 assumption be reduced to 1.4%, or by 50%.

Based on our discussion with ACERA's staff, we understand that Safety members in the Sheriff's Department are eligible to utilize up to one year of credit available in a worker's compensation program while they work through the disability application process. Therefore, Safety members are less likely to use up as much vacation and sick leave before retirement. With that said, the actual percentage of terminal pay cashout was much lower than expected for Safety members over the current 3-year period. Based on the information about the worker's compensation program, we are recommending only a 25% decrease in the current terminal pay assumption for Safety Tier 1 and Tier 2 disabled members.

Note that since there is no terminal pay cashout experience for General Tier 3 disabled members over the most recent 3-year period, we recommend keeping this assumption the same as for General Tier 1. Similarly, we are recommending the same assumption for Safety Tiers 2C and 2D as recommended for Safety Tier 2.

I. OTHER ASSUMPTIONS

In prior valuations, it was assumed that 35% of future inactive General and 45% of future inactive Safety deferred vested participants would become members of a reciprocal system and receive 5.10% and 5.40% salary increases, respectively, from termination until their expected date of retirement. Based on the experience reported by the Association, 30% of General and 63% of Safety members went on to be covered by a reciprocal retirement system during the last three years. For this experience study, we recommend maintaining the current 35% reciprocity assumption for deferred vested General members. For Safety members, the actual reciprocity percentage increased significantly over the prior experience study period. We are recommending that the current 45% reciprocity assumption be increased to 55% for deferred vested Safety members.

Based on our recommended merit and longevity salary increase assumptions after 11 years of service of 0.60% and 0.70% for General and Safety, respectively, and based on the current across-the-board salary increase assumption of 4.00%, we propose that a 4.60% and 4.70% salary increase assumption be used to anticipate salary increases from termination to the expected date of retirement for General and Safety reciprocities, respectively.

In prior valuations, it was assumed that 75% of all active male members and 55% of all active female members would have an eligible survivor when they retired. According to the experience of members who retired recently, about 69% of all male members and 48% of all female members were married at retirement. We recommend changing this assumption to 70% for male members and 50% for female members.

Based on observed experience from members who retired during the last three years, we recommend that we continue to apply an 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.

The current assumption for converting sick leave into additional service credit at retirement is that for each year of employment, an employee will convert approximately 0.008 years of sick leave into additional service credit at retirement. We have observed that the

conversion of sick leave for new retirees over each of the last three years has been about 0.004 years for each year of employment. Based on this observed experience, we recommend that the sick leave conversion assumption be reduced from 0.008 to 0.006 years of additional service credit at retirement, for each year of employment.

APPENDIX A

CURRENT ACTUARIAL ASSUMPTIONS

Post-Retirement Mortality Rates

Healthy: For General Members and all Beneficiaries: RP-2000 Combined Healthy Mortality Table set back one year.

For Safety Members: RP-2000 Combined Healthy Mortality Table set back two years.

Disabled: For General Members: RP-2000 Combined Healthy Mortality Table set forward four years.

For Safety Members: RP-2000 Combined Healthy Mortality Table set forward three years.

Employee Contribution Rates: For General Members: RP-2000 Combined Healthy Mortality Table set back one year, weighted 30% male and 70% female.

For Safety Members: RP-2000 Combined Healthy Mortality Table set back two years, weighted 75% male and 25% female.

Termination Rates Before Retirement:

	Rate (%) Mortality			
	General		Safety	
Age	Male	Female	Male	Female
25	0.04	0.02	0.04	0.02
30	0.04	0.02	0.04	0.02
35	0.07	0.04	0.06	0.04
40	0.10	0.06	0.10	0.06
45	0.14	0.10	0.13	0.09
50	0.20	0.16	0.19	0.14
55	0.32	0.24	0.29	0.22
60	0.59	0.44	0.53	0.39
65	1.13	0.86	1.00	0.76

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

Termination Rates Before Retirement (continued):

	Rate (%)	
	Disability	
Age	General[(1)]	Safety[(2)]
20	0.00	0.00
25	0.01	0.00
30	0.07	0.24
35	0.16	0.46
40	0.26	0.62
45	0.36	0.94
50	0.49	1.34
55	0.67	1.68
60	0.84	0.72

(1) *80% of General disabilities are assumed to be service connected disabilities. The other 20% are assumed to be non-service connected disabilities.*

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

Termination Rates Before Retirement (continued):

Rate (%)

Termination (< 5 Years of Service)[1]

Years of Service	General	Safety
0	13.00	5.00
1	10.00	5.00
2	9.00	5.00
3	7.00	3.00
4	5.00	3.00

Termination (5+ Years of Service)[2]

Age	General	Safety
20	5.00	3.00
25	5.00	3.00
30	5.00	2.40
35	4.70	1.70
40	3.72	1.20
45	2.54	1.00
50	1.92	1.00
55	1.62	1.00
60	1.20	0.40

(1) *80% of all terminated members will choose a refund of contributions and 20% will choose a deferred vested benefit.*

(2) *30% of all terminated members will choose a refund of contributions and 70% will choose a deferred vested benefit. No termination is assumed after a member is eligible for retirement.*

Retirement Rates:

	Rate (%)					
Age	General Tier 1	General Tier 2	General Tier 3	Safety Tier 1[(1)]	Safety Tier 2, 2D[(1)]	Safety Tier 2C[(1)]
50	3.00	2.00	6.00	35.00	4.00	4.00
51	3.00	2.00	3.00	25.00	4.00	2.00
52	3.00	2.00	5.00	25.00	5.00	2.00
53	3.00	2.00	6.00	30.00	5.00	3.00
54	4.00	3.00	6.00	35.00	6.00	6.00
55	6.00	3.00	12.00	35.00	10.00	10.00
56	8.00	4.00	13.00	35.00	15.00	12.00
57	10.00	5.00	13.00	35.00	20.00	20.00
58	10.00	6.00	14.00	40.00	10.00	10.00
59	13.00	6.00	16.00	40.00	15.00	15.00
60	20.00	6.00	21.00	100.00	60.00	60.00
61	20.00	8.00	20.00	100.00	60.00	60.00
62	30.00	20.00	30.00	100.00	60.00	60.00
63	30.00	16.00	25.00	100.00	60.00	60.00
64	30.00	20.00	25.00	100.00	100.00	100.00
65	35.00	25.00	30.00	100.00	100.00	100.00
66	30.00	20.00	25.00	100.00	100.00	100.00
67	25.00	20.00	25.00	100.00	100.00	100.00
68	20.00	30.00	25.00	100.00	100.00	100.00
69	45.00	40.00	50.00	100.00	100.00	100.00
70	100.00	100.00	100.00	100.00	100.00	100.00

(1) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Retirement Age and Benefit for Deferred Vested Members:	For deferred vested members, retirement age assumptions are as follows: General Age: 58 Safety Age: 55 For future deferred vested members who terminate with less than five years of service and are not vested, we assume that they will retire at age 70 for both General and Safety if they decide to leave their contributions on deposit. We assume that 35% of future General and 45% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocals, we assume 5.10% and 5.40% compensation increases per annum for General and Safety, respectively.
Future Benefit Accruals:	1.0 year of service per year of employment plus 0.008 year of additional service to anticipate conversion of unused sick leave for each 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:	75% of male members; 55% of female members.
Age of Spouse:	Female (or male) spouses are 3 years younger (or older) than their spouses.
Net Investment Return:	7.90%, net of administration and investment expenses (approximately 1% of assets).
Employee Contribution Crediting Rate:	7.90%, compounded semi-annually.
Consumer Price Index:	Increase of 3.50% per year, retiree COLA increases due to CPI subject to a 3% maximum change per year for General Tier 1, General Tier 3, and Safety Tier 1, and 2% maximum change per year for General Tier 2, Safety Tier 2, Safety Tier 2C, and Safety Tier 2D.

Salary Increases:

Annual Rate of Compensation Increase (%)

Inflation: 3.50%; an additional 0.50% "across the board" salary increases (other than inflation); plus the following Merit and Promotional increases based on age.

Age	General	Safety
25	4.00%	5.10%
30	3.00	3.50
35	2.40	2.20
40	1.80	1.50
45	1.50	1.50
50	1.10	1.40
55	1.00	1.30
60	0.80	0.00
65	0.70	0.00

Terminal Pay Assumptions:

Additional pay elements are expected to be received during a member's final average earnings period. The percentages (added to the final year salary) used in this valuation are:

	Service Retirement	Disability Retirement
General Tier 1	8.0%	7.0%
General Tier 2	3.0%	2.8%
General Tier 3	8.0%	7.0%
Safety Tier 1	9.5%	8.5%
Safety Tier 2	4.0%	2.8%
Safety Tier 2C	4.0%	2.8%
Safety Tier 2D	4.0%	2.8%

APPENDIX B

PROPOSED ACTUARIAL ASSUMPTIONS

Post-Retirement Mortality Rates

Healthy: For General Members and all Beneficiaries: RP-2000 Combined Healthy Mortality Table set back two years for males and one year for females.

For Safety Members: RP-2000 Combined Healthy Mortality Table set back two years for males and one year for females.

Disabled: For General Members: RP-2000 Combined Healthy Mortality Table set forward four years.

For Safety Members: RP-2000 Combined Healthy Mortality Table set forward two years.

Employee Contribution Rates: For General Members: RP-2000 Combined Healthy Mortality Table set back two years for males and one year for females, weighted 30% male and 70% female.

For Safety Members: RP-2000 Combined Healthy Mortality Table set back two years for males and one year for females, weighted 75% male and 25% female.

Termination Rates before Retirement:

	Rate (%) Mortality			
	General		Safety	
Age	Male	Female	Male	Female
25	0.04	0.02	0.04	0.02
30	0.04	0.02	0.04	0.02
35	0.06	0.04	0.06	0.04
40	0.10	0.06	0.10	0.06
45	0.13	0.10	0.13	0.10
50	0.19	0.16	0.19	0.16
55	0.29	0.24	0.29	0.24
60	0.53	0.44	0.53	0.44
65	1.00	0.86	1.00	0.86

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

Termination Rates before Retirement (continued):

	Rate (%)	
	Disability	
Age	General[(1)]	Safety[(2)]
20	0.00	0.00
25	0.01	0.00
30	0.03	0.24
35	0.08	0.46
40	0.16	0.50
45	0.23	0.50
50	0.34	1.10
55	0.46	1.92
60	0.59	2.20

(1) *70% of General disabilities are assumed to be service connected disabilities. The other 30% are assumed to be non-service connected disabilities.*

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

Termination Rates Before Retirement (continued):

Rate (%)

Termination (< 5 Years of Service)[1]

Years of Service	General	Safety
0	13.00	5.00
1	9.00	3.00
2	8.00	3.00
3	6.00	2.00
4	5.00	2.00

Termination (5+ Years of Service)[2]

Age	General	Safety
20	5.00	2.00
25	5.00	2.00
30	5.00	2.00
35	4.70	1.40
40	3.72	1.00
45	2.54	1.00
50	2.04	1.00
55	2.00	1.00
60	2.00	0.40

(1) *70% of all terminated members will choose a refund of contributions and 30% will choose a deferred vested benefit.*

(2) *40% of all terminated members will choose a refund of contributions and 60% will choose a deferred vested benefit. No termination is assumed after a member is eligible for retirement.*

Retirement Rates:

	Rate (%)					
Age	General Tier 1	General Tier 2	General Tier 3	Safety Tier 1[(1)]	Safety Tier 2, 2D[(1)]	Safety Tier 2C[(1)]
50	3.00	2.00	6.00	35.00	10.00	4.00
51	3.00	2.00	3.00	25.00	10.00	2.00
52	3.00	2.00	5.00	25.00	10.00	2.00
53	3.00	2.00	6.00	35.00	10.00	3.00
54	3.00	2.00	6.00	40.00	10.00	6.00
55	6.00	3.00	12.00	40.00	10.00	10.00
56	8.00	3.00	13.00	40.00	15.00	12.00
57	10.00	4.00	13.00	40.00	20.00	20.00
58	10.00	5.00	14.00	40.00	20.00	10.00
59	13.00	5.00	16.00	40.00	20.00	15.00
60	20.00	5.00	21.00	100.00	40.00	60.00
61	20.00	8.00	20.00	100.00	40.00	60.00
62	35.00	20.00	30.00	100.00	40.00	60.00
63	30.00	16.00	25.00	100.00	40.00	60.00
64	30.00	18.00	25.00	100.00	100.00	100.00
65	35.00	22.00	30.00	100.00	100.00	100.00
66	30.00	20.00	25.00	100.00	100.00	100.00
67	25.00	20.00	25.00	100.00	100.00	100.00
68	20.00	30.00	25.00	100.00	100.00	100.00
69	40.00	35.00	50.00	100.00	100.00	100.00
70	100.00	100.00	100.00	100.00	100.00	100.00

(1) *Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.*

Retirement Age and Benefit for Deferred Vested Members:	For deferred vested members, retirement age assumptions are as follows: General Age: 59 Safety Age: 56 For future deferred vested members who terminate with less than five years of service and are not vested, we assume that they will retire at age 70 for both General and Safety if they decide to leave their contributions on deposit. We assume that 35% of future General and 55% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocals, we assume 4.60% and 4.70% compensation increases per annum for General and Safety, respectively.
Future Benefit Accruals:	1.0 year of service per year of employment plus 0.006 year of additional service to anticipate conversion of unused sick leave for each 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:	70% of male members; 50% of female members.
Age of Spouse:	Female (or male) spouses are 3 years younger (or older) than their spouses.
Net Investment Return:	7.80%, net of administration and investment expenses (approximately 1% of assets).
Employee Contribution Crediting Rate:	7.80%, compounded semi-annually.
Consumer Price Index:	Increase of 3.50% per year, retiree COLA increases due to CPI subject to a 3% maximum change per year for General Tier 1, General Tier 3, and Safety Tier 1, and 2% maximum change per year for General Tier 2, Safety Tier 2, Safety Tier 2C, and Safety Tier 2D.

Salary Increases:

Annual Rate of Compensation Increase (%)

Inflation: 3.50%; an additional 0.50% "across the board" salary increases (other than inflation); plus the following Merit and Promotional increases based on service.

Service	General	Safety
0-1	3.20%	6.20%
1-2	3.20	6.20
2-3	2.90	5.40
3-4	2.10	3.60
4-5	2.00	3.00
5-6	1.70	2.70
6-7	1.50	1.60
7-8	1.40	1.10
8-9	1.00	1.00
9-10	1.00	1.00
10-11	0.90	1.00
11+	0.60	0.70

Terminal Pay Assumptions: Additional pay elements are expected to be received during a member's final average earnings period. The percentages (added to the final year salary) used in this valuation are:

	Service Retirement	Disability Retirement
General Tier 1	8.0%	6.5%
General Tier 2	3.0%	1.4%
General Tier 3	8.0%	6.5%
Safety Tier 1	8.5%	6.4%
Safety Tier 2	4.0%	2.1%
Safety Tier 2C	4.0%	2.1%
Safety Tier 2D	4.0%	2.1%