

**Orange County Employees  
Retirement System**

**ACTUARIAL EXPERIENCE STUDY**

**Analysis of Actuarial Experience  
During the Period  
January 1, 2005 through December 31, 2007**

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May 13, 2008

Board of Retirement  
Orange County Employees Retirement System  
2223 Wellington Avenue  
Santa Ana, California 92701

**Re: Review of Non-economic Actuarial Assumptions  
for the December 31, 2007 Actuarial Valuation**

Dear Members of the Board:

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

Please note that we have also reviewed the economic assumptions. The economic actuarial assumption recommendations for the December 31, 2007 valuation are provided in a separate report.

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

Sincerely,

Handwritten signature of Paul Angelo in black ink.

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

Handwritten signature of Andy Yeung in blue ink.

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

We are recommending changes in the assumptions for retirement from active employment, deferred vested retirement age, pre-retirement mortality, healthy life mortality, disabled life mortality, turnover (vested and withdrawal of contributions), disability (non-service connected and service connected) and salary increases.

In some cases we have worked to expand on the current structure of the assumptions to reflect the difference in behavior observed for different groups. For example, in the last experience study, we only had one set of service retirement rates for all General members, because the benefit formulas were generally uniform for all General members through the date of the last triennial experience study as of December 31, 2004.

However, as a result of the benefit improvements adopted by some General employers, service retirements occurred earlier following the benefit improvements, and so we are recommending different retirement rates for those General employers with the improved formula.

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 based on experience: For Probation members, we recommend a decrease in the rates to anticipate later retirements. We recommend separating retirement rates for General members into those who received a benefit improvement and those who did not receive a benefit improvement. For General members who received a benefit improvement, we recommend an increase in the rates to anticipate earlier retirement. We recommend no change in the rates for General members who did not receive a benefit improvement. We also recommend a separate set of rates for Safety Law members and Safety Fire members to reflect earlier retirements for Law members and later retirements for Fire members.*

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

*Recommendation based on experience: For General healthy retirees, we recommend changing the assumption from the 1994 Group Annuity Mortality Tables set forward one year to the RP-2000 Combined Healthy Mortality Tables set back one year. For Safety healthy retirees, we recommend changing the assumption from the 1994 Group Annuity Mortality Tables set forward one year to the RP-2000 Combined Healthy Mortality Tables set back two years. The pre-retirement mortality assumption is set consistent with the table used for post-service retirement mortality. All pre-retirement deaths are assumed to be ordinary (non-duty). For General disabled retirees, we recommend changing*

*the assumption from the 1994 Group Annuity Mortality Tables set forward five years to the RP-2000 Combined Healthy Mortality Tables set forward three years. For Safety disabled retirees, we recommend changing the assumption from the 1994 Group Annuity Mortality Tables set forward five years to the RP-2000 Combined Healthy Mortality Tables set forward two years. These changes for healthy and disabled retirees 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 based on experience: The current termination rates have been increased in most cases. For members with less than five years of service, the assumption is changed to anticipate only 75% of the members would withdraw and receive a refund (current assumption is 100%). For members with five or more years of service under the recommended assumptions, a higher proportion (increased from 15% to 20% for all except Safety Law and Fire where the assumption is decreased from 15% to 10%) is expected to withdraw and elect a refund of member contributions instead of a deferred vested benefit.*

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

*Recommendation based on experience: The rates have been modified slightly for Safety Law and Fire members. There is a decrease in the expected number of disabilities among General OCTA members and General All Other members.*

**Individual Salary Increases** - Increases in the salary of a member between the date of entry into the System to the date of separation from active membership.

*Recommendation based on experience: We recommend changing the merit and promotion salary increase assumption from age based to service based. These new merit and promotion rates generally predict higher salary increases, to reflect recent years' experience.*

**Annual Payoffs** – Additional earnings that are expected to be received during a member's final average earnings period.

*Recommendation: With the exception of Safety Law, the annual payoffs assumptions have been increased to reflect recent years' experience.*

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

## II. BACKGROUND AND METHODOLOGY

In this report, we analyzed the “demographic” or “non-economic” assumptions only. Our analysis of the “economic” assumptions for the December 31, 2007 valuation is provided in a separate report. Demographic assumptions include the probabilities of certain events occurring in the population of members, referred to as “decrements,” e.g., withdrawal from service, disability retirement, service retirement, and death after retirement. We also review the individual salary increases net of inflation (i.e., the merit and 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  $50 \div 500$  or 10%.

The reliability of the resulting probability is highly dependent on both the number of decrements and the number of exposures. For example, if there are only a few people in a high age category at the beginning of the year (number of exposures), we would not lend as much credence to the probability of 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 on an annual basis. The detail is provided in a separate report titled "Review of Economic Actuarial Assumptions for the December 31, 2007 Actuarial Valuation."

#### **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.

The Plan's current retirement rates are separated into 1) General, 2) Safety Law Enforcement and Safety Fire and 3) Safety Probation.

For certain General members, the 2.7% at 55 benefit enhancement became effective July 2005. For the purpose of estimating the cost of the 2.7% at 55 improvement, the System's prior actuary followed the practice of applying the same retirement age probabilities under the pre-enhanced formula to project retirement age under the enhanced formula. It is our understanding that any new retirement age probabilities reflecting experience under the enhanced formula would be based on actual data as members retired under the enhanced formula.

In the last triennial experience analysis (as of December 31, 2004), we only introduced some slight changes to the retirement probabilities to reflect earlier retirements exhibited by the General members during January 1, 2002 to December 31, 2004 under the pre-enhanced formula as actual retirement experience under the enhanced formula was not available until this experience study.

In this experience study, we would expect a temporary increase in the number of retirements immediately after a new benefit formula has been received due to some members postponing retirement until the higher benefits under the enhanced formula become available.

The following table provides a comparison of the actual number of service retirements among those General employers who adopted an improved benefit (including 2.7% at 55) with those expected under the current assumptions.

<b>Year</b>	<b>Actual Retirements</b>	<b>Expected Retirements Under Current Assumptions</b>
2007	383	358
2006	537	382
2005	654	401

As the number of actual retirements was much higher immediately after the improvements and the number appeared to stabilize in 2007, we recommend setting the retirement rates for those General members receiving a benefit improvement using only the experience from 2007.

The retirement experience from the last three years has been used in setting the retirement rates for all the other groups.

For Safety members, we recommend separating the retirement rates between Safety Law members and Safety Fire members since Safety Law members tend to retire at younger ages than the Safety Fire members.

This results in recommended retirement rates separated into 1) General Enhanced, 2) General Non-Enhanced, 3) Safety Law Enforcement 4) Safety Fire and 5) Safety Probation. The service retirement experience for active participants over the past three years (from January 1, 2005 to December 31, 2007) along with our recommendations are provided on the following pages.

The following rates are the observed rate based on the actual experience:

**Actual Rate of Retirement (From January 1, 2005 to December 31, 2007)**

Age	Rate (%)				
	General – Enhanced*	General – Non-Enhanced	Safety - Law Enforcement	Safety - Fire	Safety – Probation
50	3.77%	3.55%	21.05%	8.74%	2.70%
51	2.17	0.65	8.93	8.89	3.33
52	3.34	2.75	12.15	7.79	3.13
53	2.10	4.91	20.69	9.09	3.45
54	5.18	2.96	20.59	12.00	0.00
55	13.49	5.49	21.28	27.69	24.24
56	9.60	4.68	13.64	25.53	10.71
57	9.82	7.19	14.29	25.00	15.63
58	17.24	10.26	18.18	36.17	7.41
59	14.56	3.88	18.18	28.57	34.62
60	12.87	10.26	16.67	22.22	27.27
61	19.85	11.96	33.33	0.00	42.86
62	18.18	27.47	0.00	50.00	75.00
63	18.10	10.81	33.33	40.00	100.00
64	22.86	15.94	100.00	100.00	-
65	23.08	28.89	-	-	-
66	29.82	12.12	-	-	-
67	28.57	25.93	-	-	-
68	17.95	19.23	-	-	-
69	40.00	31.25	-	-	-
70	21.93	13.56	-	-	-

\* From January 1, 2007 to December 31, 2007 for General Enhanced.

The following rates of retirement are currently assumed for OCERS members currently actively working:

Age	Current Retirement Probability		
	General (Enhanced and Non-Enhanced)	Safety – Law & Fire <sup>(1)</sup>	Safety – Probation <sup>(1)</sup>
50	3.0%	10.0%	4.0%
51	3.0	15.0	6.0
52	3.0	20.0	8.0
53	3.0	20.0	10.0
54	3.0	20.0	15.0
55	4.0	25.0	20.0
56	5.0	25.0	25.0
57	6.0	30.0	25.0
58	7.0	30.0	30.0
59	9.0	40.0	30.0
60	11.0	100.00	40.0
61	13.0	100.00	50.0
62	15.0	100.00	60.0
63	17.0	100.00	100.00
64	19.0	100.00	100.00
65	25.0	100.00	100.00
66	20.0	100.00	100.00
67	20.0	100.00	100.00
68	20.0	100.00	100.00
69	20.0	100.00	100.00
70	100.00	100.00	100.00

<sup>(1)</sup> Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.

The following rates of retirement are what we recommend to the Board.

Age	Proposed Retirement Probability				
	Rate (%)				
	General - Enhanced	General – Non-Enhanced	Safety - Law Enforcement <sup>(1)</sup>	Safety – Fire <sup>(1)</sup>	Safety – Probation <sup>(1)</sup>
50	3.00%	3.00%	15.00%	10.00%	4.00%
51	3.00	3.00	15.00	12.00	4.00
52	3.00	3.00	15.00	14.00	4.00
53	3.00	3.00	20.00	15.00	7.00
54	4.00	3.00	20.00	17.00	10.00
55	8.00	4.00	20.00	25.00	20.00
56	10.00	5.00	20.00	25.00	20.00
57	12.00	6.00	20.00	30.00	20.00
58	13.00	7.00	25.00	30.00	25.00
59	14.00	9.00	30.00	40.00	30.00
60	15.00	11.00	100.00	100.00	35.00
61	16.00	13.00	100.00	100.00	45.00
62	17.00	15.00	100.00	100.00	60.00
63	18.00	17.00	100.00	100.00	100.00
64	20.00	19.00	100.00	100.00	100.00
65	25.00	25.00	100.00	100.00	100.00
66	25.00	20.00	100.00	100.00	100.00
67	25.00	20.00	100.00	100.00	100.00
68	25.00	20.00	100.00	100.00	100.00
69	25.00	20.00	100.00	100.00	100.00
70	100.00	100.00	100.00	100.00	100.00

<sup>(1)</sup> 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 - Enhanced members. Chart 2 has the same data for General – Non-Enhanced members. Chart 3 has the same data for Safety Law Enforcement members. Chart 4 has the same data for Safety Fire members. Chart 5 has the same data for Safety Probation.

### *Deferred Vested Members*

In prior valuations, deferred vested General and Safety members were assumed to retire at age 57 and 53, respectively. The average age at retirement over the prior three years was 57 for General and 52 for Safety. We recommend leaving the General assumption at age 57 and modifying the assumed retirement age for Safety to age 52.

Please note that for members who terminate with less than five years of service after January 1, 2003 and are not vested, we assume they would retire at age 70 for both General and Safety if they decide to leave their contributions on deposit as permitted by §31629.5.

### *Reciprocity*

As a result of the last experience study, the System has followed our recommendation to start maintaining data on the proportion of deferred vested participants who go on to work for a reciprocal system. Based on the data, we observed about 20% of members go on to work for a reciprocal system, compared to the current assumption of 40%. The 40% assumption we recommended at the last experience study was based on the low end of the reciprocal assumption that Segal observed for our other 1937 Act clients. Based on OCERS' actual experience, we recommend decreasing the reciprocity assumption from 40% to 30%. Based on our ultimate 1.00% recommended merit and promotion salary increase assumption, we propose that a 4.75% (i.e., 3.50% inflation plus 0.25% "across the board" plus 1.00% merit and promotion) salary increase assumption be utilized to anticipate salary increases (under the reciprocal system) between termination and the expected date of retirement.

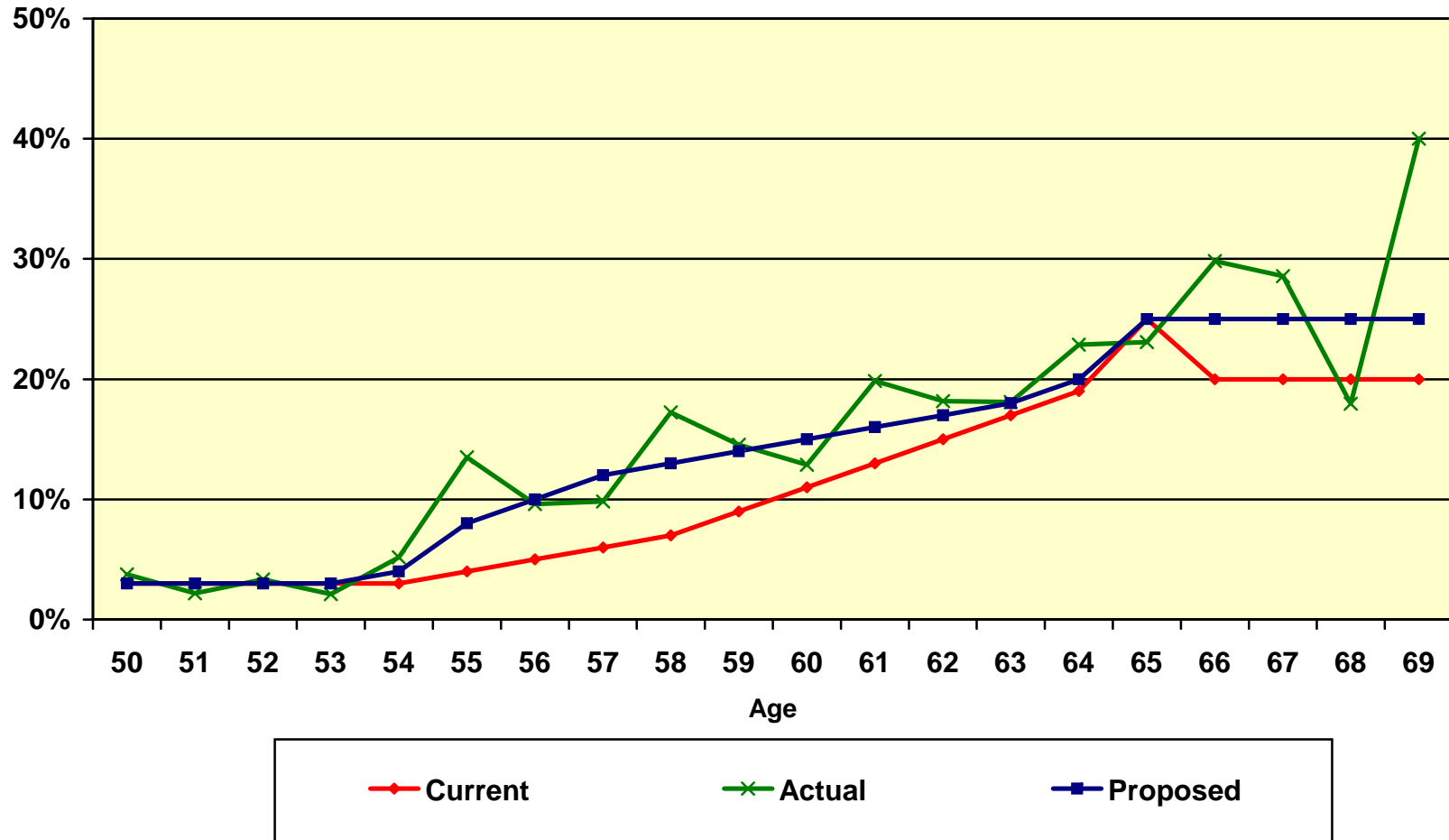
### *Survivor Continuance Under Unmodified Option*

In prior valuations, it was assumed that 80% of all active male members and 50% of all active female members would have an eligible survivor when they retired. According to the experience of members who retired recently, about 79% of all male members and 53% of all female members were married at retirement. We recommend no change to the current 80% and 50% male members' and female members' marriage assumptions.

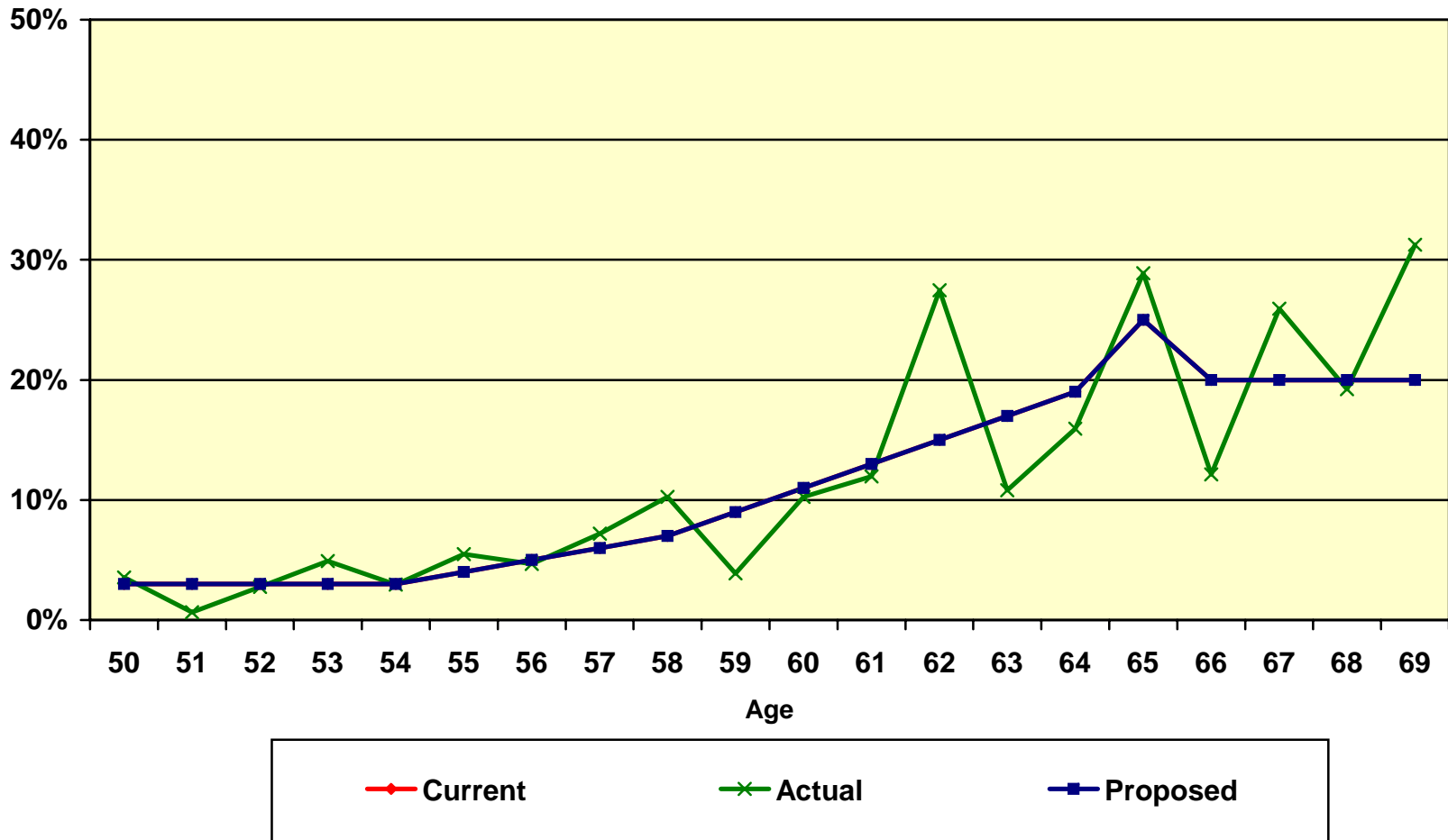
Based on observed experience from members who retired during the last three years, we also recommend that we continue to apply an assumption that when active members retire, female spouses are assumed to be four years younger than their male spouses. Spouses will be assumed to be of the opposite sex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

# Chart 1

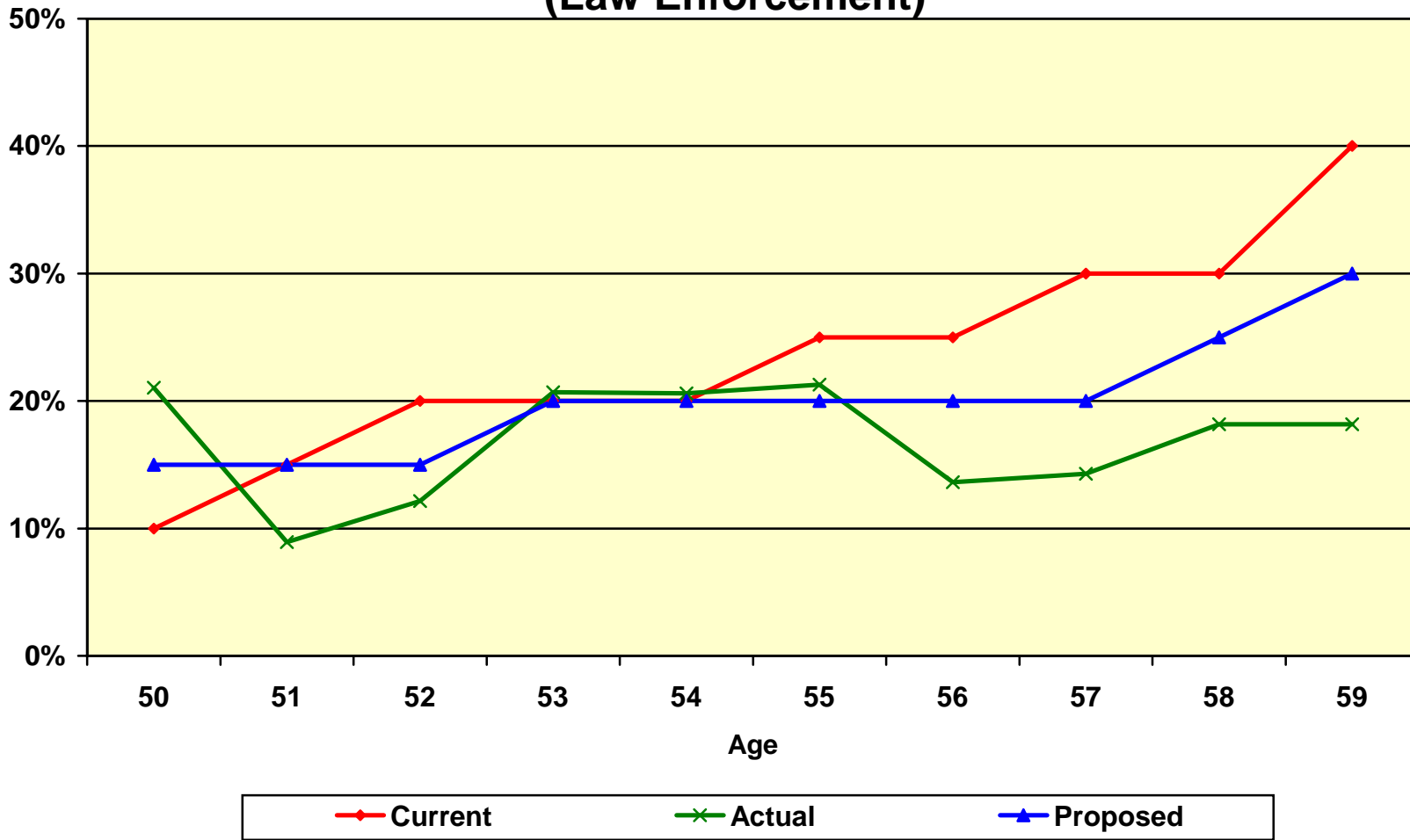
## Retirement Rates - General Enhanced



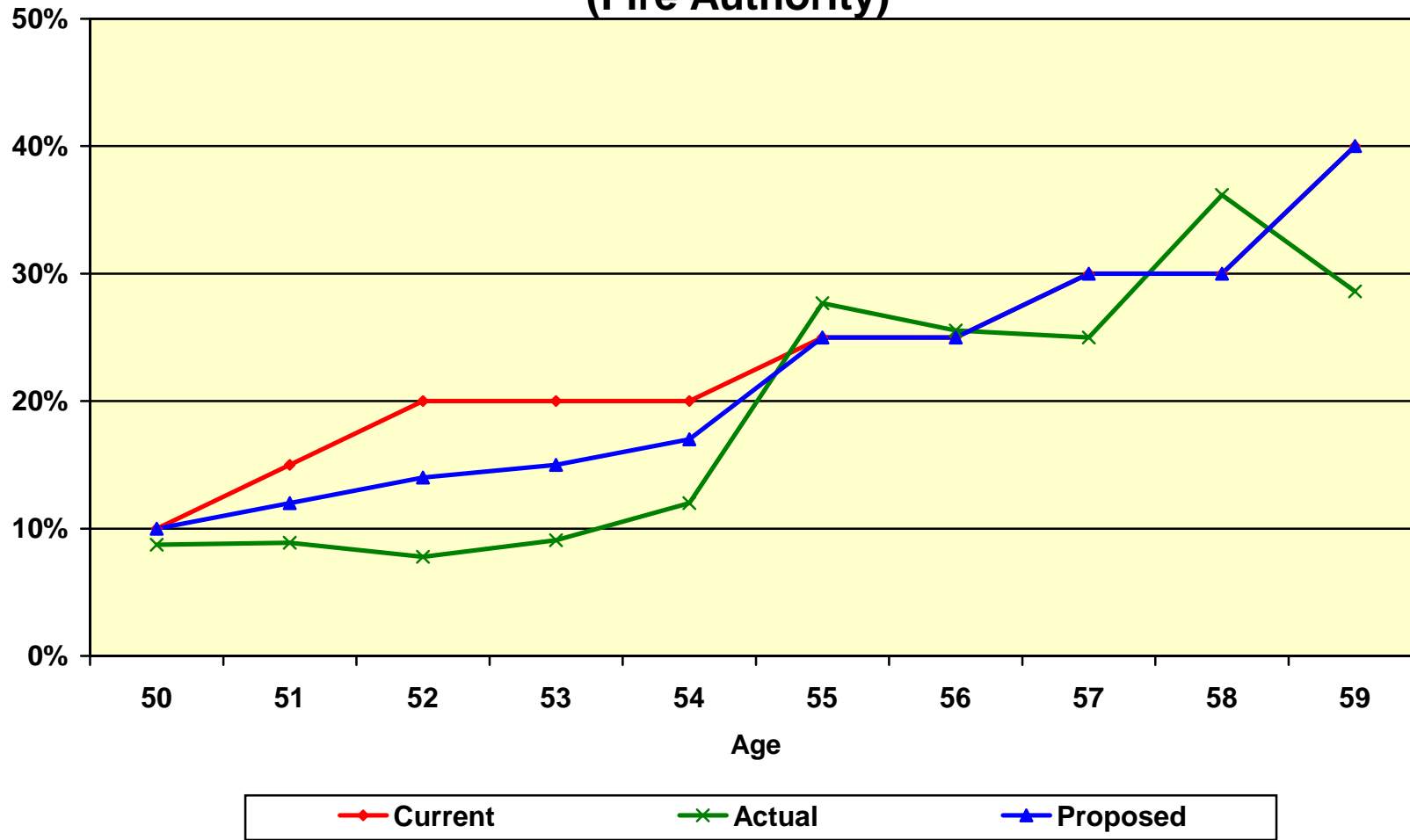
**Chart 2**  
**Retirement Rates - General Non-Enhanced**



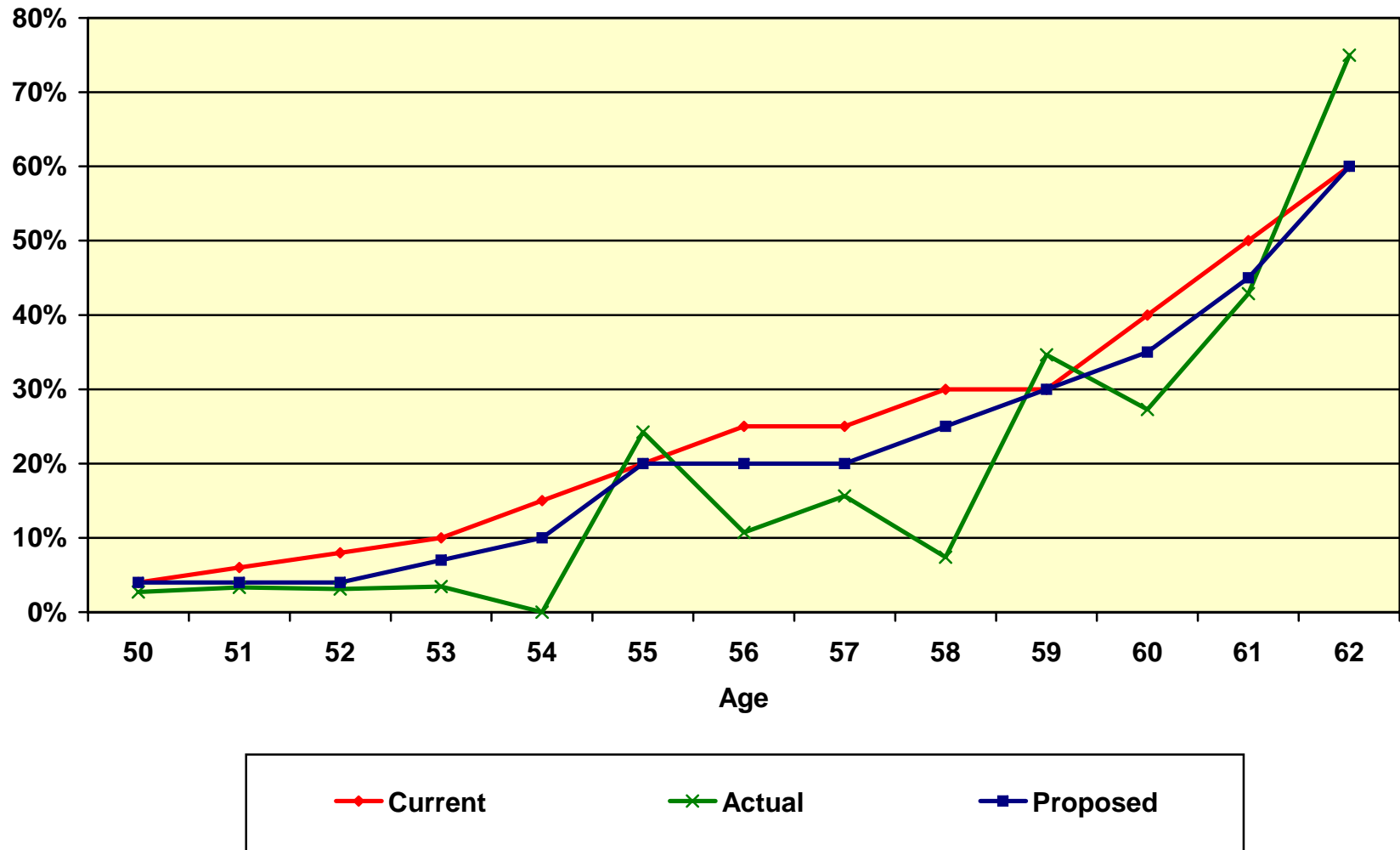
**Chart 3**  
**Retirement Rates - Safety Members**  
**(Law Enforcement)**



**Chart 4**  
**Retirement Rates - Safety Members**  
**(Fire Authority)**



**Chart 5**  
**Retirement Rates - Safety Members**  
**(Probation Officers)**



**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 1994 Group Annuity Mortality Male and Female Tables set forward one year.

The tables that we would recommend for the General members and all beneficiaries are the RP-2000 Combined Healthy Mortality Tables for Males and Females set back one year. For Safety members, we recommend the RP-2000 Combined Healthy Mortality Tables for Males and Females set back two years.

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 ordinary (non-duty).

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:

Year Ending 12/31	General – Healthy			Safety – Healthy		
	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths
2005	185	190	165	13	9	10
2006	200	166	178	14	10	10
2007	214	194	191	16	12	11
Total	599	550	534	43	31	31
Actual / Expected	92%		103%	72%		100%

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.

Recent experience shows that there were fewer deaths than predicted by the current table. The total number of deaths among General and Safety members from the last nine years were: (1) 581 in 2005-2007, (2) 632 in 2002-2004 and (3) 409 in 1999-2001. The average actual deaths over a three-year period was 541. The expected deaths under our recommended assumptions was 565. The difference in proposed expected experience versus actual would provide some margin for future improvements in life expectancy only if future experience were to be closer to the experience from the most recent three-year period (2005-2007) than to the full nine-year period. We will continue to monitor this experience for the Board.

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

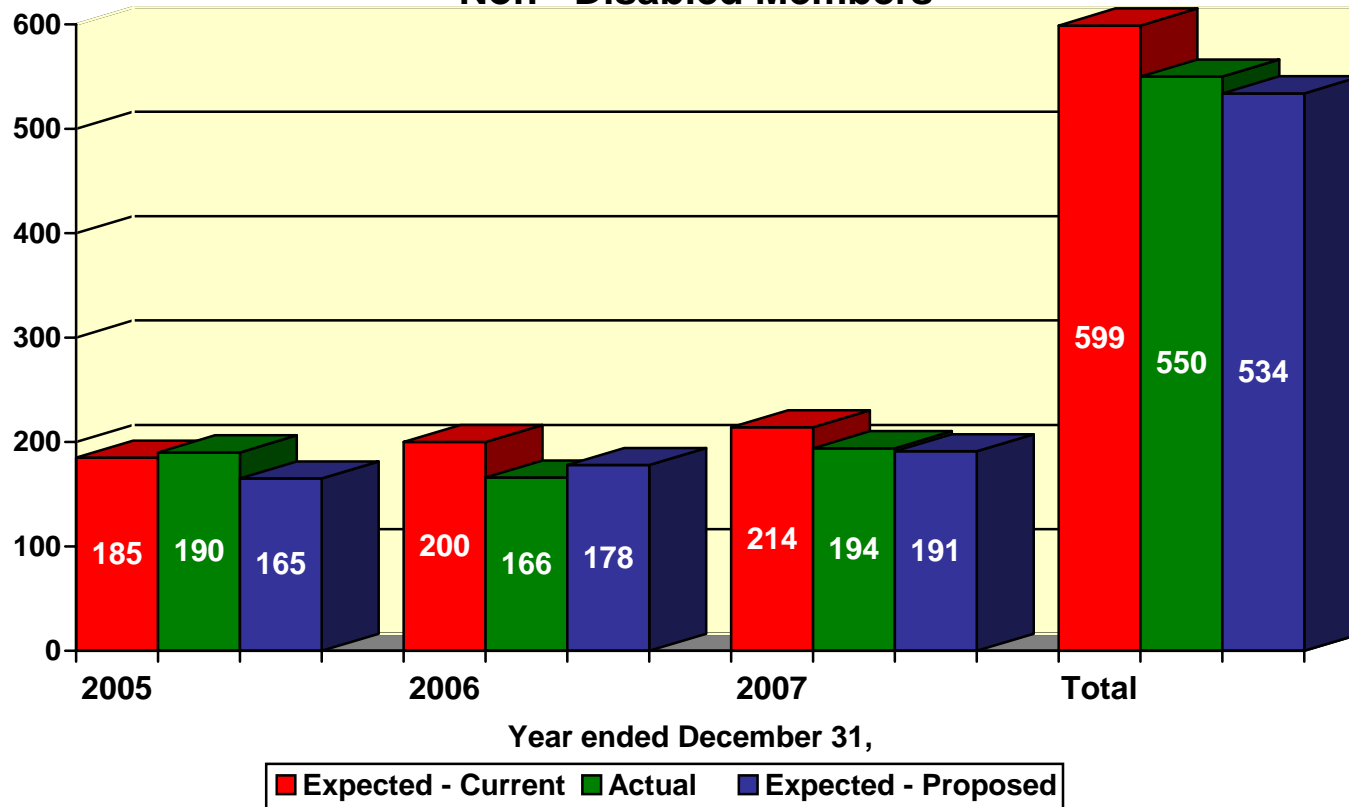
Chart 9 has the same information for Safety members.

#### Mortality Table for Member Contributions

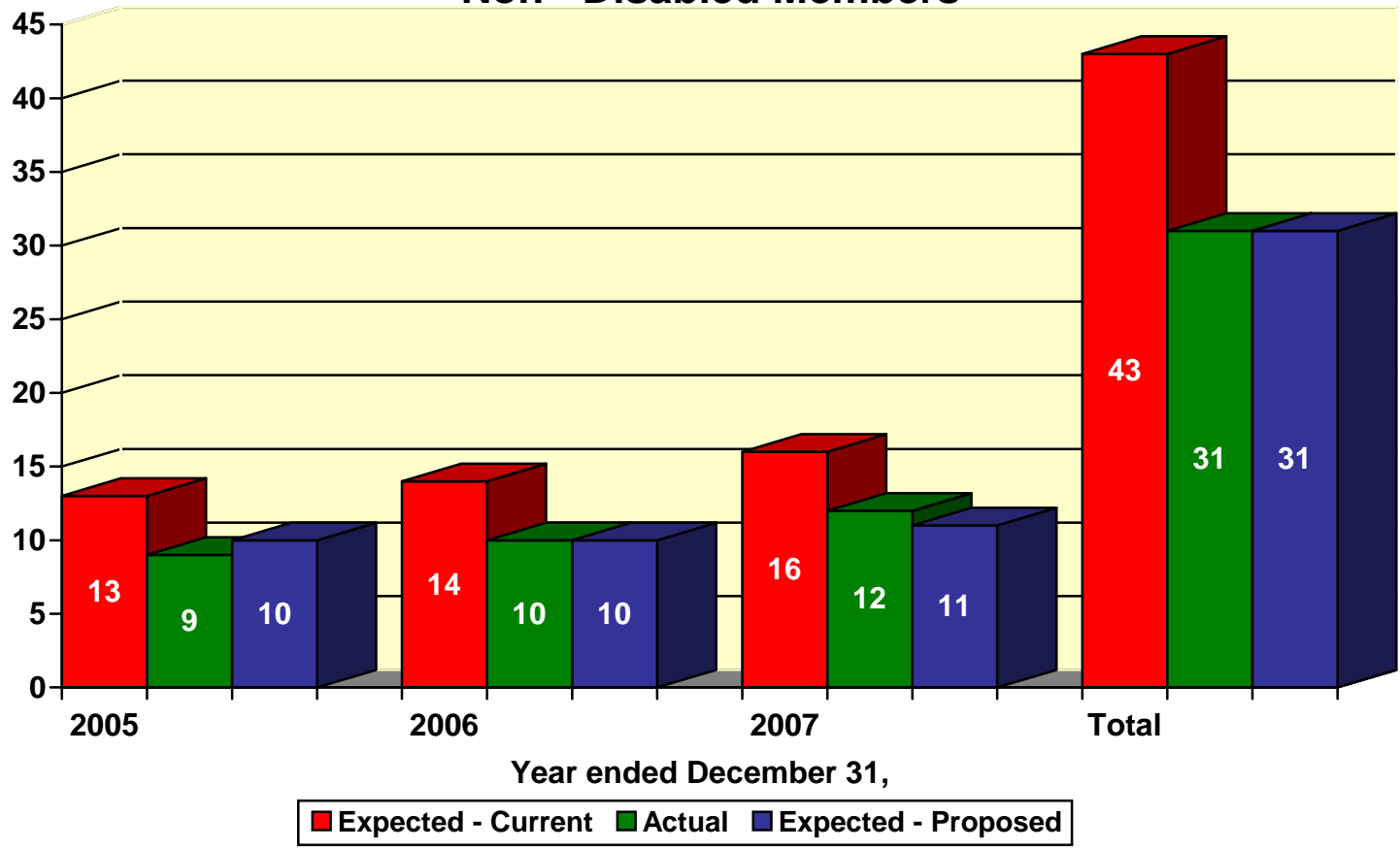
We recommend that the mortality table used for determining contributions for General members be changed from the 1994 Group Annuity Mortality Table set forward one year weighted 40% male and 60% female to the RP-2000 Combined Healthy Mortality Table set back one year weighted 40% male and 60% female. 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 1994 Group Annuity Mortality Table set forward one year weighted 80% male and 20% female to the RP-2000 Combined Healthy Mortality Table set back two years weighted 80% male and 20% female. This is based on the proposed mortality table for Safety members and the actual sex distribution for the current Safety members.

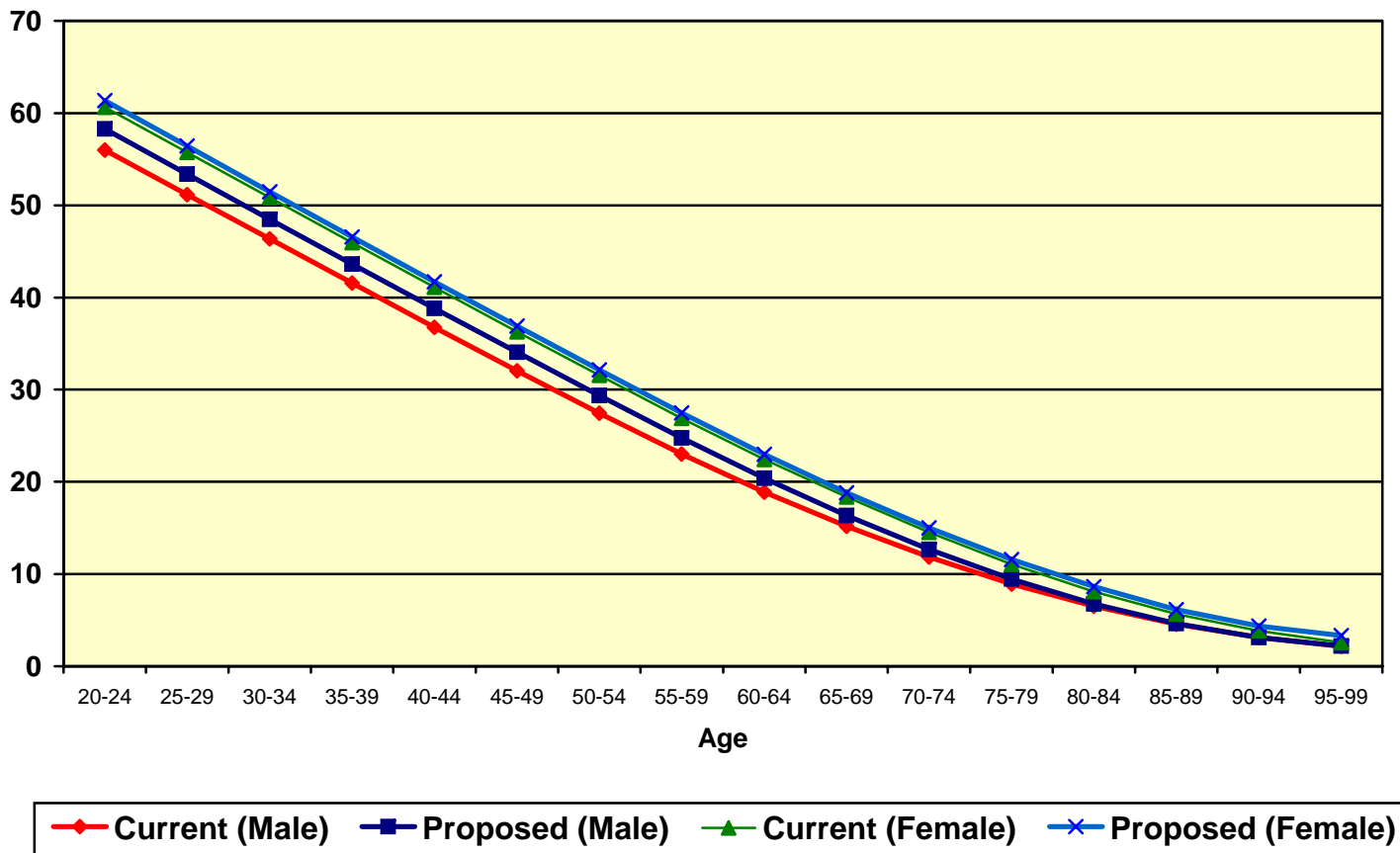
**Chart 6**  
**Post - Retirement Deaths (General)**  
**Non - Disabled Members**



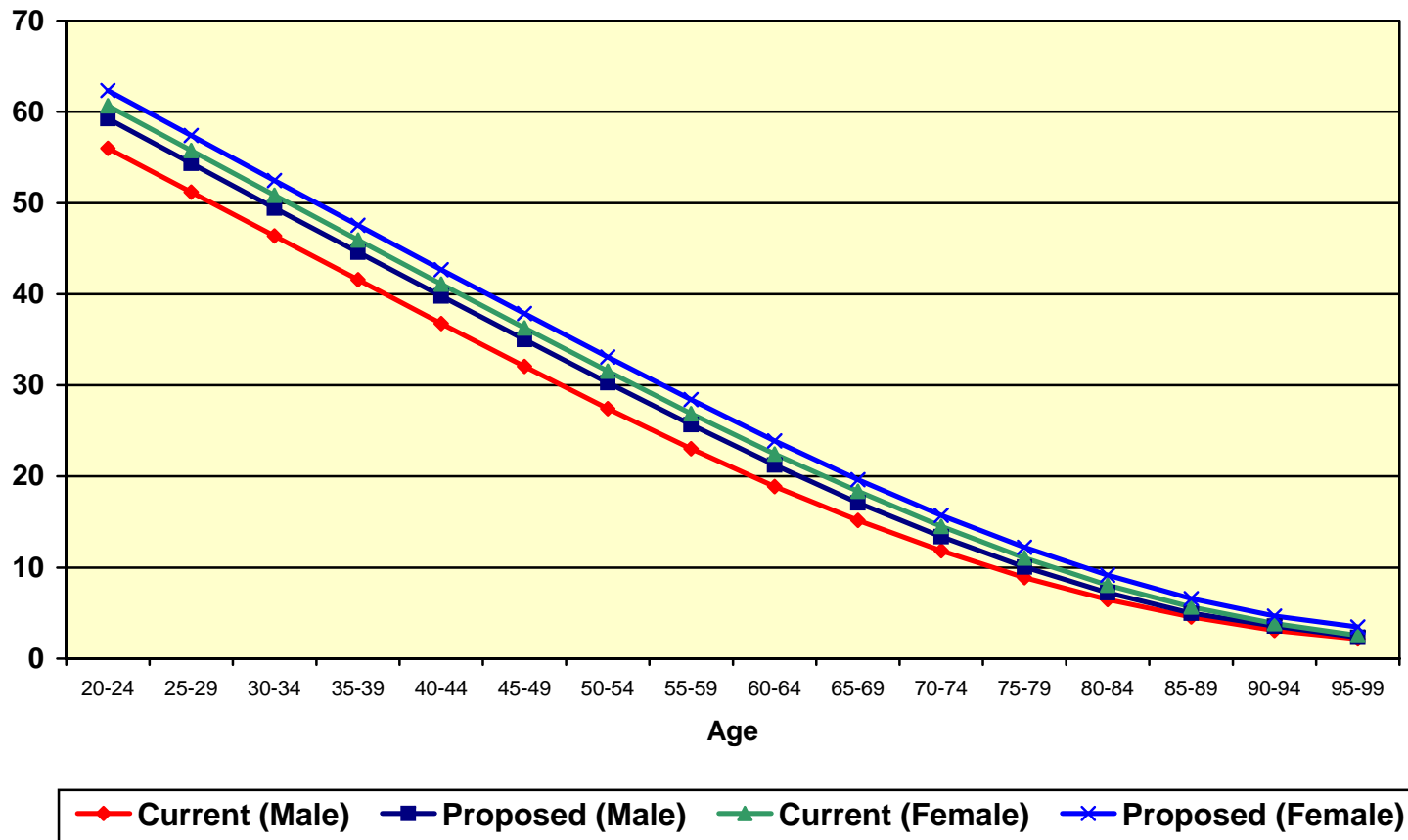
**Chart 7**  
**Post - Retirement Deaths (Safety)**  
**Non - Disabled Members**



### Chart 8 Life Expectancies (General)



**Chart 9**  
**Life Expectancies (Safety)**



#### D. MORTALITY RATES - DISABLED

Since death rates for disabled members are typically higher than for healthy members, a different mortality assumption is used. The tables currently being used for both General and Safety members are the 1994 Group Annuity Mortality Tables for males and females set forward five years.

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

Ending 12/31	General – Disability			Safety – Disability		
	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths
2005	20	12	18	5	3	4
2006	22	24	20	5	2	4
2007	23	28	21	6	3	4
Total	65	64	59	16	8	12
Actual / Expected	98%		108%	50%		67%

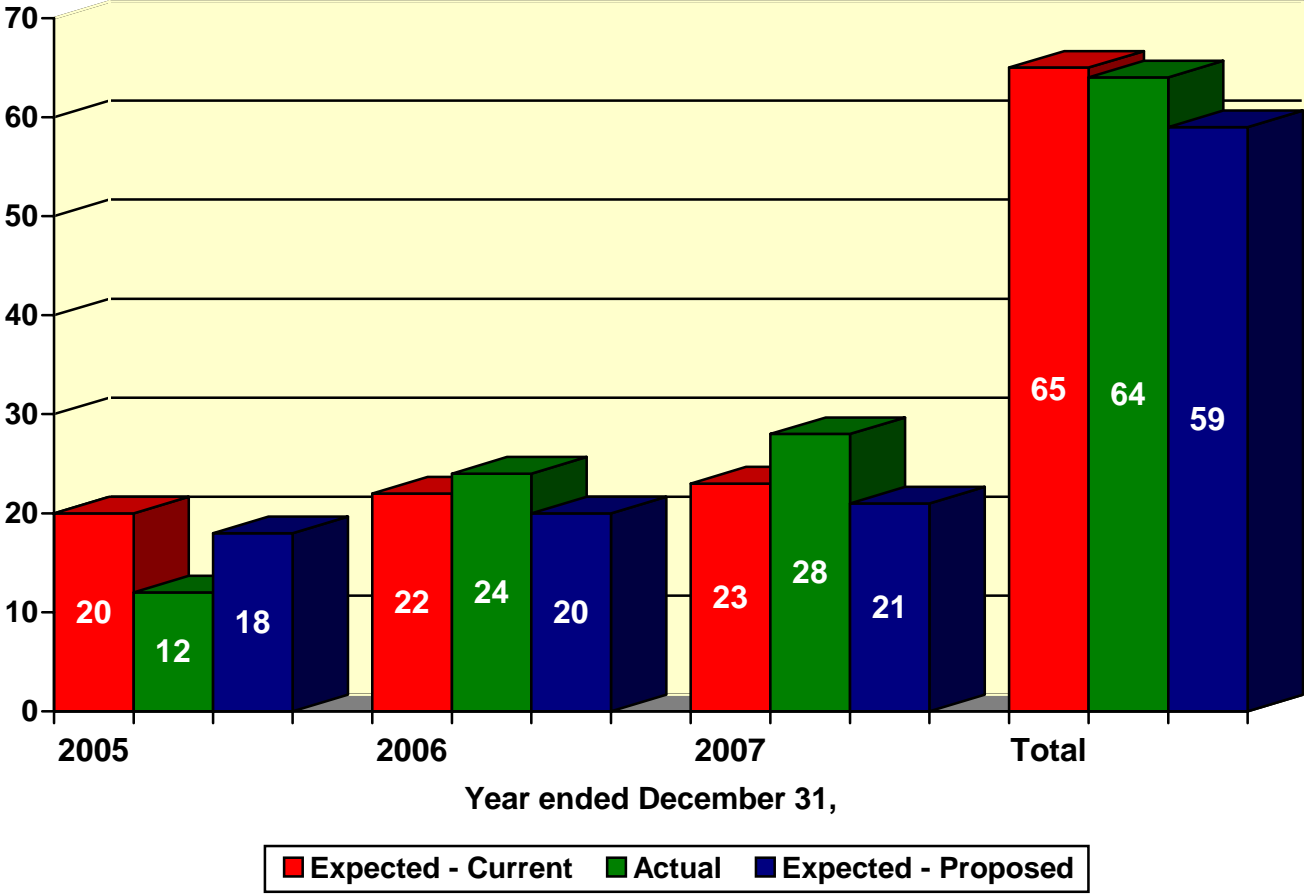
For General disabled members, we are recommending a change in the mortality table to the RP-2000 Combined Healthy Mortality Tables for males and females set forward three years. For Safety disabled members, we are recommending a change in the mortality table to the RP-2000 Combined Healthy Mortality Tables for males and females set forward two years. The total number of deaths among General and Safety members from the last nine years were: (1) 72 in 2005-2007, (2) 115 in 2002-2004 and (3) 62 in 1999-2001. The average actual deaths over a three-year period was 83. The expected deaths under our recommended assumptions was 71. The difference in proposed expected experience versus actual should provide some margin for future improvements in life expectancy.

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

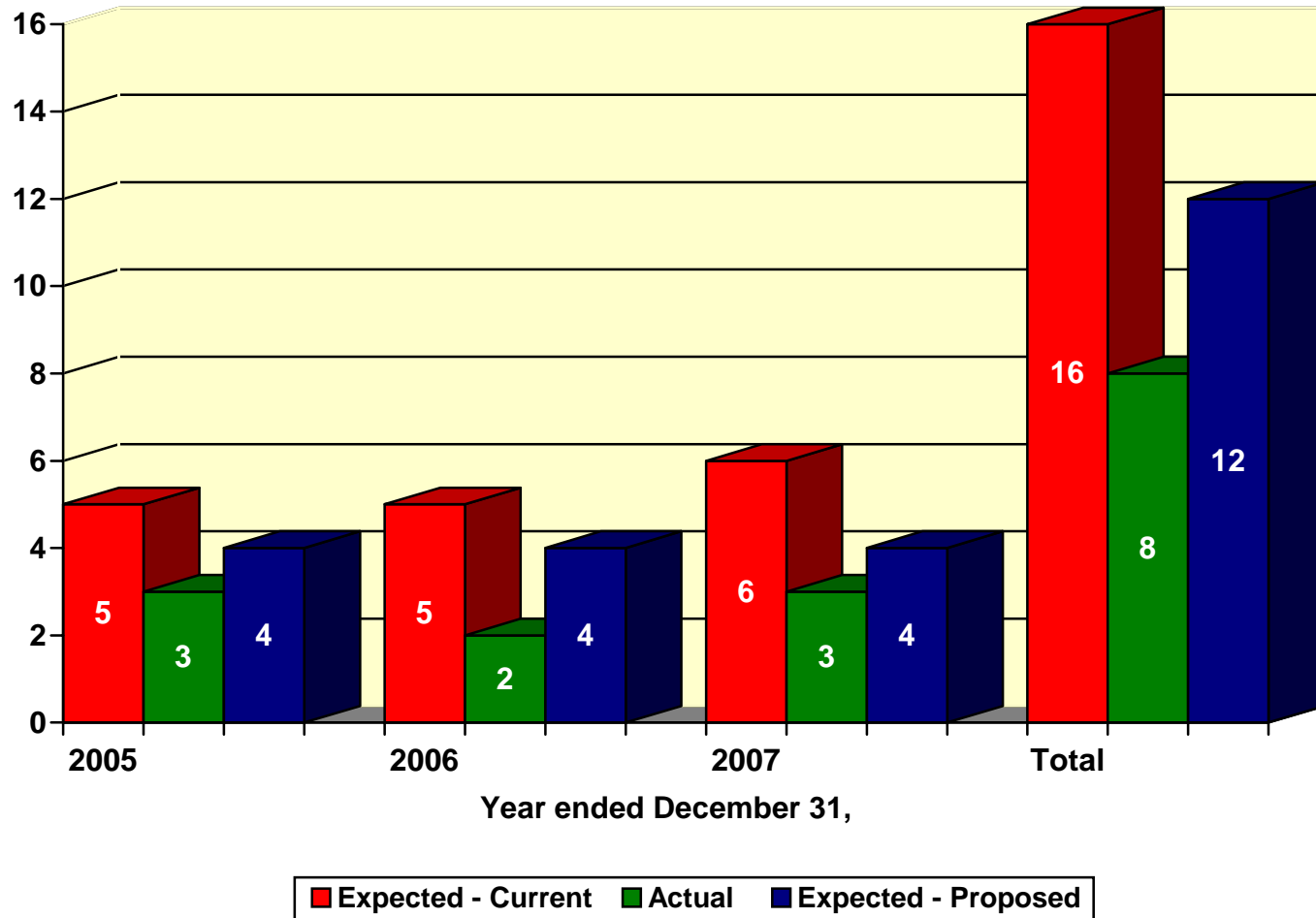
Chart 11 compares actual to expected deaths under both the current and proposed assumptions for disabled Safety members over the last three years.

Chart 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**

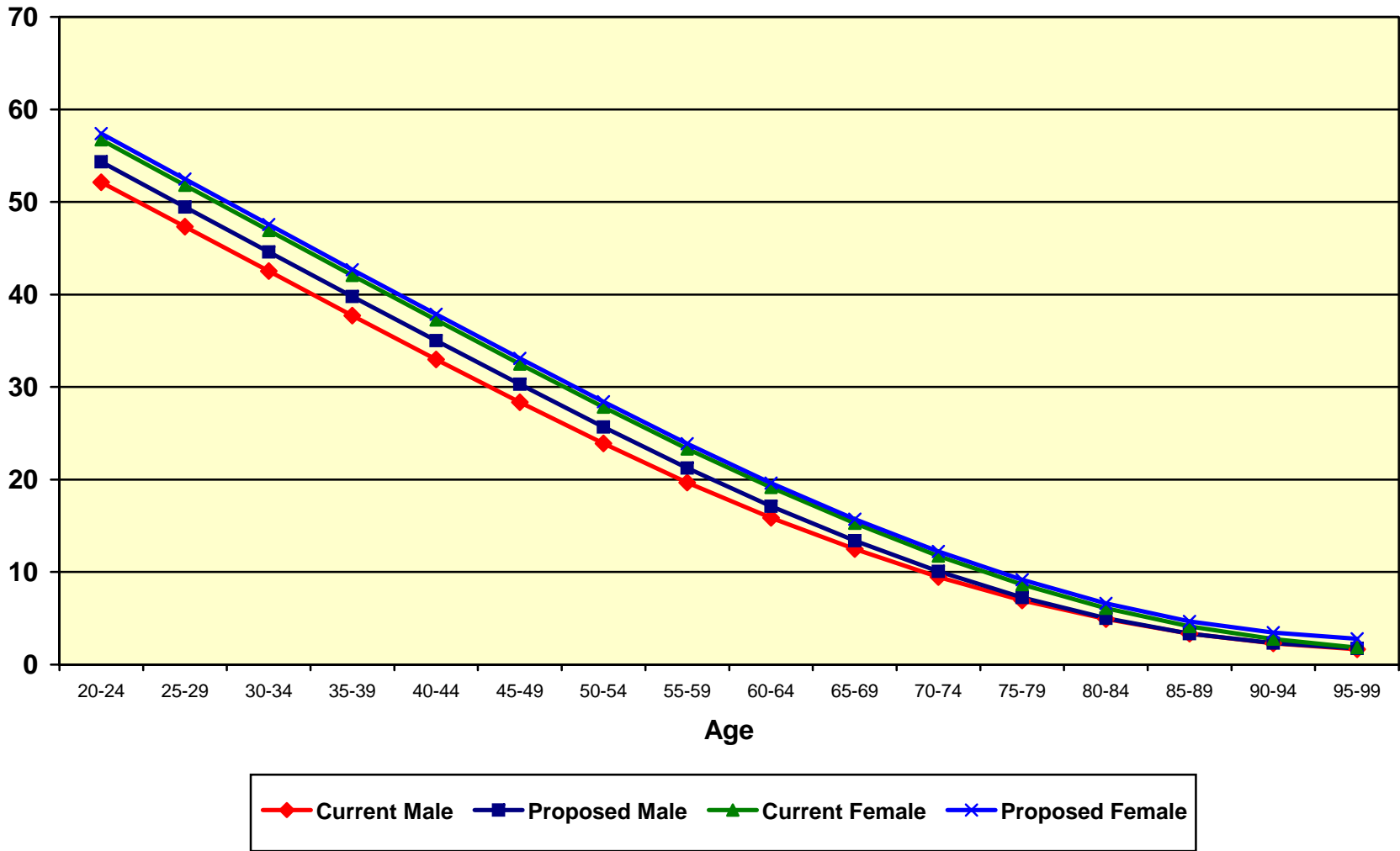


**Chart 11**  
**Post - Retirement Deaths**  
**Disabled Safety Members**

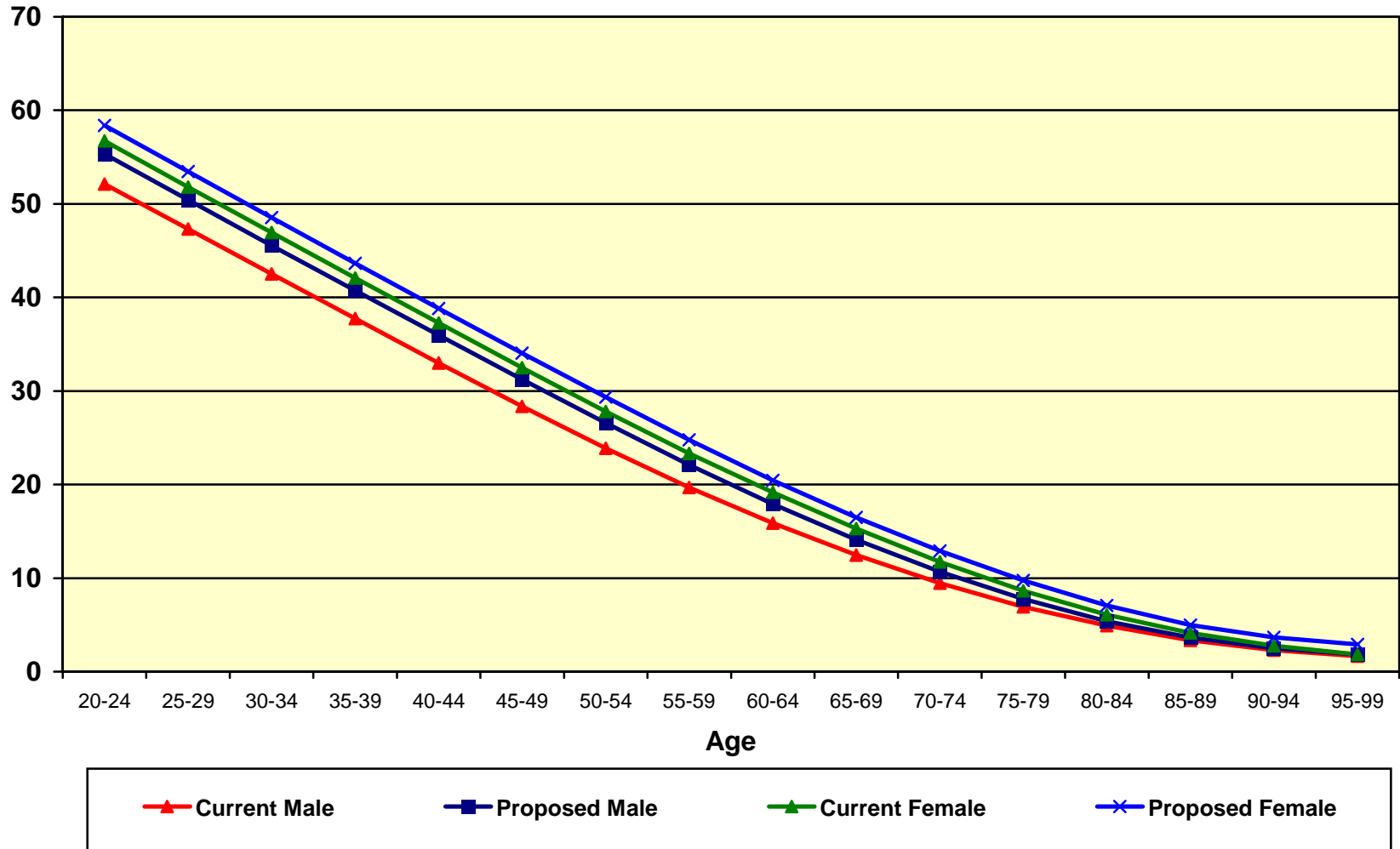


# Chart 12

## Life Expectancies (General Disabled)



### Chart 13 Life Expectancies (Safety Disabled)



**E. TERMINATION RATES**

Termination rates include all terminations for reasons other than death, disability, or retirement. Under the current assumptions there is a separate set of assumptions for 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.

We have developed rates for the following four groupings: 1) General All Other, 2) General OCTA, 3) Safety Law Enforcement & Fire and 4) Safety Probation. The termination experience over the last three years for these four member groups are split between those members with under five years of service and those with five or more years of service. The breakdown by group for under five years of service is as follows:

**Rates of Termination - General All Other  
(Fewer than Five Years of Service)**

<b>Years of Service</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
0	10.0%	16.3%	13.0%
1	8.0	10.5	9.0
2	6.0	10.1	8.0
3	6.0	8.4	7.0
4	5.0	5.9	5.0

**Rates of Termination - General OCTA  
(Fewer than Five Years of Service)**

<b>Years of Service</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
0	10.0%	24.9%	17.0%
1	7.0	12.0	9.0
2	6.0	10.3	8.0
3	5.0	8.7	7.0
4	4.0	8.0	6.0

**Rates of Termination – Safety Law Enforcement and Fire  
(Fewer than Five Years of Service)**

<b>Years of Service</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
0	3.0%	4.5%	4.0%
1	2.0	4.0	3.0
2	2.0	2.1	2.0
3	1.0	3.7	2.0
4	1.0	2.2	1.0

**Rates of Termination – Safety Probation  
(Fewer than Five Years of Service)**

<b>Years of Service</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
0	11.0%	22.4%	17.0%
1	10.0	10.1	10.0
2	8.0	9.9	8.0
3	6.0	4.7	6.0
4	5.0	4.0	5.0

The breakdown by group for five years of service or more is as follows:

**Rates of Termination - General All Other  
(Five or More Years of Service)**

<b>Age</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
20 – 24	5.0%	10.0%	5.0%
25 – 29	5.0	8.0	5.0
30 – 34	5.0	5.6	5.0
35 – 39	4.0	4.4	4.0
40 – 44	3.5	3.1	3.5
45 – 49	2.5	2.2	2.5
50 – 54	2.0	1.1	2.0
55 – 59	1.0	0.9	1.0
60 – 64	0.0	1.0	0.0
65 – 69	0.0	0.0	0.0

**Rates of Termination - General OCTA  
(Five or More Years of Service)**

<b>Age</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
25 – 29	3.0%	6.3%	4.0%
30 – 34	3.0	7.5	4.0
35 – 39	3.0	5.7	4.0
40 – 44	3.0	5.6	4.0
45 – 49	3.0	3.8	3.0
50 – 54	2.5	2.3	2.5
55 – 59	1.5	2.5	1.5
60 – 64	0.0	2.2	0.0
65 – 69	0.0	0.0	0.0

**Rates of Termination – Safety Law Enforcement and Fire  
(Five or More Years of Service)**

<b>Age</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
25 – 29	1.0%	0.7%	1.0%
30 – 34	1.0	1.9	1.0
35 – 39	0.8	0.8	0.8
40 – 44	0.5	0.3	0.5
45 – 49	0.5	0.5	0.5
50 – 54	0.0	0.1	0.0
55 – 59	0.0	0.0	0.0
60 – 64	0.0	0.0	0.0

**Rates of Termination – Safety Probation  
(Five or More Years of Service)**

<b>Age</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
25 – 29	5.0%	4.7%	5.0%
30 – 34	5.0	3.6	4.3
35 – 39	4.0	2.8	3.5
40 – 44	3.5	1.6	2.8
45 – 49	2.5	0.8	2.3
50 – 54	2.0	1.6	1.8
55 – 59	1.0	0.6	1.0
60 – 64	0.0	3.7	0.0

Chart 14 compares actual to expected terminations of the past three years for 1) General All Other, 2) General OCTA, 3) Safety Law & Fire and 4) Safety Probation members.

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

Chart 16-18 shows the same information as Chart 15, but for General OCTA, Safety Law & Fire and Safety Probation members.

Chart 19 shows the current, along with the proposed termination rates for General All Other members with five or more years of service.

Chart 20-22 shows the same information as Chart 19, but for General OCTA, Safety Law & Fire and Safety Probation members.

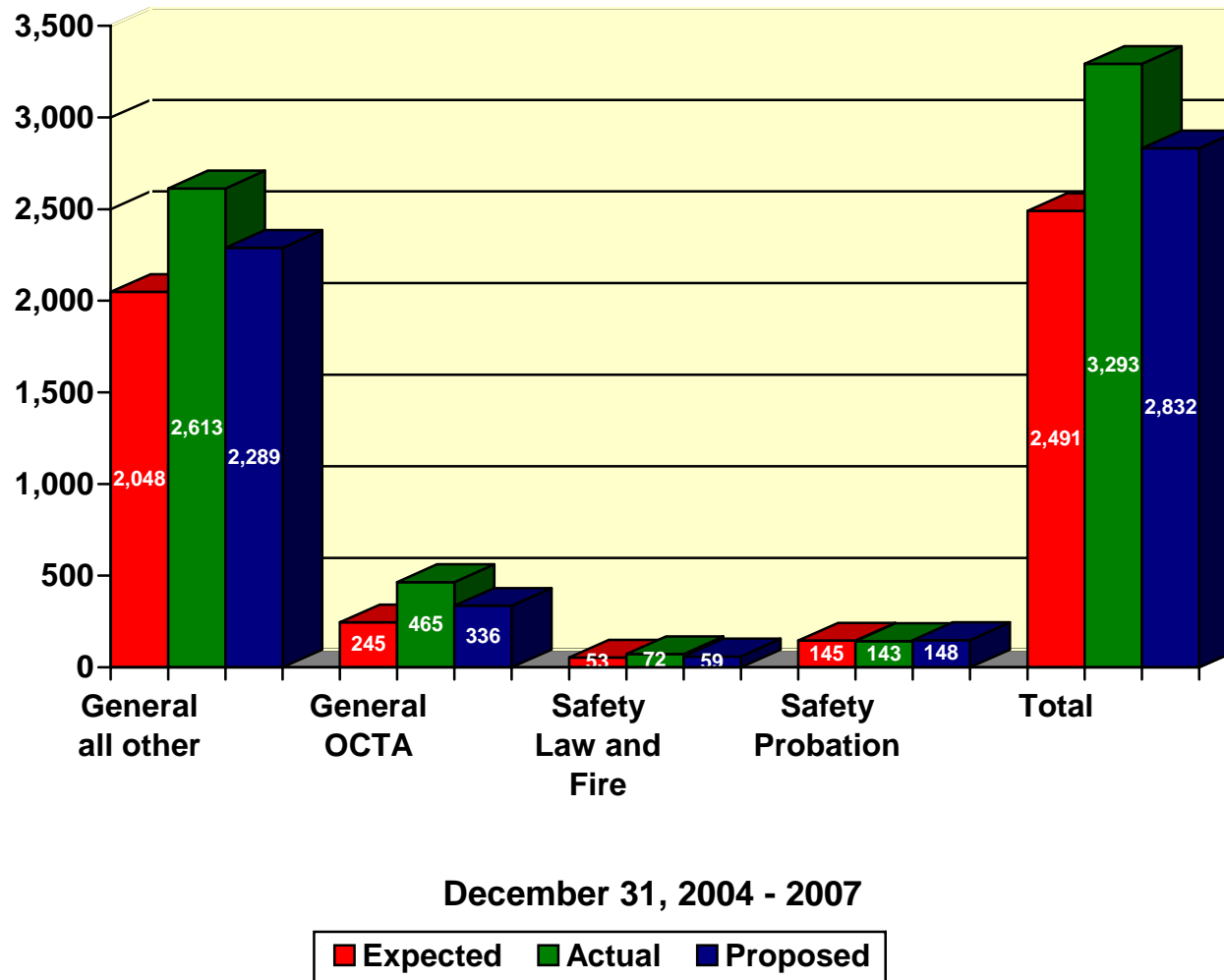
Based upon the recent experience, the termination rates for General and Safety members with less than five years of service have been increased. For General OCTA members with five or more years of service, we have increased the termination rates. For Safety Probation members with five or more years of service, we have decreased the termination rates.

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 100% of all members who terminate with less than five years of service would withdraw and receive a refund. For the members with five or more years of service, the current assumptions are 15% would withdraw and receive a refund and 85% would receive a deferred vested benefit.

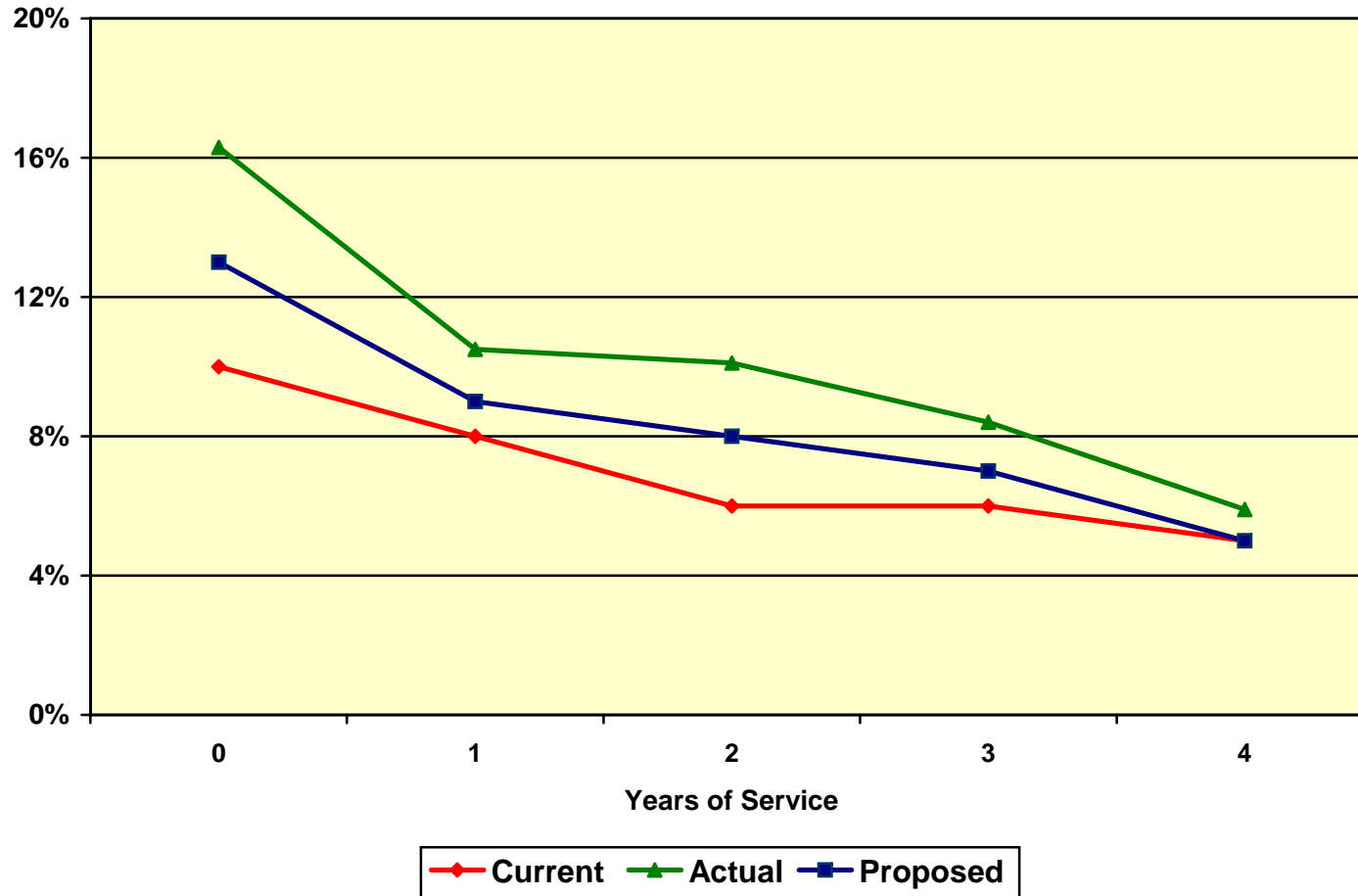
<b>Members with Fewer than Five Years of Service</b>				
<b>Group</b>	<b>Observed Withdrawal</b>	<b>Observed Vested Termination</b>	<b>Proposed Withdrawal</b>	<b>Proposed Vested Termination</b>
General All Other	50%	50%	75%	25%
General OCTA	53%	47%	75%	25%
Safety Law and Fire	27%	73%	75%	25%
Safety Probation	32%	68%	75%	25%

<b>Members with Five or More Years of Service</b>				
<b>Group</b>	<b>Observed Withdrawal</b>	<b>Observed Vested Termination</b>	<b>Proposed Withdrawal</b>	<b>Proposed Vested Termination</b>
General All Other	28%	72%	20%	80%
General OCTA	40%	60%	20%	80%
Safety Law and Fire	8%	92%	10%	90%
Safety Probation	28%	72%	20%	80%

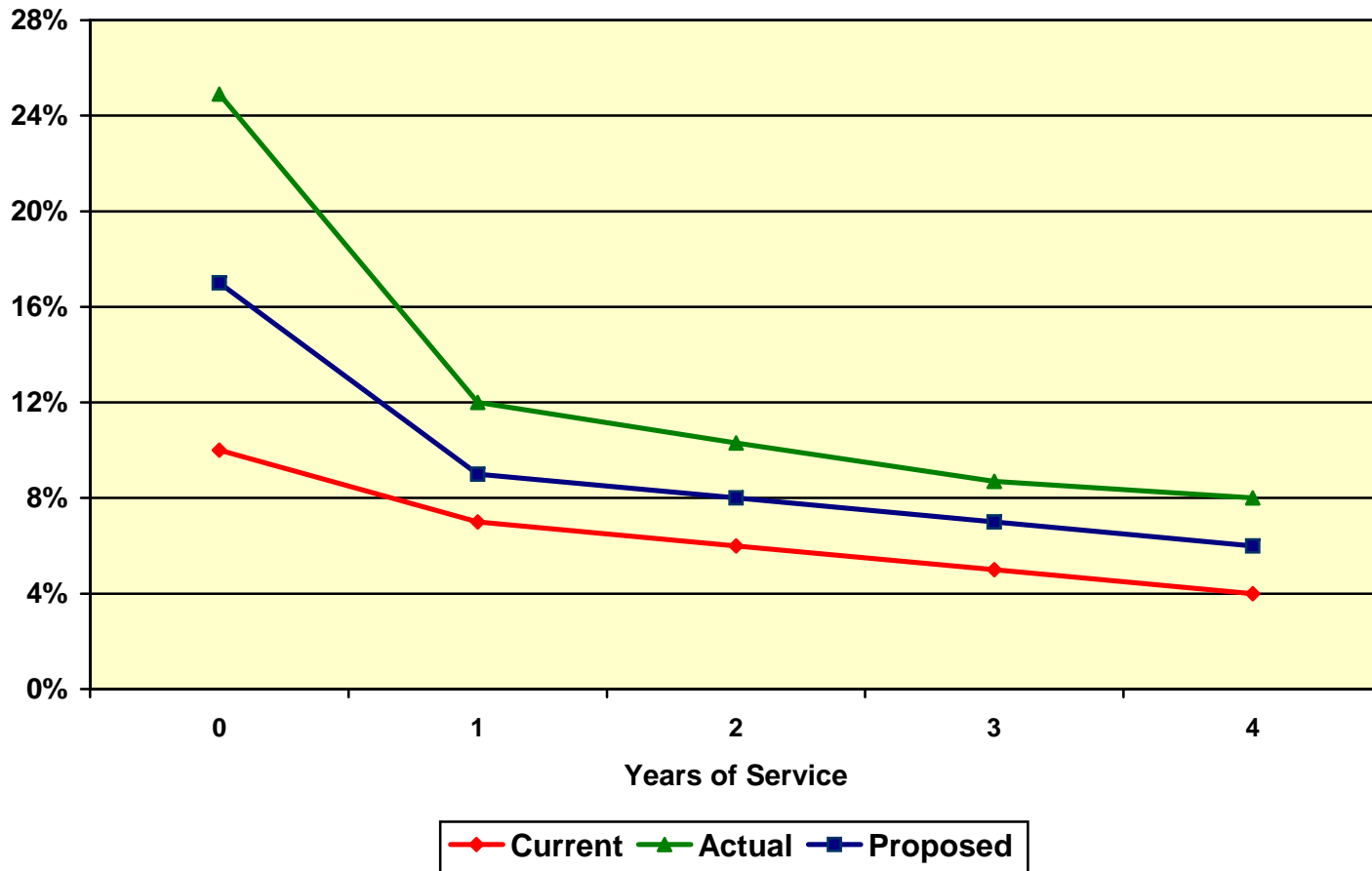
**Chart 14**  
**Actual Number of Terminations Compared to Expected**



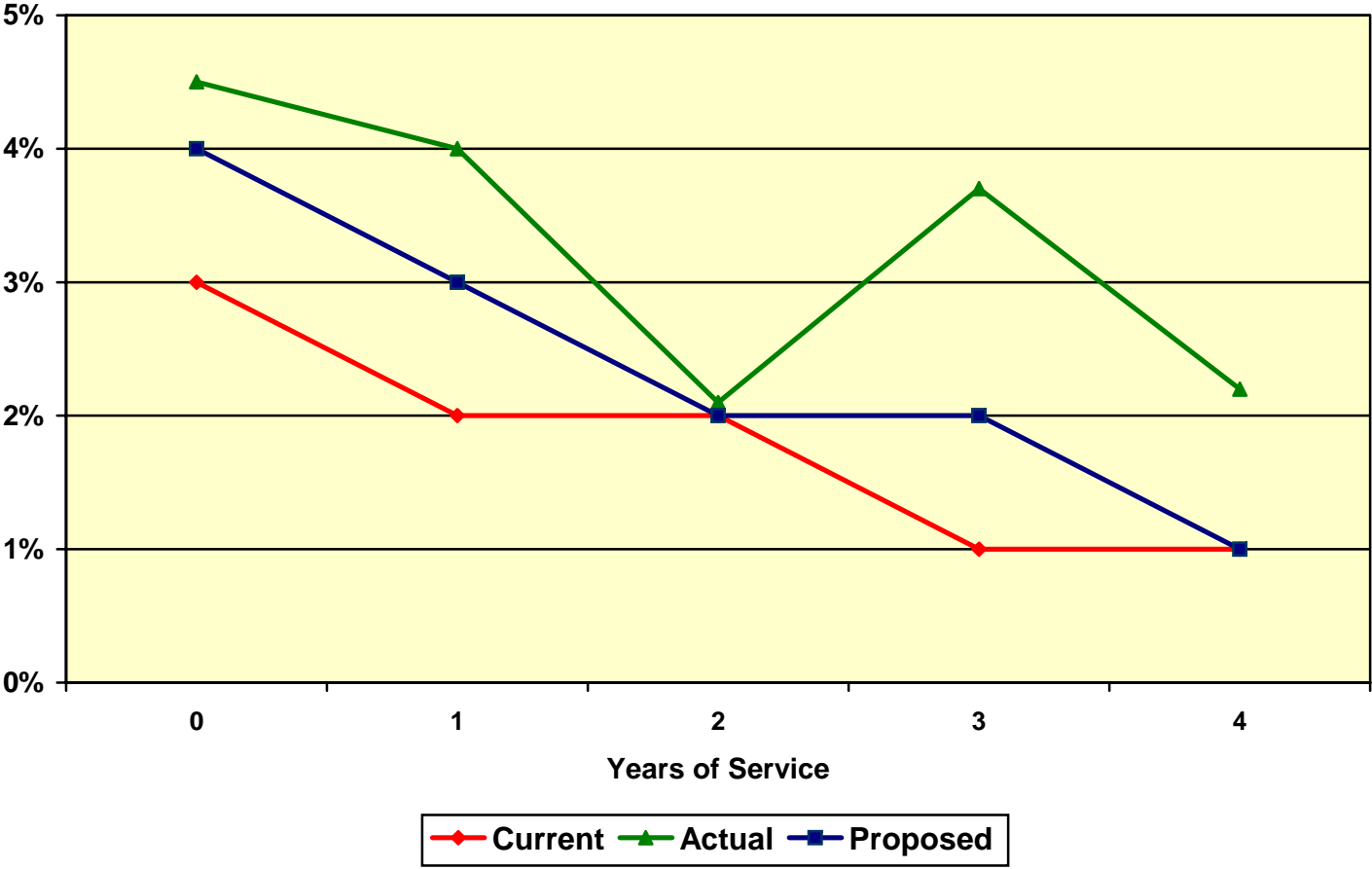
**Chart 15**  
**Withdrawal Rates - General All Others Members**  
**(Less than 5 Years of Service)**



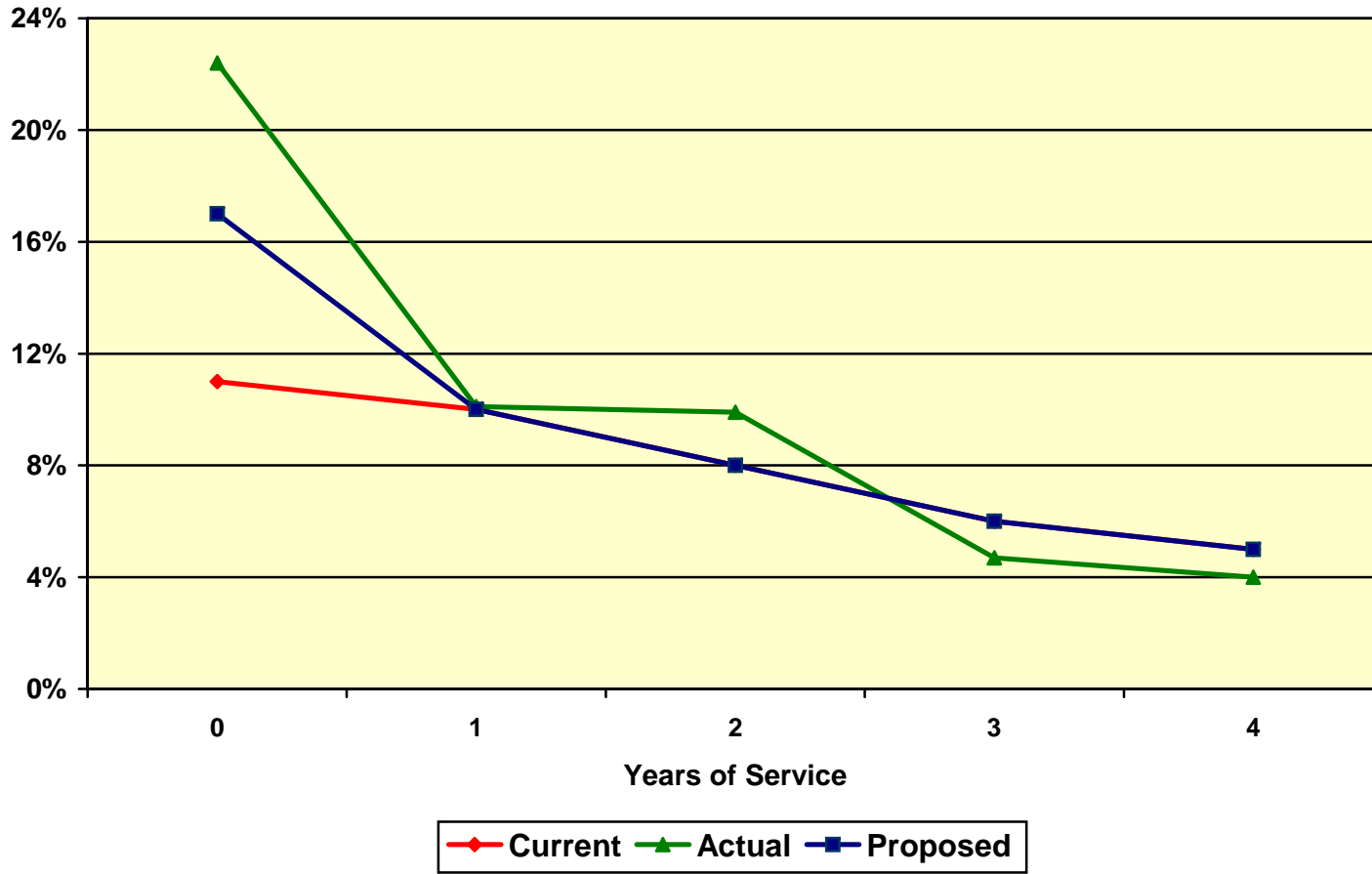
**Chart 16**  
**Withdrawal Rates - General OCTA Members**  
**(Less Than 5 Years of Service)**



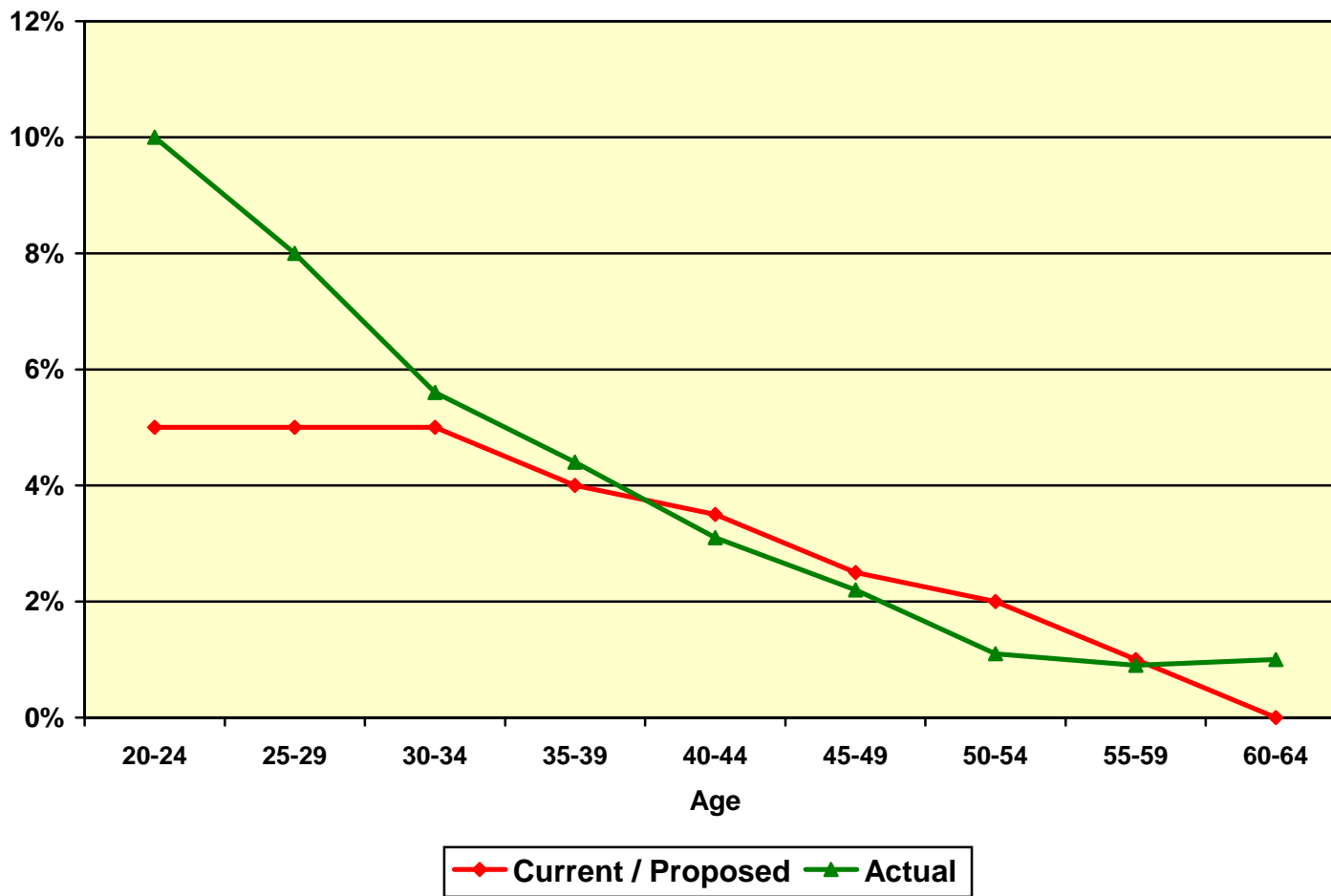
**Chart 17**  
**Withdrawal Rates - Safety Law & Fire Members**  
**(Less Than 5 Years of Service)**



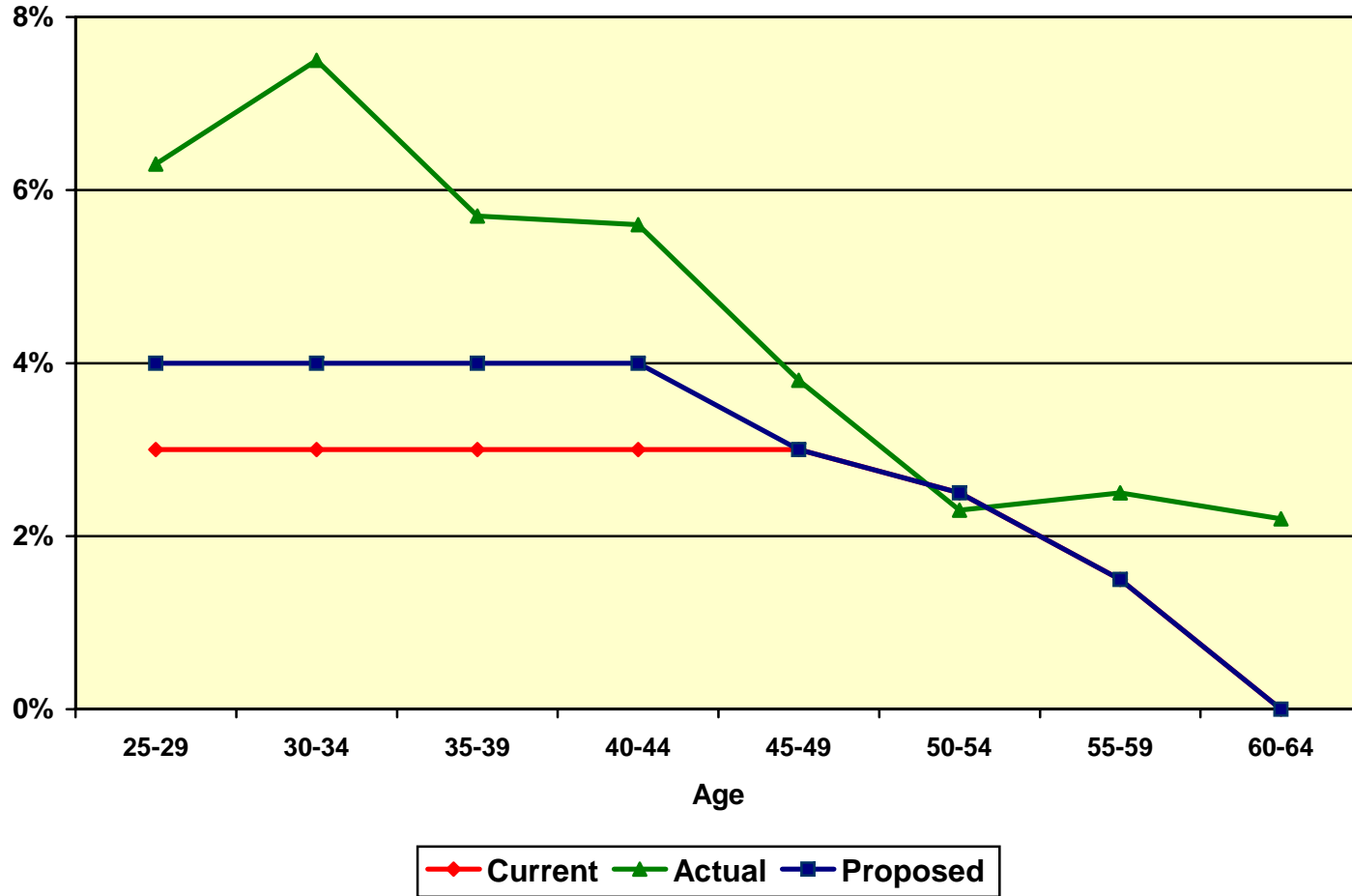
**Chart 18**  
**Withdrawal Rates - Safety Probation Members**  
**(Less Than 5 Years of Service)**



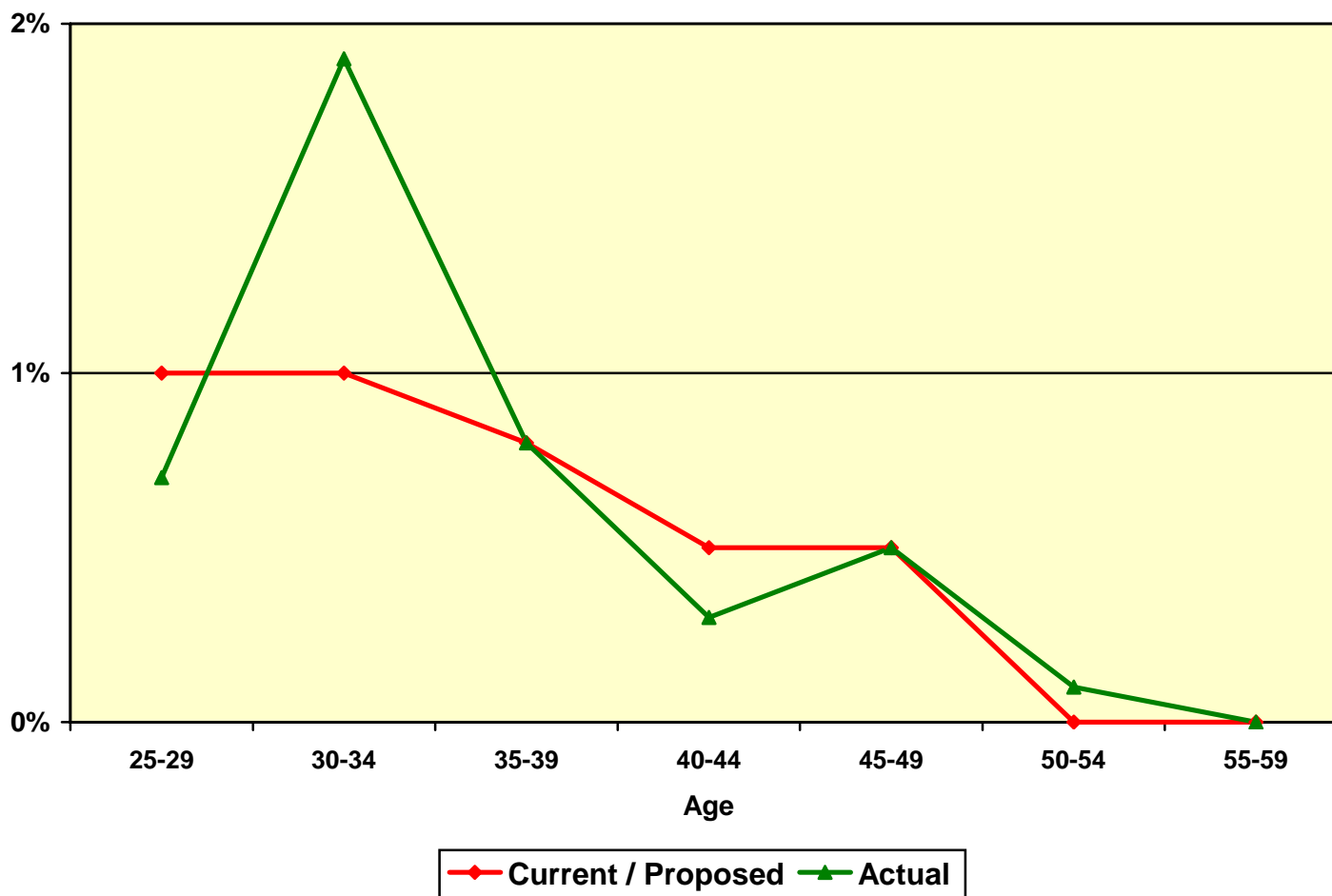
**Chart 19**  
**Withdrawal Rates - General All Other Members**  
**(5 or More Years of Service)**



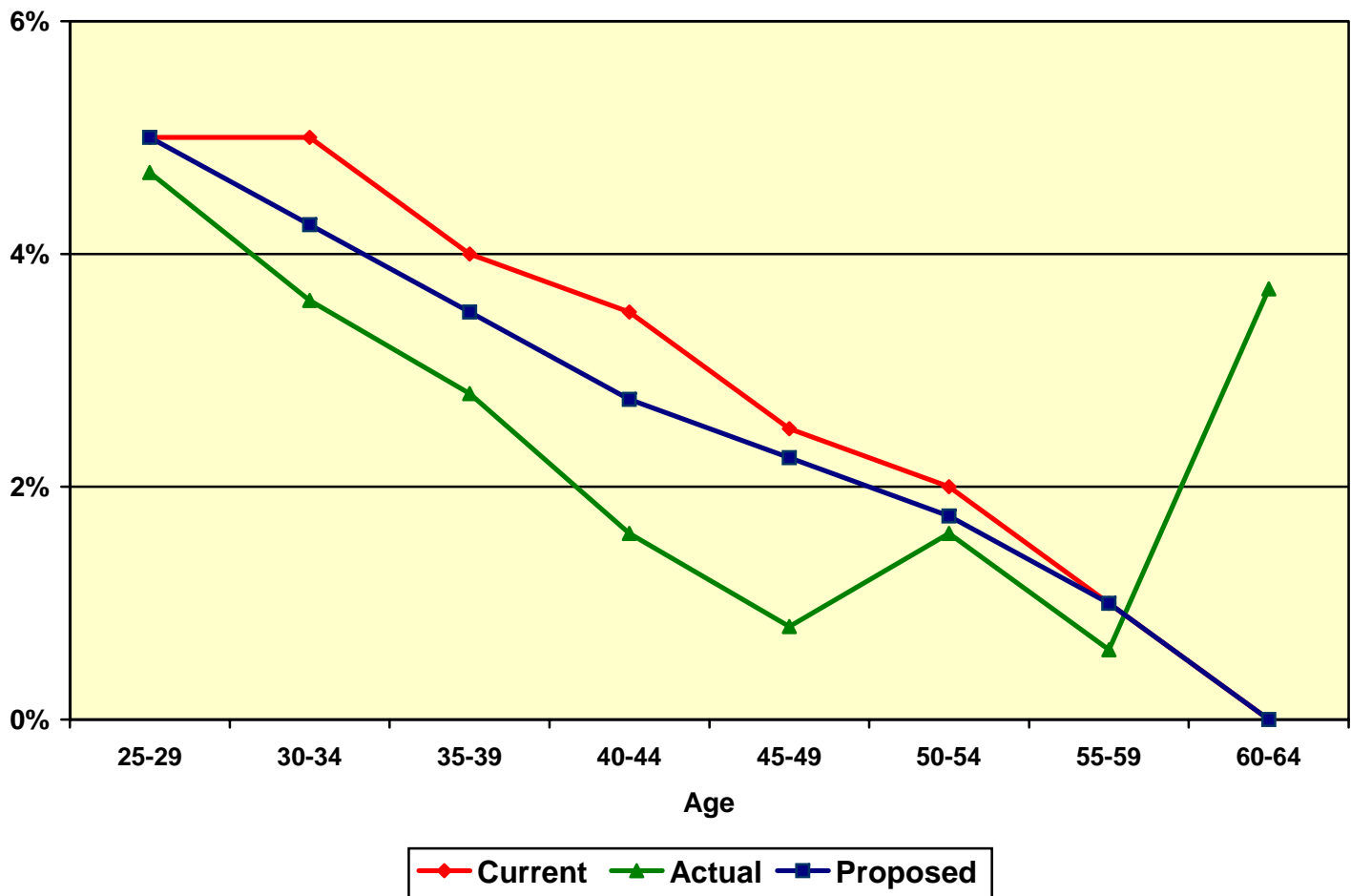
**Chart 20**  
**Withdrawal Rates - General OCTA Members**  
**(5 or More Years of Service)**



**Chart 21**  
**Withdrawal Rates - Safety Law & Fire Members**  
**(5 or More Years of Service)**



**Chart 22**  
**Withdrawal Rates - Safety Probation Members**  
**(5 or More Years of Service)**



**F. DISABILITY INCIDENCE RATES**

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

**Rates of Disability Incidence – General All Other**

<b>Age</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
20 – 24	0.000%	0.000%	0.000%
25 – 29	0.050	0.000	0.000
30 – 34	0.100	0.000	0.050
35 – 39	0.150	0.057	0.100
40 – 44	0.200	0.125	0.150
45 – 49	0.200	0.068	0.175
50 – 54	0.250	0.113	0.200
55 – 59	0.350	0.174	0.250
60 – 64	0.450	0.377	0.400
65 – 69	0.450	0.000	0.400

**Rates of Disability Incidence – General OCTA**

<b>Age</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
20 – 24	0.000%	0.000%	0.000%
25 – 29	0.000	0.000	0.000
30 – 34	0.050	0.000	0.050
35 – 39	0.100	0.437	0.100
40 – 44	0.400	0.106	0.400
45 – 49	0.700	0.380	0.550
50 – 54	0.800	0.577	0.700
55 – 59	1.000	0.967	1.000
60 – 64	1.500	1.471	1.500
65 – 69	1.500	0.000	1.500

**Rates of Disability Incidence - Safety Law & Fire**

<b>Age</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
20 – 24	0.050%	0.000%	0.050%
25 – 29	0.100	0.000	0.100
30 – 34	0.200	0.094	0.200
35 – 39	0.400	0.329	0.400
40 – 44	0.600	0.626	0.600
45 – 49	0.800	0.391	0.800
50 – 54	1.100	1.136	1.100
55 – 59	3.000	3.556	3.000
60 – 64	4.000	6.452	4.000

**Rates of Disability Incidence - Safety Probation**

<b>Age</b>	<b>Current Rate</b>	<b>Observed Rate</b>	<b>Proposed Rate</b>
20 – 24	0.000%	0.000%	0.000%
25 – 29	0.100	0.000	0.100
30 – 34	0.200	0.140	0.200
35 – 39	0.200	0.514	0.200
40 – 44	0.200	0.571	0.200
45 – 49	0.200	0.000	0.200
50 – 54	0.200	0.000	0.200
55 – 59	0.200	0.000	0.200
60 – 64	0.000	3.704	0.000

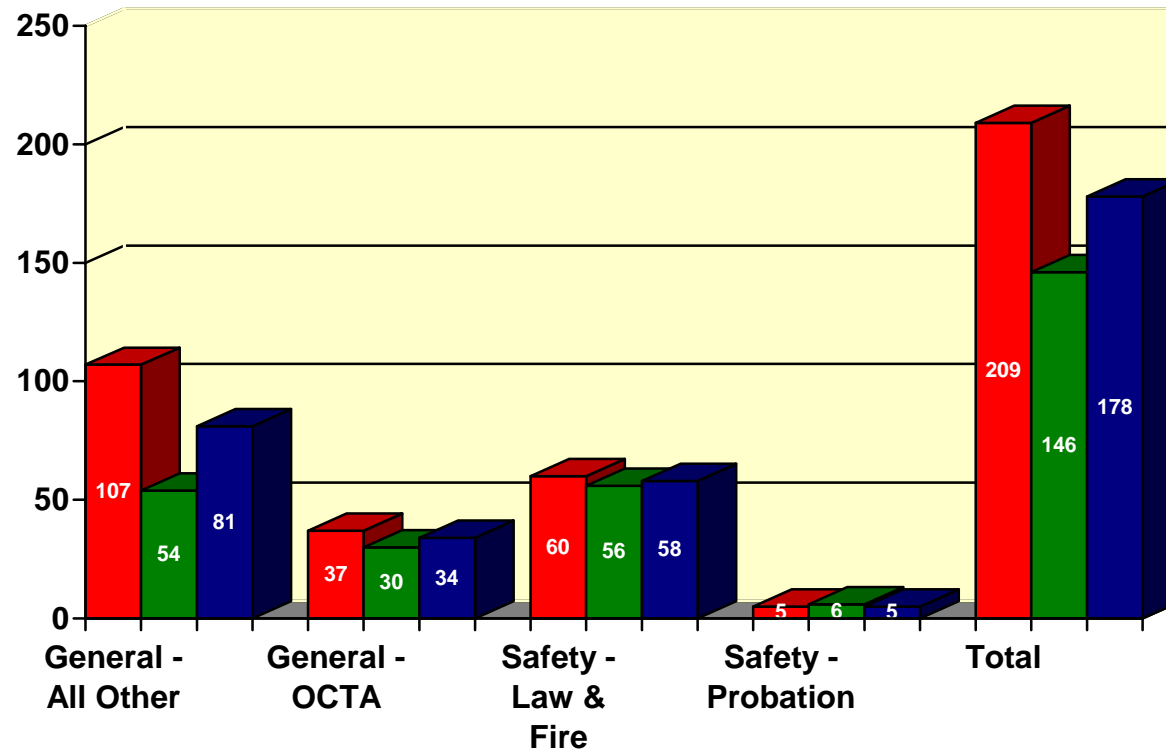
Chart 23 compares the actual number of non-service connected and service connected disabilities over the past three years to that expected under both the current and proposed assumptions. The proposed disability rates were adjusted to reflect the past three years experience.

Chart 24 shows actual disablement rates, compared to the assumed and proposed rates for General All Other members. Charts 25-27 graph the same information as Chart 24, but for General OCTA, Safety Law and Fire and Safety Probation members.

The following table shows the recommended percentages for service versus non-service connected disability for the groups.

<b>Group</b>	<b>Currently assumed percentage for disablements receiving service connected disability</b>	<b>Observed percentage receiving service connected disability</b>	<b>Proposed percentage for disablements receiving service connected disability</b>	<b>Proposed percentage for disablements receiving non-service connected disability</b>
General All Other	60%	48%	50%	50%
General OCTA	70%	73%	70%	30%
Safety Law & Fire	85%	96%	100%	0%
Safety Probation	85%	100%	100%	0%

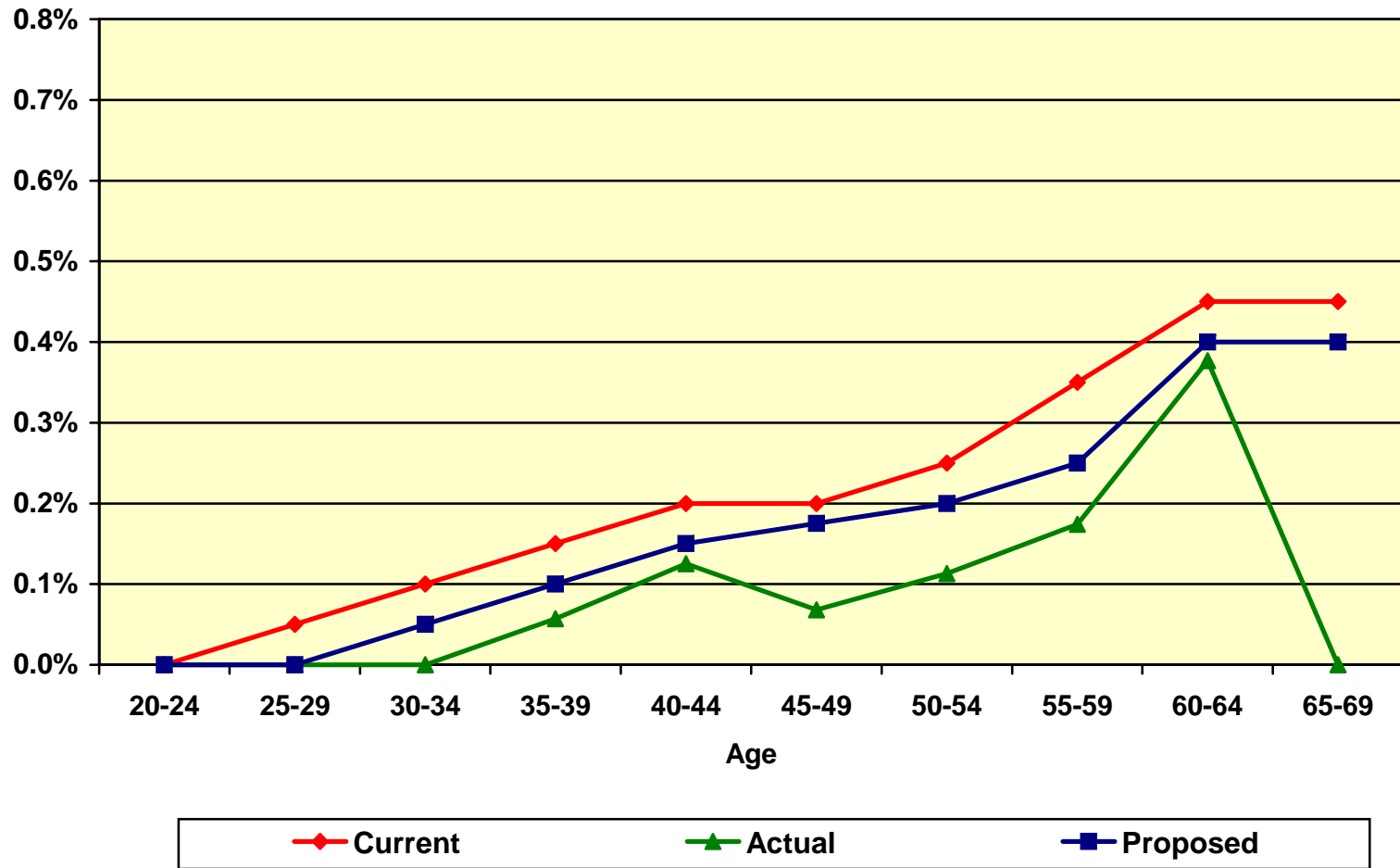
### Chart 23 Actual Number of Disabilities Compared to Expected



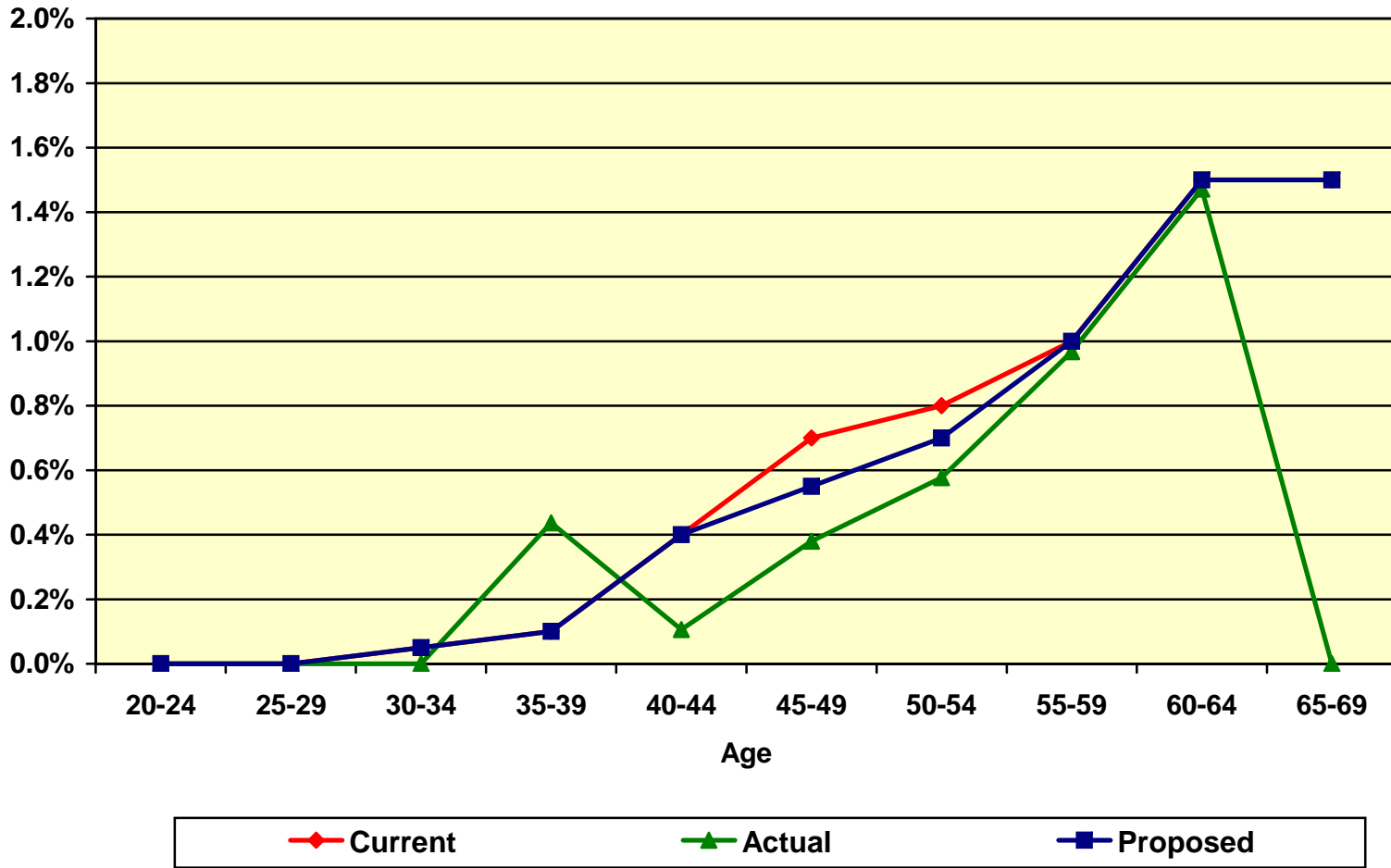
December 31, 2004 - 2007

■ Expected   
 ■ Actual   
 ■ Proposed

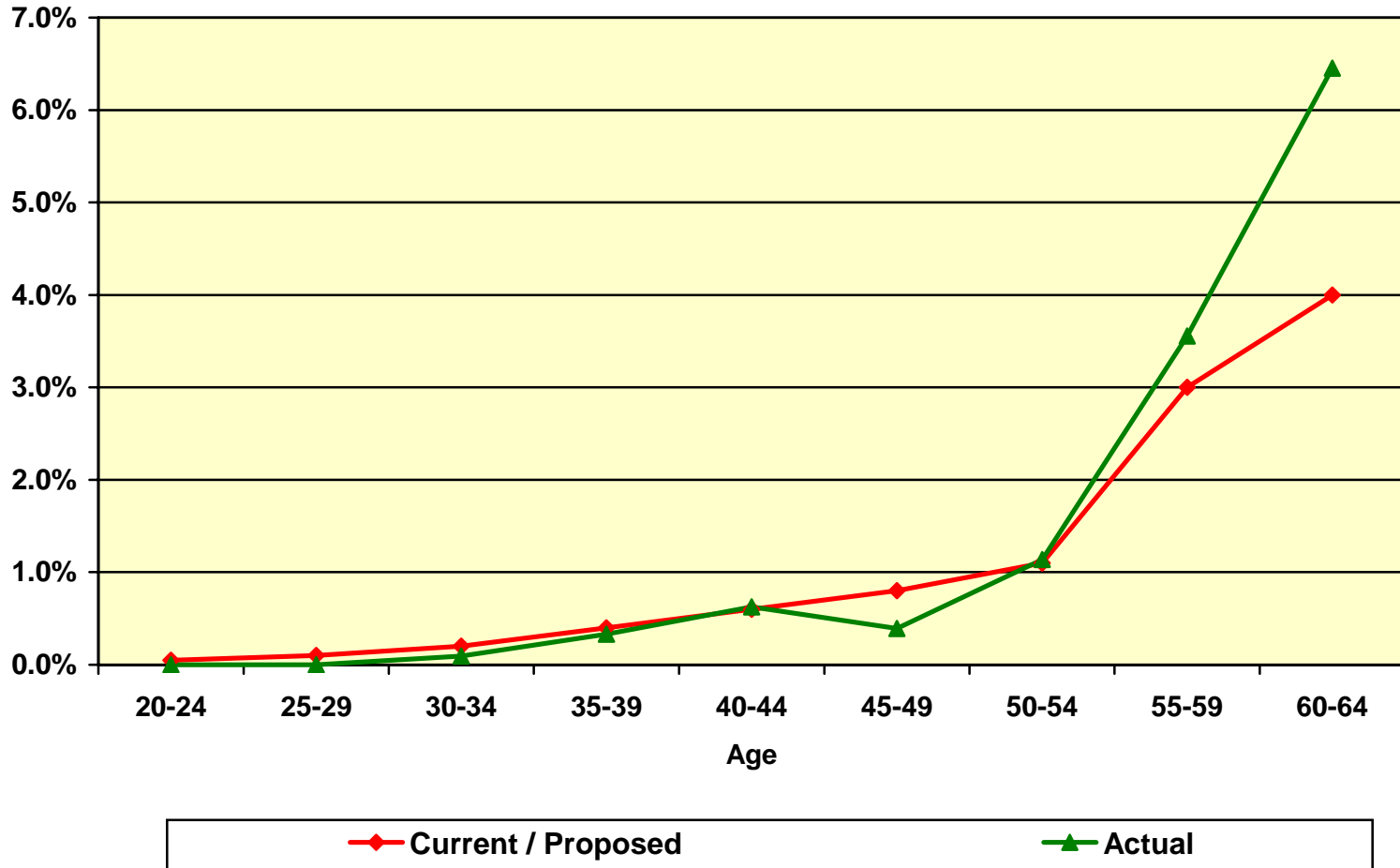
**Chart 24**  
**Disablement Rates for General All Other Members**



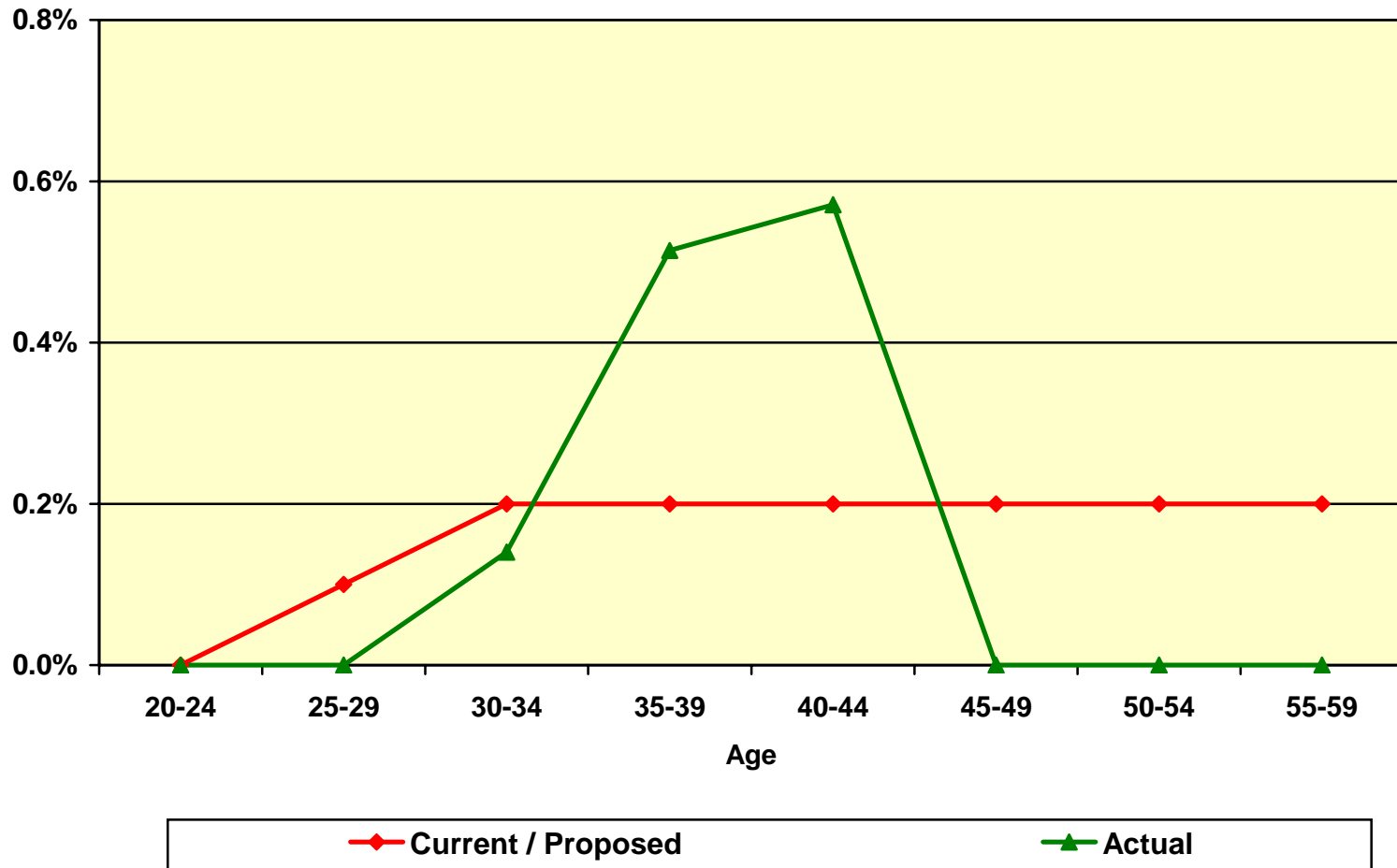
**Chart 25**  
**Disablement Rates for General OCTA Members**



**Chart 26**  
**Disablement Rates for Safety Law & Fire Members**



**Chart 27**  
**Disablement Rates for Safety - Probation Members**



## **G. MERIT AND PROMOTION SALARY INCREASES**

The System'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 promotion 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 0.25% annual "across the board" pay increases. Therefore, the total assumed inflation and real "across the board" pay increase (i.e. wage inflation) is 3.75%; this is used as the assumed annual rate of payroll growth at which payments to the UAAL are assumed to increase.

The annual merit and promotion 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 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 (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."

Currently, the assumed rates of future merit and promotion increases are a function of an employee’s age. Our experience review analyzed recent years’ merit and promotion increases independently for General and Safety members, both as a function of age and also as a function of years of service. Our review concluded:

- There continue to be differences between General and Safety merit and promotion salary increase patterns.
- We observed that salary increases correlated better with years of service than with age. This was the case for both General and Safety members.

As a result of these observations, we recommend that merit and promotion increase assumptions:

- Continued to be separately established for General and Safety members; and
- Structured as a function of years of service instead of age.

The following table shows the current assumptions for merit and promotion increases for General and Safety members at sample ages.

<b>Merit and Promotion Increase Current Assumptions</b>		
<b>Age</b>	<b>General</b>	<b>Safety</b>
20	7.0%	6.0%
25	5.2	5.1
30	3.4	3.6
35	2.2	1.8
40	1.7	0.7
45	1.6	0.5
50	1.4	0.5
55	0.9	0.5
60	0.6	0.0
65+	0.6	0.0

The following table compares General members' actual average merit and promotion increases by years of service over the three year experience period from January 1, 2005 through December 31, 2007. The actual increases were reduced by 3.05%, the actual average inflation plus "across the board" increase (i.e. wage inflation) over the three year experience period.

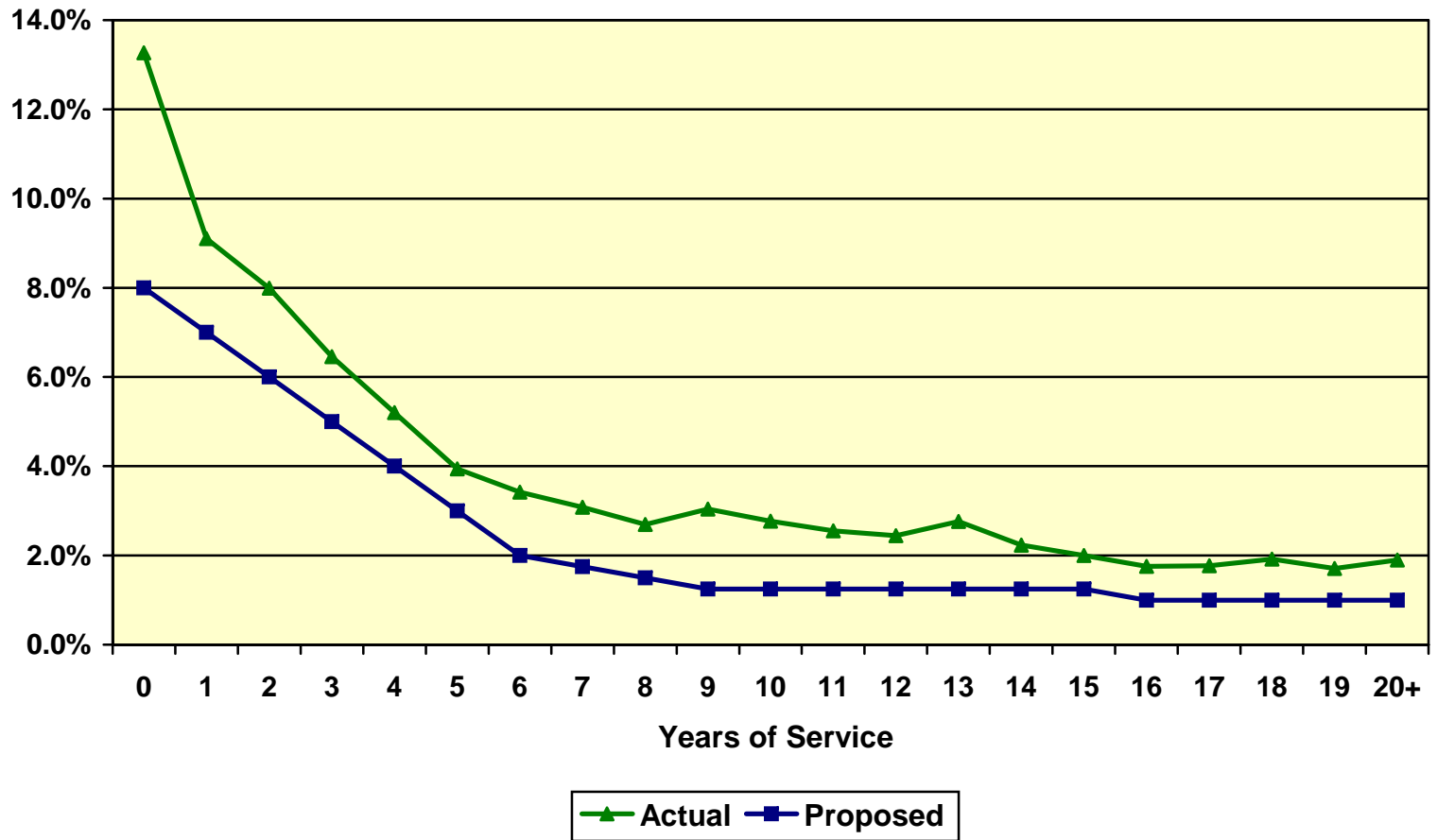
<b>General</b>		
<b>January 1, 2005 Through December 31, 2007 Average General Merit and Promotion Increases</b>		
<b>Years of Service</b>	<b>Promotion Increases</b>	<b>Proposed Assumptions</b>
Less than 1	13.27%	8.00%
1	9.10	7.00
2	7.99	6.00
3	6.46	5.00
4	5.20	4.00
5	3.94	3.00
6	3.42	2.00
7	3.08	1.75
8	2.69	1.50
9	3.04	1.25
10	2.77	1.25
11	2.55	1.25
12	2.44	1.25
13	2.76	1.25
14	2.23	1.25
15	2.00	1.25
16	1.76	1.00
17	1.77	1.00
18	1.92	1.00
19	1.71	1.00
20 & over	1.90	1.00

The following table provides the same information for Safety members. The actual average merit and promotion increases were determined by reducing the actual average total salary increases by 3.29%, which was the actual average inflation plus real “across the board” increase (i.e. wage inflation) over the three year period.

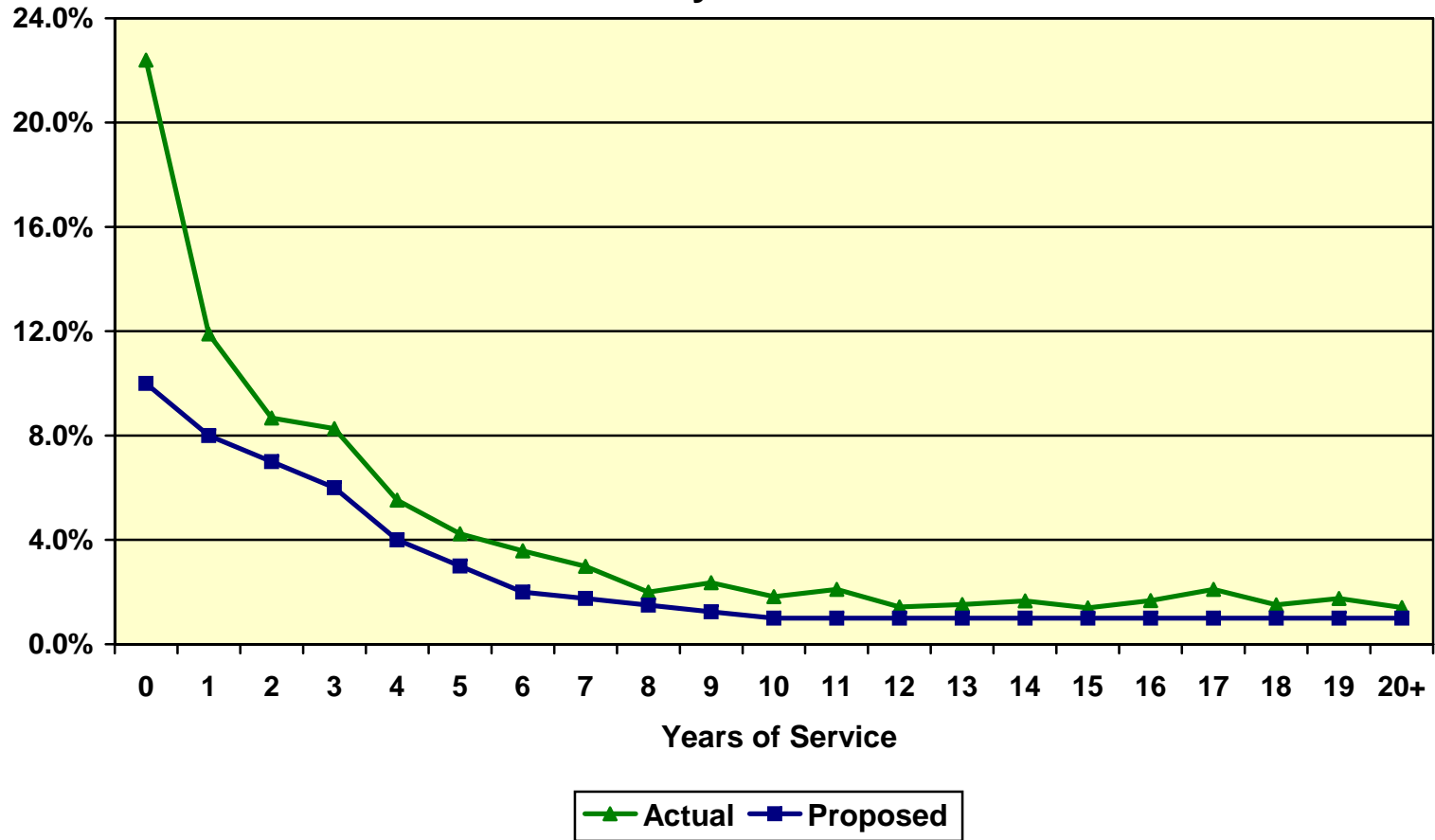
<b>Safety</b>		
<b>January 1, 2005 Through December 31, 2007 Average Safety Merit and Promotion Increases</b>		
<b>Years of Service</b>	<b>Increases</b>	<b>Proposed Assumptions</b>
Less than 1	22.39%	10.00%
1	11.90	8.00
2	8.68	7.00
3	8.27	6.00
4	5.52	4.00
5	4.23	3.00
6	3.58	2.00
7	2.99	1.75
8	2.00	1.50
9	2.36	1.25
10	1.82	1.00
11	2.11	1.00
12	1.43	1.00
13	1.52	1.00
14	1.66	1.00
15	1.40	1.00
16	1.68	1.00
17	2.11	1.00
18	1.51	1.00
19	1.75	1.00
20 and over	1.41	1.00

Charts 28 and 29 provide a graphical comparison of the actual merit and promotion increases, compared to the proposed assumptions. Chart 28 shows this information for General members and Chart 29 is for Safety members.

**Chart 28**  
**Promotional and Merit Salary Increase Rates -**  
**General Members**



**Chart 29**  
**Promotional and Merit Salary Increase Rates -**  
**Safety Members**



## H. ANNUAL PAYOFFS

Under the Ventura Court Ruling, 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 this study, we have collected data for the last two years to estimate terminal pay for active members as a percentage of current pay.

The current and recommended terminal pay assumptions are provided in the following table:

	Final One Year Salary			Final Three Year Salary		
	Currently Assumed	Actual	Proposed	Currently Assumed	Actual	Proposed
General Members	4.50%	4.48%	4.50%	2.10%	2.62%	2.60%
Safety - Probation	4.50%	4.78%	4.80%	2.10%	2.79%	2.70%
Safety - Law	9.30%	8.17%	8.20%	6.30%	4.11%	5.60%
Safety - Fire	5.10%	2.81%	4.00%	2.40%	3.63%	3.60%

**APPENDIX A**

**CURRENT ACTUARIAL ASSUMPTIONS**

**Post – Retirement Mortality Rates:**

*Healthy:*

For General Members and all Beneficiaries: 1994 Group Annuity Mortality Table set forward one year.

For Safety Members: 1994 Group Annuity Mortality Table set forward one year.

*Disabled:*

For General Members and Safety members: 1994 Group Annuity Mortality Table set forward five years.

*Employee Contribution Rates  
and Optional Benefits:*

For General Members: 1994 Group Annuity Mortality Table set forward one year, weighted 40% male and 60% female.

For Safety Members: 1994 Group Annuity Mortality Table set forward one year, weighted 80% male and 20% female.

**Termination Rates Before Retirement:**

<u>Age</u>	<u>Rate (%)</u>	
	<u>Mortality</u>	
	<u>General &amp; Safety</u>	
	<u>Male</u>	<u>Female</u>
25	0.07	0.03
30	0.08	0.04
35	0.09	0.05
40	0.12	0.08
45	0.17	0.10
50	0.29	0.16
55	0.49	0.26
60	0.90	0.51
65	1.62	0.97

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

**Termination Rates Before Retirement (Continued):**

Age	Rate (%)			
	General All Other <sup>(1)</sup>	General OCTA <sup>(2)</sup>	Safety – Law & Fire <sup>(3)</sup>	Safety - Probation <sup>(4)</sup>
20	0.00	0.00	0.03	0.00
25	0.03	0.00	0.08	0.06
30	0.08	0.03	0.16	0.16
35	0.13	0.08	0.32	0.20
40	0.18	0.28	0.52	0.20
45	0.20	0.58	0.72	0.20
50	0.23	0.76	0.98	0.20
55	0.31	0.92	2.24	0.20
60	0.41	1.30	3.60	0.08

<sup>(1)</sup> 60% of General all other disabilities are assumed to be service connected disabilities. The other 40% are assumed to be non-service connected.

<sup>(2)</sup> 70% of General - OCTA disabilities are assumed to be service connected disabilities. The other 30% are assumed to be non-service connected.

<sup>(3)</sup> 85% of Safety – Law Enforcement and Fire disabilities are assumed to be service connected disabilities. The other 15% are assumed to be non-service connected.

<sup>(4)</sup> 85% of Safety - Probation disabilities are assumed to be service connected disabilities. The other 15% are assumed to be non-service connected.

**Termination Rates Before Retirement (Continued):**

Rate (%)				
Termination (< 5 Years of Service)				
Years of Service	General All Other <sup>(1)</sup>	General OCTA <sup>(1)</sup>	Safety – Law & Fire <sup>(1)</sup>	Safety - Probation <sup>(1)</sup>
0	10.0	10.0	3.0	11.0
1	8.0	7.0	2.0	10.0
2	6.0	6.0	2.0	8.0
3	6.0	5.0	1.0	6.0
4	5.0	4.0	1.0	5.0

Termination (5+ Years of Service)				
Age	General All Other <sup>(2)</sup>	General OCTA <sup>(2)</sup>	Safety – Law & Fire <sup>(2)</sup>	Safety – Probation <sup>(2)</sup>
20	5.0	3.0	1.0	5.0
25	5.0	3.0	1.0	5.0
30	5.0	3.0	1.0	5.0
35	4.4	3.0	0.9	4.4
40	3.7	3.0	0.6	3.7
45	2.9	3.0	0.5	2.9
50	2.2	2.7	0.2	2.2
55	1.4	1.9	0.0	1.4
60	0.4	0.6	0.0	0.4

<sup>(1)</sup> 100% of all terminated vested members will choose a refund of contributions and 0% will choose a deferred vested benefit.

<sup>(2)</sup> 15% of all terminated vested members will choose a refund of contributions and 85% will choose a deferred vested benefit.

**Retirement Rates:**

Rate (%)			
Age	General	Safety - Law and Fire <sup>(1)</sup>	Safety – Probation <sup>(1)</sup>
50	3.0	10.0	4.0
51	3.0	15.0	6.0
52	3.0	20.0	8.0
53	3.0	20.0	10.0
54	3.0	20.0	15.0
55	4.0	25.0	20.0
56	5.0	25.0	25.0
57	6.0	30.0	25.0
58	7.0	30.0	30.0
59	9.0	40.0	30.0
60	11.0	100.0	40.0
61	13.0	100.0	50.0
62	15.0	100.0	60.0
63	17.0	100.0	100.0
64	19.0	100.0	100.0
65	25.0	100.0	100.0
66	20.0	100.0	100.0
67	20.0	100.0	100.0
68	20.0	100.0	100.0
69	20.0	100.0	100.0
70	100.0	100.0	100.0

<sup>(1)</sup> 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, we make the following retirement assumption:

General Age: 57  
Safety Age: 53

We assume that 40% of future General and Safety deferred vested members are reciprocal. For reciprocals, we assume 5.1% compensation increases per annum.

**Liability Calculation for Current  
Deferred Vested Members:**

Liability for a current deferred vested member is calculated based on salary, service, and eligibility for reciprocal benefit as provided by the Retirement System. For those members without salary and/or service information, we assumed a refund of account balance.

**Future Benefit Accruals:**

1.0 year of service per year of employment. There is no assumption to anticipate conversion of unused sick leave at retirement.

**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 and 50% of female members are assumed to be married at retirement or time of pre-retirement death.

**Age of Spouse:**

Female (or male) four years younger (or older) than spouse.

**Net Investment Return:**

7.75%; net of investment and administrative expenses.

**Employee Contribution  
Crediting Rate:**

5.00%, compounded semi-annually.

**Consumer Price Index:**

Increase of 3.50% per year, retiree COLA increases due to CPI subject to a 3.0% maximum change per year.

**Salary Increases:**

<u>Annual Rate of Compensation Increase (%)</u>		
Inflation: 3.50%, plus the following Merit and Promotion increases:		
<u>Age</u>	<u>General</u>	<u>Safety</u>
20	7.0%	6.0%
25	5.2	5.1
30	3.4	3.6
35	2.2	1.8
40	1.7	0.7
45	1.6	0.5
50	1.4	0.5
55	0.9	0.5
60	0.6	0.0
65+	0.6	0.0

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

**Annual Payoffs Assumptions:**

Additional compensation amounts are expected to be received during a member’s final average earnings period. The percentages used in this valuation are:

	<u>Final One Year Salary</u>	<u>Final Three Year Salary</u>
General Members	4.50%	2.10%
Safety - Probation	4.50%	2.10%
Safety - Law	9.30%	6.30%
Safety - Fire	5.10%	2.40%

The annual payoffs assumptions are the same for service and disability retirements.

**APPENDIX B**

**PROPOSED 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 three years.

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

*Employee Contribution Rates and Optional Benefits:*

For General Members: RP-2000 Combined Healthy Mortality Table set back one year, weighted 40% male and 60% female.

For Safety Members: RP-2000 Combined Healthy Mortality Table set back two years, weighted 80% male and 20% female.

**Termination Rates Before Retirement:**

Age	Rate (%) Mortality			
	General		Safety	
	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):**

Age	Rate (%)			
	General All Other <sup>(1)</sup>	General OCTA <sup>(2)</sup>	Safety - Law & Fire <sup>(3)</sup>	Safety - Probation <sup>(3)</sup>
20	0.00	0.00	0.03	0.00
25	0.00	0.00	0.08	0.06
30	0.03	0.03	0.16	0.16
35	0.08	0.08	0.32	0.20
40	0.13	0.28	0.52	0.20
45	0.17	0.49	0.72	0.20
50	0.19	0.64	0.98	0.20
55	0.23	0.88	2.24	0.20
60	0.34	1.30	3.60	0.08

<sup>(1)</sup> 50% of General All Other disabilities are assumed to be service connected disabilities. The other 50% are assumed to be non-service connected.

<sup>(2)</sup> 70% of General - OCTA disabilities are assumed to be service connected disabilities. The other 30% are assumed to be non-service connected.

<sup>(3)</sup> 100% of Safety – Law Enforcement, Fire and Probation disabilities are assumed to be service connected disabilities.

**Termination Rates Before Retirement (Continued):**

Years of Service	Rate (%)			
	Termination (< 5 Years of Service)			
	General All Other <sup>(1)</sup>	General OCTA <sup>(1)</sup>	Safety – Law & Fire <sup>(1)</sup>	Safety - Probation <sup>(1)</sup>
0	13.0	17.0	4.0	17.0
1	9.0	9.0	3.0	10.0
2	8.0	8.0	2.0	8.0
3	7.0	7.0	2.0	6.0
4	5.0	6.0	1.0	5.0

Age	Termination (5+ Years of Service)			
	General All Other <sup>(2)</sup>	General OCTA <sup>(2)</sup>	Safety – Law & Fire <sup>(3)</sup>	Safety – Probation <sup>(2)</sup>
20	5.0	4.0	1.0	5.0
25	5.0	4.0	1.0	5.0
30	5.0	4.0	1.0	4.6
35	4.4	4.0	0.9	3.8
40	3.7	4.0	0.6	3.1
45	2.9	3.4	0.5	2.5
50	2.2	2.7	0.2	2.0
55	1.4	1.9	0.0	1.3
60	0.4	0.6	0.0	0.4

<sup>(1)</sup> 75% of all terminated members will choose a refund of contributions and 25% will choose a deferred vested benefit.

<sup>(2)</sup> 20% of all terminated members will choose a refund of contributions and 80% will choose a deferred vested benefit.

<sup>(3)</sup> 10% of terminated members will choose a refund of contributions and 90% will choose a deferred vested benefit.

**Retirement Rates:**

Rate (%)					
Age	General - Enhanced	General – Non-Enhanced	Safety - Law <sup>(1)</sup>	Safety – Fire <sup>(1)</sup>	Safety – Probation <sup>(1)</sup>
50	3.0	3.0	15.0	10.0	4.0
51	3.0	3.0	15.0	12.0	4.0
52	3.0	3.0	15.0	14.0	4.0
53	3.0	3.0	20.0	15.0	7.0
54	4.0	3.0	20.0	17.0	10.0
55	8.0	4.0	20.0	25.0	20.0
56	10.0	5.0	20.0	25.0	20.0
57	12.0	6.0	20.0	30.0	20.0
58	13.0	7.0	25.0	30.0	25.0
59	14.0	9.0	30.0	40.0	30.0
60	15.0	11.0	100.0	100.0	35.0
61	16.0	13.0	100.0	100.0	45.0
62	17.0	15.0	100.0	100.0	60.0
63	18.0	17.0	100.0	100.0	100.0
64	20.0	19.0	100.0	100.0	100.0
65	25.0	25.0	100.0	100.0	100.0
66	25.0	20.0	100.0	100.0	100.0
67	25.0	20.0	100.0	100.0	100.0
68	25.0	20.0	100.0	100.0	100.0
69	25.0	20.0	100.0	100.0	100.0
70	100.0	100.0	100.0	100.0	100.0

<sup>(1)</sup> 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, we make the following retirement assumption:

General Age: 57  
Safety Age: 52

We assume that 30% of future General and Safety deferred vested members are reciprocal. For reciprocals, we assume 4.75% compensation increases per annum.

**Liability Calculation for Current  
Deferred Vested Members:**

Liability for a current deferred vested member is calculated based on salary, service, and eligibility for reciprocal benefit as provided by the Retirement System. For those members without salary and/or service information, we assumed a refund of account balance.

**Future Benefit Accruals:**

1.0 year of service per year of employment. There is no assumption to anticipate conversion of unused sick leave at retirement.

**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 and 50% of female members are assumed to be married at retirement or time of pre-retirement death.

**Age of Spouse:**

Female (or male) four years younger (or older) than spouse.

**Net Investment Return:**

7.75%; net of investment and administrative expenses.

**Employee Contribution  
Crediting Rate:**

5.00%, compounded semi-annually.

**Consumer Price Index:**

Increase of 3.50% per year, retiree COLA increases due to CPI subject to a 3.0% maximum change per year.

**Salary Increases:**

Annual Rate of Compensation Increase (%)		
Inflation: 3.50% per year, plus “across the board” salary increases of 0.25% per year, plus the following merit and promotion increases:		
Years of Service	General	Safety
Less than 1	8.00%	10.00%
1	7.00	8.00
2	6.00	7.00
3	5.00	6.00
4	4.00	4.00
5	3.00	3.00
6	2.00	2.00
7	1.75	1.75
8	1.50	1.50
9	1.25	1.25
10	1.25	1.00
11	1.25	1.00
12	1.25	1.00
13	1.25	1.00
14	1.25	1.00
15	1.25	1.00
16	1.00	1.00
17	1.00	1.00
18	1.00	1.00
19	1.00	1.00
20 & over	1.00	1.00

**Annual Payoffs Assumptions:**

Additional compensation amounts are expected to be received during a member’s final average earnings period. The percentages used in this valuation are:

	<u>Final One Year Salary</u>	<u>Final Three Year Salary</u>
General Members	4.50%	2.60%
Safety - Probation	4.80%	2.70%
Safety - Law	8.20%	5.60%
Safety - Fire	4.00%	3.60%

The annual payoffs assumptions are the same for service and disability retirements.