

**Ventura County Employees'
Retirement Association**

ACTUARIAL EXPERIENCE STUDY

**Analysis of Actuarial Experience
During the Period
July 1, 2011 through June 30, 2014**



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San Francisco, CA 94104

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April 14, 2015

Board of Retirement
Ventura County Employees' Retirement Association
1190 South Victoria Avenue, Suite 200
Ventura, CA 93003-6572

**Re: Review of Non-economic Actuarial Assumptions
for the June 30, 2015 Actuarial Valuation**

Dear Members of the Board:

We are pleased to submit this report of our review of the actuarial experience of the Ventura County Employees' Retirement Association. This study utilizes the census data of the last four actuarial valuations to review plan experience during the period from July 1, 2011 through June 30, 2014. The study develops the proposed actuarial assumptions to be used in future actuarial valuations starting with the June 30, 2015 actuarial valuation.

Please note that we have also reviewed the economic assumptions. The economic actuarial assumption recommendations for the June 30, 2015 valuation are provided in a separate report.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Angelo".

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

A handwritten signature in black ink, appearing to read "John Monroe".

John W. Monroe, ASA, MAAA, EA
Vice President and Actuary

AW/bqb

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I. INTRODUCTION, SUMMARY, AND RECOMMENDATIONS

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

If assumptions are modified, 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 is treated as temporary and that, over the long run, experience will return to what was originally assumed. Changing assumptions reflects a basic change in thinking about the future, and it has a much greater effect on the current contribution requirements than recognizing gains or losses as they occur.

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

This study was undertaken in order to review the demographic actuarial assumptions and to compare the actual experience with that expected under the current assumptions during the three-year experience period from July 1, 2011 through June 30, 2014. The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 35, "Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations" and ASOP No. 27 "Selection of Economic Assumptions for Measuring Pension Obligations." These Standards of Practice put forth guidelines for the selection of the various actuarial assumptions utilized in a pension plan actuarial valuation. Based on the study's results and expected future experience, we are recommending various changes in the current actuarial assumptions.

The economic assumptions are currently reviewed every three years at the same time as the non-economic assumptions. See the "Review of Economic Actuarial Assumptions for the June 30, 2015 Actuarial Valuation" that is provided in a separate report.

In this report we are recommending changes in the assumptions for retirement from active employment, percent married at retirement, average entry age for active members, average retirement age for deferred vested members, percent of members assumed to go on to work for a reciprocal system, reciprocal salary increases, pre-retirement mortality, healthy life post-retirement mortality, disabled life post-retirement mortality, turnover, disability (ordinary and duty), promotional and merit salary increases, and in-service redemptions.

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

Ref: Pg. 5 **Retirement Rates** – The probability of retirement at each age at which participants are eligible to retire.

Recommendation: Adjust the current retirement rates to those developed in Section III(B). Both General and Safety members are assumed to retire at slightly later ages.

Ref: Pg. 15 **Mortality Rates** – The probability of dying at each age. Mortality rates are used to project life
Pg. 23 expectancies.

Recommendation: Decrease pre- and post-retirement mortality rates for non-disabled General and Safety members as developed in Section III(C). Increase mortality rates for disabled Safety members and decrease mortality rates for disabled General members as developed in Section III(D).

Ref: Pg. 28 **Termination Rates** – The probability of leaving employment at each age and receiving either a refund of contributions or a deferred vested retirement benefit.

Recommendation: Change the termination rates for both General and Safety members to those developed in Section III(E). Overall, the termination rates have been decreased. In addition, maintain the assumption that a member will choose between a refund of contributions and a deferred vested benefit based on which option is more valuable.

Ref: Pg. 36 **Disability Incidence Rates** – The probability of becoming disabled at each age.

Recommendation: Decrease the current disability rates for General and Safety members to those developed in Section III(F).

Ref: Pg. 41 **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: Change the promotional and merit increases to those developed in Section III(G). In general, future promotional and merit salary increases are slightly higher under the new assumptions. Overall, salary increase are slightly lower for both General and Safety members due to the lower price inflation assumption (as recommended in our separate review of economic assumptions).

Ref: Pg. 47 **In-Service Redemptions** – Additional pay elements that are expected to be received during the member’s final average earnings period.

Recommendation: *Decrease the current in-service redemption assumptions for non-PEPRA General Tier 1 and non-PEPRA Safety to those developed in Section III(H).*

Ref: Pg. 48 **Average Entry Age (for member contributions)** – Used for determining contribution rates for members hired after November 1974.

Recommendation: *Decrease the current average entry age assumption for General members and maintain the current average entry age assumption for Safety members as developed in Section III(I).*

We have estimated the impact of proposed assumption changes as if they were applied to the June 30, 2014 actuarial valuation. Please note that the rates shown below do not reflect the 50/50 sharing of Normal Cost for non-PEPRA Tiers. If all of the proposed demographic assumption changes were implemented, the average employer rate would have increased by 1.57% of compensation. The average member rate would have increased by 0.05% of compensation. Of the various demographic assumption changes, the most significant cost impact is from the mortality assumption change.

If all of the proposed economic assumptions (recommended in a separate report) were implemented (including the proposed change to an explicit administrative expense load), the average employer rate would have increased by 1.88% of compensation and the average member rate would have been increased by 0.15%. Of the various economic assumption changes, the most significant cost impact is from the investment return assumption change from 7.75% net of administrative expenses to 7.50% gross of administrative expenses.

Therefore, the estimated cost impact of all proposed assumption changes (both demographic and economic) is 3.45% of compensation for the average employer rate, where the Normal Cost rate increased by 0.20%, the UAAL amortization rate increased by 2.70% and the explicit administrative expense load is 0.55%. The average member rate would have increased by 0.20% of compensation, including the explicit administrative load of 0.15%. The allocation of the explicit administrative expense load between employers and members is discussed in the economic assumptions report.

Section II provides some background on basic principles and the methodology used for the experience study and for the review of the demographic actuarial assumptions. A detailed discussion of each assumption and reasons for the proposed changes is found in Section III. Section IV shows the cost impact of the proposed assumption changes.

II. BACKGROUND AND METHODOLOGY

In this report, we analyzed the “demographic” or “non-economic” assumptions only. Our analysis of the “economic” assumptions for the June 30, 2015 valuation is provided in a separate report. Demographic assumptions include the probabilities of certain events occurring in the population of members, referred to as “decrements,” e.g., termination from service, disability retirement, service retirement, and death after retirement. We also review the individual salary increases net of inflation (i.e., the promotional and merit assumptions) in this report.

Demographic Assumptions

In order to determine the probability of an event occurring, we examine the “decrements” and “exposures” of that event. For example, taking termination from service, we compare the number of employees who actually terminate in a certain age and/or service category (i.e., the number of “decrements”) with those “who could have terminated” (i.e., the number of “exposures”). For example, if there were 500 active employees in the 20-24 age group at the beginning of the year and 50 of them terminate during the year, we would say the probability of termination in that age group is $50 \div 500$ 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 credibility 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 currently reviewed every three years at the same time as the non-economic assumptions. See the separate report titled “Review of Economic Actuarial Assumptions for the June 30, 2015 Actuarial Valuation”.

B. RETIREMENT RATES

The age at which a member retires from service (i.e., who did not retire on a disability pension) will affect both the amount of the benefits that will be paid to that member as well as the period over which funding must take place.

The table on the following page shows the observed service retirement rates for non-PEPRA General members based on the actual experience over the past three years. The observed service retirement rates were determined by comparing those members who actually retired from service to those eligible to retire from service. This same methodology is followed throughout this report and was described in Section II. Also shown are the current assumed rates and the rates we propose:

Non-PEPRA General Tiers

Age	Current Rate of Retirement	Actual Rate of Retirement	Proposed Rate of Retirement
Under 50	0.00%	66.67%	0.00%
50	3.00	2.46	2.50
51	3.00	1.93	2.50
52	4.00	1.94	3.00
53	4.00	3.49	3.50
54	6.00	3.38	4.00
55	6.00	4.02	4.50
56	7.00	3.17	5.00
57	8.00	4.44	6.00
58	10.00	6.34	8.00
59	10.00	6.21	8.00
60	14.00	10.06	12.00
61	18.00	11.76	15.00
62	22.00	23.77	22.00
63	20.00	18.33	20.00
64	25.00	19.14	22.00
65	35.00	27.97	30.00
66	35.00	34.58	35.00
67	35.00	23.44	35.00
68	25.00	51.06	35.00
69	20.00	29.41	20.00
70	20.00	27.27	20.00
71	20.00	14.71	20.00
72	20.00	13.64	20.00
73	20.00	7.14	20.00
74	40.00	0.00	30.00
75 & Over	100.00	16.00	100.00

As shown above, we are recommending decreases in most of the retirement rates for non-PEPRA General members.

Chart 1 that follows later in this section compares actual experience with the current and proposed rates of retirement for non-PEPRA General members.

The following table shows the observed retirement rates for non-PEPRA Safety members over the past three years. Also shown are the current assumed rates and the rates we propose:

Non-PEPRA Safety Tiers			
Age	Current Rate of Retirement	Actual Rate of Retirement	Proposed Rate of Retirement
Under 40	0.00%	0.00%	0.00%
40	1.00	50.00	1.00
41	1.00	0.00	1.00
42	1.00	4.00	1.00
43	1.00	2.86	1.00
44	1.00	0.00	1.00
45	1.00	0.00	1.00
46	1.00	0.00	1.00
47	1.00	0.00	1.00
48	1.00	0.00	1.00
49	1.00	2.56	1.50
50	2.00	3.36	2.50
51	2.00	1.64	2.00
52	4.00	1.61	3.00
53	6.00	1.92	4.00
54	18.00	16.35	17.00
55	25.00	16.84	22.00
56	20.00	25.00	22.00
57	20.00	21.28	20.00
58	18.00	21.88	19.00
59	25.00	19.35	22.00
60	25.00	18.18	22.00
61	30.00	21.43	25.00
62	40.00	36.36	35.00
63	50.00	16.67	40.00
64	50.00	14.29	40.00
65 & Over	100.00	100.00	100.00

Overall, we are recommending decreases in the retirement rates for non-PEPRA Safety members.

Chart 2 compares actual experience with the current and proposed rates for non-PEPRA Safety members.

Note that effective January 1, 2013, new PEPRA formulas were implemented for PEPRA General and PEPRA Safety Tiers. For these new tiers we do not have any experience from the past three years to propose new rates based on actual retirements from members of those tiers. However, we have recommended changes to the retirement assumptions at some ages for PEPRA members based on our recommended assumptions for non-PEPRA members.

The following are the current and proposed rates of retirement for PEPRA General and Safety members:

General and Safety PEPRA Tiers

Age	Current General PEPRA Tiers	Proposed General PEPRA Tiers	Current Safety PEPRA Tiers	Proposed Safety PEPRA Tiers
50	0.00%	0.00%	4.00%	5.00%
51	0.00	0.00	2.00	2.00
52	2.00	2.00	5.00	4.00
53	2.00	2.00	8.00	6.00
54	3.00	2.50	18.00	16.00
55	5.00	4.00	20.00	20.00
56	5.00	4.50	20.00	20.00
57	6.00	5.00	18.00	18.00
58	7.00	6.00	18.00	18.00
59	8.00	7.00	30.00	25.00
60	10.00	9.00	30.00	25.00
61	12.50	11.00	30.00	25.00
62	20.00	20.00	50.00	40.00
63	20.00	20.00	50.00	40.00
64	20.00	18.00	50.00	40.00
65	25.00	20.00	100.00	100.00
66	30.00	30.00	100.00	100.00
67	30.00	30.00	100.00	100.00
68	30.00	30.00	100.00	100.00
69	30.00	30.00	100.00	100.00
70	50.00	50.00	100.00	100.00
71	50.00	50.00	100.00	100.00
72	50.00	50.00	100.00	100.00
73	50.00	50.00	100.00	100.00
74	50.00	50.00	100.00	100.00
75 & Over	100.00	100.00	100.00	100.00

Chart 3 compares the current rates with the proposed rates of retirement for PEPRA General members.

Chart 4 compares the current rates with the proposed rates of retirement for PEPRA Safety members.

Deferred Vested Members

In prior valuations, deferred vested General and Safety members were assumed to retire at age 58 and 54, respectively. The average age at retirement over the prior three years was 59 for General and 54 for Safety. We recommend increasing the General assumption to age 59 and maintaining the Safety assumption at age 54.

Reciprocity

It was also assumed that 50% of inactive General and 65% of inactive Safety deferred vested participants would be covered under a reciprocal retirement system and receive 4.50% annual salary increases from termination until their date of retirement. As of June 30, 2014, about 52% of the total General deferred vested members and 63% of the total Safety deferred vested members have gone on to be covered by a reciprocal retirement system. As a result, we recommend maintaining the reciprocal assumption at 50% for General members and decreasing the assumption to 60% for Safety members. This recommendation takes into account the experience of all deferred vested members as of June 30, 2014 instead of just new deferred vested members during the three-year period. This is because there is a lag between a member's date of termination and the time that it is known if they have reciprocity with a reciprocal retirement system.

Based on our recommended salary increase assumptions, we propose that the current 4.50% annual salary increase assumption for reciprocal members be reduced from 4.50% to 4.00% to anticipate salary increases from termination from VCERA to the expected date of retirement.

Survivor Continuance Under Unmodified Option

In prior valuations, it was assumed that 70% of all active male members and 50% of all active female members would be married or have an eligible domestic partner when they retired. We reviewed experience for new retirees during the three-year period and determined the actual percentage of these new retirees that had an eligible spouse or eligible domestic partner at the time of retirement. The results of that analysis are shown below.

New Retirees – Actual Percent with Eligible Spouse or Domestic Partner

Year Ending June 30	Male	Female
2012	71%	55%
2013	64%	52%
2014	53%	58%
Total	63%	55%

According to experience of members who retired during the last three years, about 63% of all male members and 55% of all female members were married or had a domestic partner at retirement. However, we note that the 2014 percentage for males of 53% appears to be unusually low. We recommend maintaining the assumption at 70% for male members and increasing the assumption to 55% for female members.

Since the value of the survivor's benefit is dependent on the survivor's age and sex, we must also have assumptions for the age and sex of the survivor. Based on the experience during the three-year period and studies done for other retirement systems, we believe that it is reasonable to continue to assume a three-year age difference for the survivors age as compared to the member's age.

Since the majority of survivors are expected to be of the opposite sex, even with the inclusion of domestic partners, we will continue to assume that the survivor's sex is the opposite of the member.

The proposed assumption for the age of the survivor and recommended assumption are shown below. These assumptions will continue to be monitored in future experience studies.

Survivor Ages – Current Assumptions		
Beneficiary Sex	Survivor's Age as Compared to Member's Age	
	Current Assumption	Recommended Assumption
Male	3 years older	No change
Female	3 years younger	No change

Chart 1
Retirement Rates - Non-PEPRA General Members

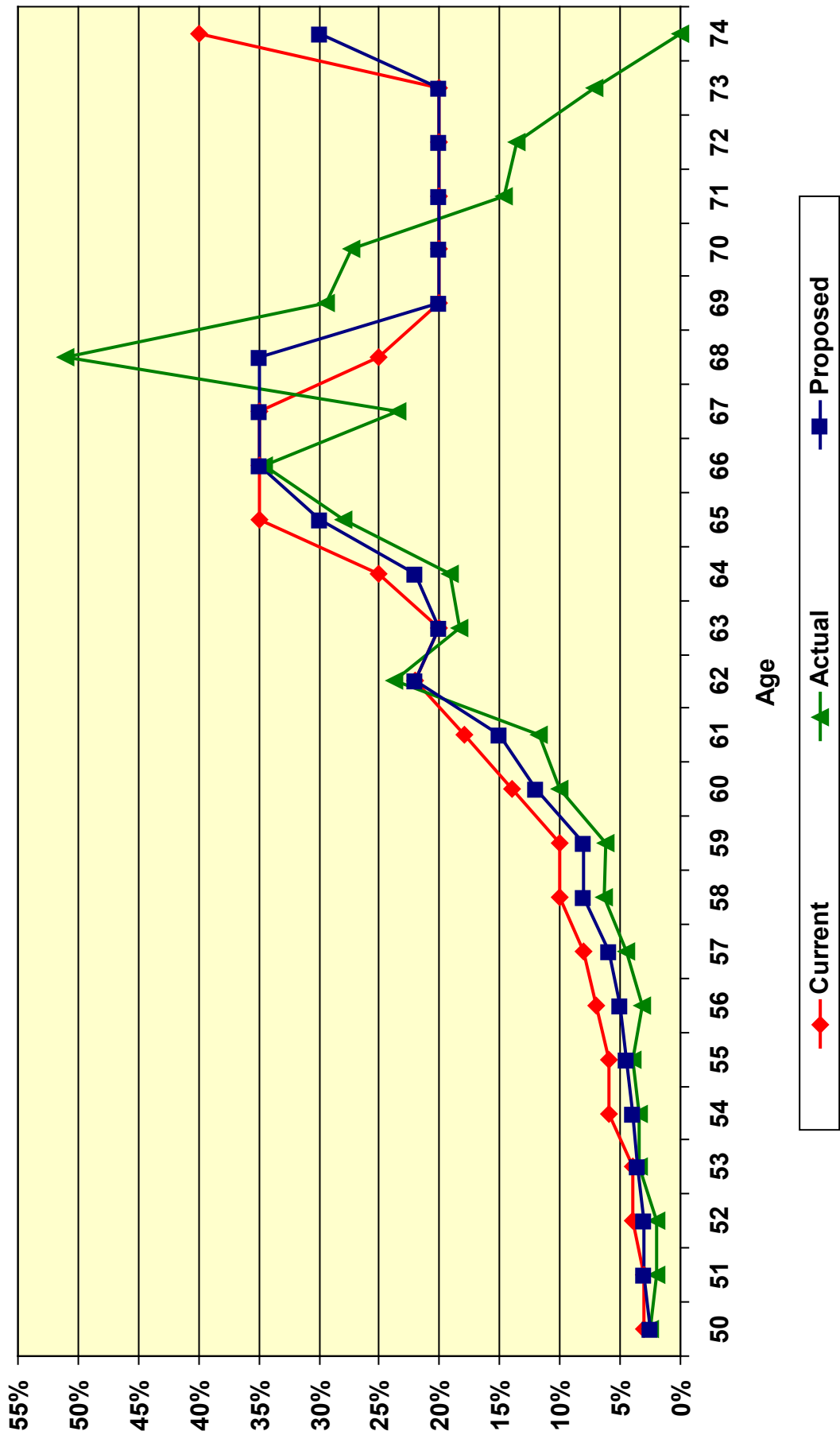


Chart 2 Retirement Rates - Non-PEPRA Safety Members

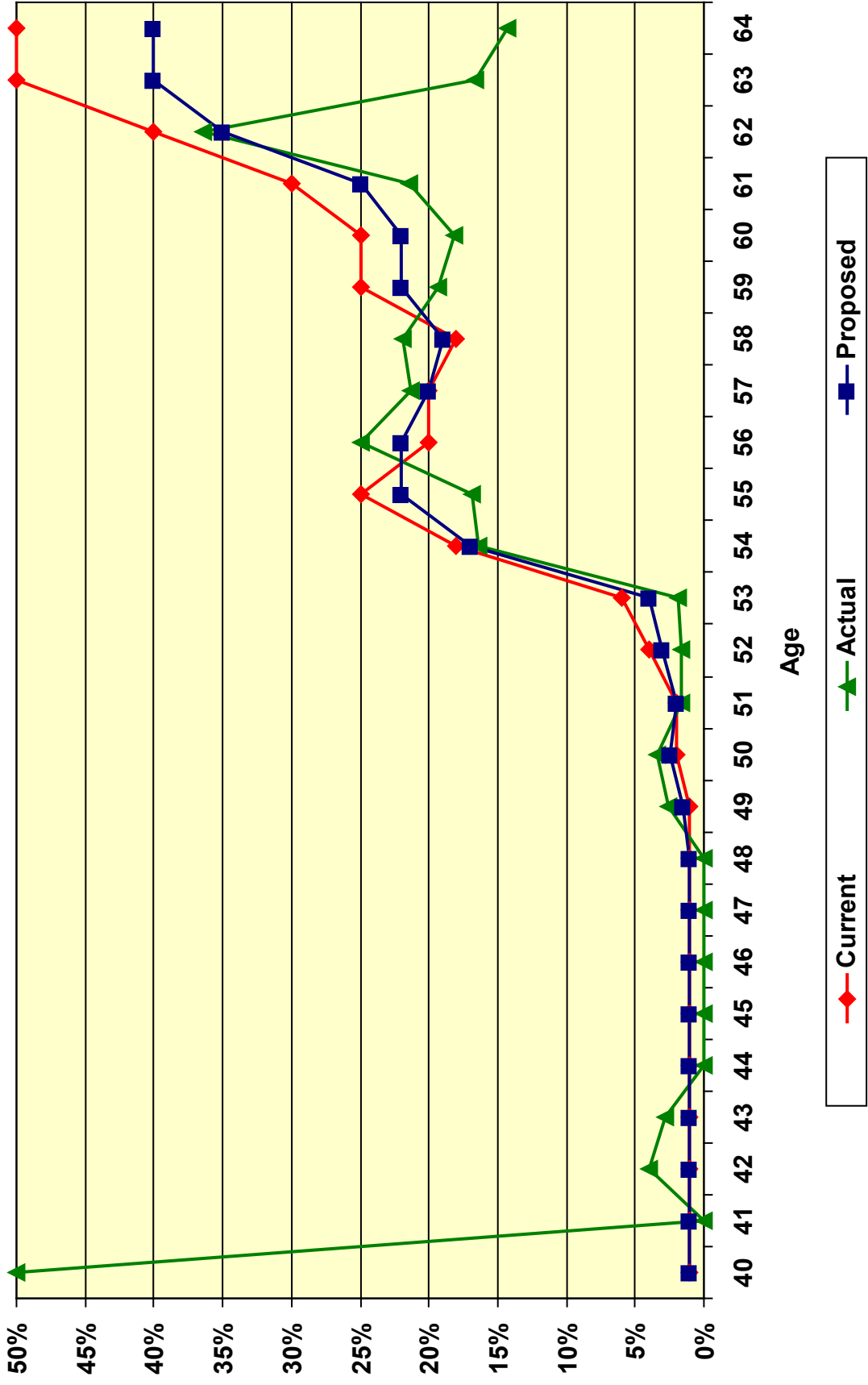
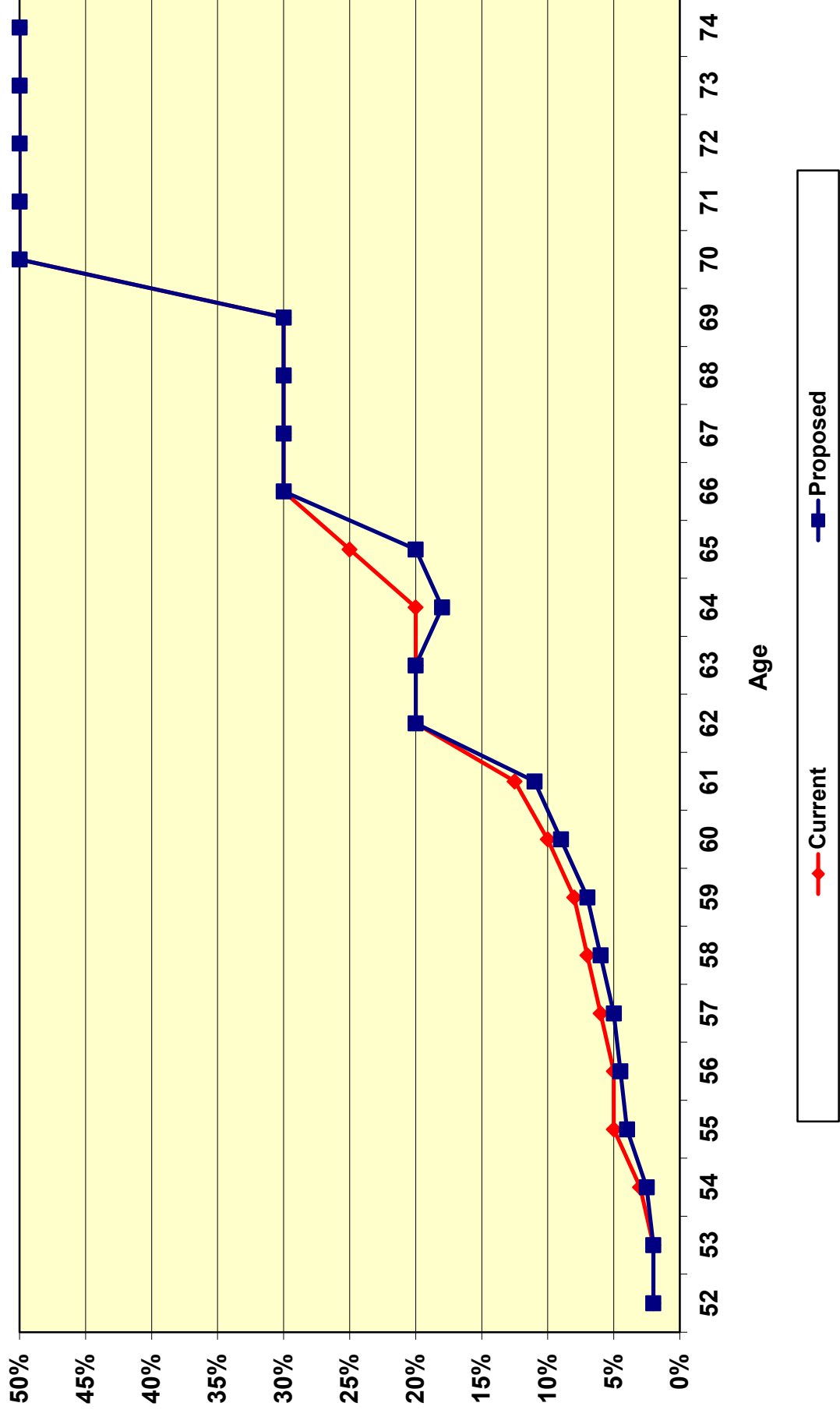
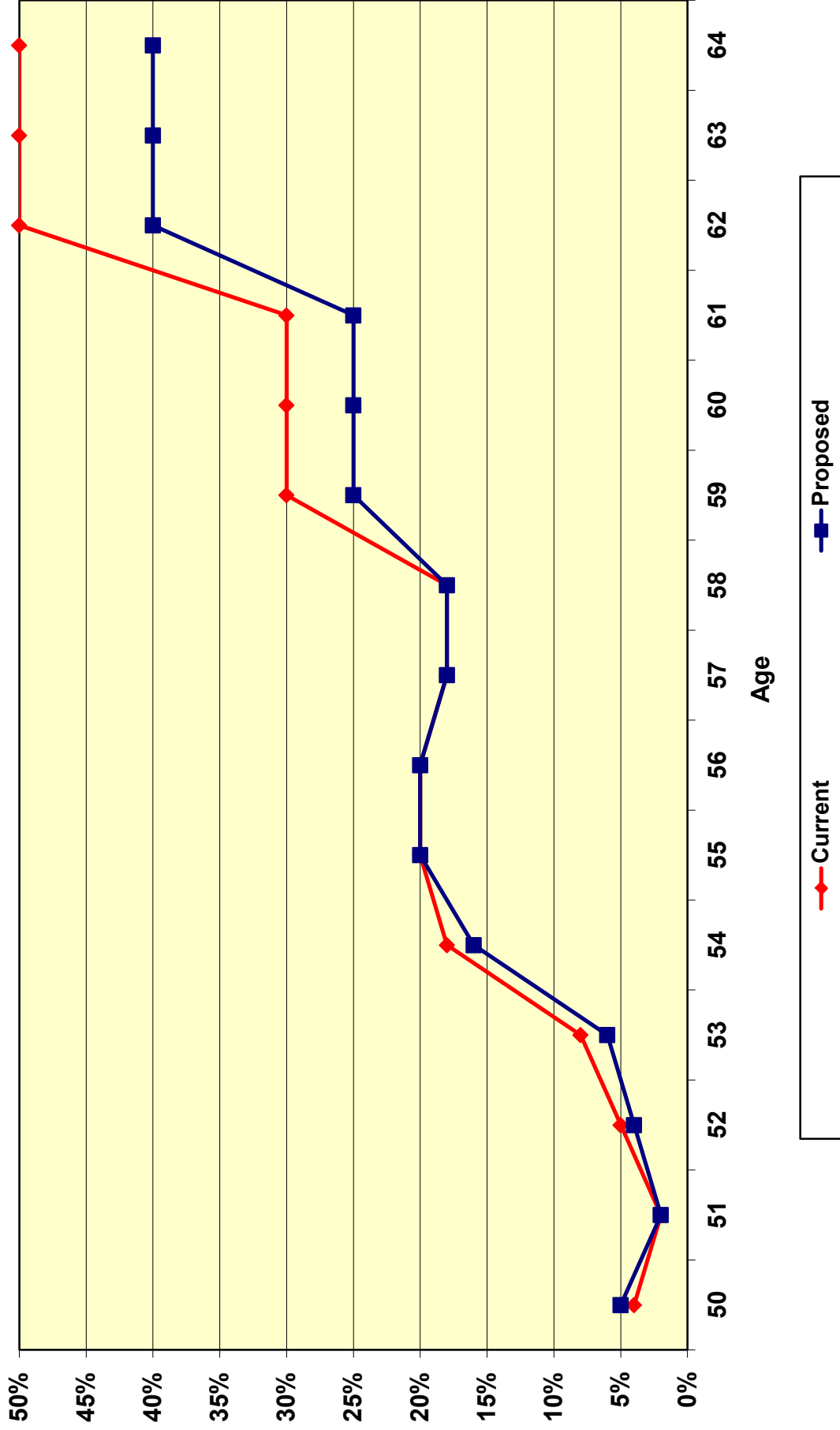


Chart 3
Retirement Rates - PEPRA General Members



**Chart 4
Retirement Rates - PEPRAs Safety Members**



C. MORTALITY RATES - HEALTHY

The “healthy” mortality rates project what proportion of members will die before retirement as well as the life expectancy of a member who retires from service (i.e., who did not retire on a disability pension). The table currently being used for both General and Safety post-service retirement mortality rates is the RP-2000 Combined Healthy Mortality Table (separate tables for males and females) projected with Scale AA to 2025 with ages set back one year. Beneficiaries are assumed to have the same mortality of a General member of the opposite sex who has taken a service (non-disability) retirement.

Recent changes to ASOP 35 have increased the actuary’s responsibility to reflect and to disclose an allowance for future mortality improvement in this assumption. Ways to reflect anticipated future mortality improvement include:

- Age adjustments – A standard table is used without projection but with age adjustments (“set back” or “set forward”) chosen as to forecast fewer deaths than the current experience level, thus implicitly allowing for future mortality improvement.
- Projection to a future year – The same mortality table is used for future years, but that table is intended to be reflective of mortality at some particular future year, not as of the current year.
- Generational mortality – Each future year has its own mortality table that reflects the forecasted improvements. In effect, this means that younger participants have more future mortality improvement built in than older participants do.

Historically, we have used age adjustments, but in the previous study we also included a projection to a future year when setting mortality assumptions for VCERA. In particular, the RP-2000 Combined Healthy Mortality Table was projected to the year 2025 and then we applied an age adjustment similar to the one described in the first bullet so that actual deaths would be at least 10% greater than those assumed.

Pre-Retirement Mortality

The number of deaths among active and deferred vested members is not large enough to provide a statistically credible basis for a specific pre-retirement mortality analysis. Therefore, we continue to propose that pre-retirement mortality follow the same tables used for post-retirement mortality. In addition, based on experience from the last three years of 23 total deaths, none were due to service connected (duty) causes. For that reason, we recommend maintaining the current assumption that all pre-retirement deaths are assumed to be ordinary (non-duty) based on recent data.

Post-Retirement Mortality (Service Retirements)

Our analysis starts with a table that shows among all service retired members, the actual deaths compared to the expected deaths under the current assumptions for the last three years. We also show the deaths under proposed assumptions based on using a methodology generally consistent with prior years. As noted above, in prior years we have generally set the mortality assumption so that actual deaths will be at least 10% greater than those assumed. We are recommending continuation of that methodology in this experience study. However, as discussed later in this section, the Board should be aware that a future recommendation may include the use of a generational mortality table.

	<u>General – Healthy</u>			<u>Safety – Healthy</u>		
	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths
Male	106	95	86	21	15	15
Female	<u>131</u>	<u>143</u>	<u>124</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total	237	238	210	22	16	16
Actual / Expected	100%		113%	73%		100%

Chart 5 compares actual to expected deaths for General members under the current and proposed assumptions over the last three years. Experience shows that there was one more death than predicted by the current table.

Chart 6 has the same comparison for Safety members. Experience shows that there were fewer deaths than predicted by the current table.

For General service retirees the ratio of actual to expected deaths was 100%. We recommend changing the current table to the RP-2000 Combined Healthy Mortality Table (separate tables for males and females) projected with Scale BB to 2035 with ages set back one year for males and set forward one year for females. This will bring the actual to expected ratio to 113%. This is consistent with ASOP 35 as we are continuing to include about a 10% margin in the rates to anticipate expected future improvement in life expectancy.

For Safety service retirees the ratio of actual to expected deaths was 73%. We recommend changing the current table to the RP-2000 Combined Healthy Mortality Table (separate tables for males and females) projected with Scale BB to 2035 with ages set back three years for both males and females. This will bring the actual to expected ratio to 100%. The aggregate actual to expected ratio is 112% when combining with General members. We will continue to closely monitor this assumption in future studies.

Chart 7 shows the life expectancies (i.e., expected future lifetime) under the current and the proposed tables for General members.

Chart 8 shows the same information for Safety members.

As mentioned earlier, we want to make the Board aware that a future recommendation might be for the use of a generational mortality table. While the use of generational mortality tables is under considerable discussion as an emerging practice within the actuarial profession, to date it is still uncommon for public sector retirement plans to actually use a generational mortality table. However, we anticipate that actuarial practice will continue to move in this direction, for reasons we will now discuss.

A generational mortality table provides dynamic projections of mortality experience for each cohort of retirees. For example, the mortality rate for someone who is 65 next year will be slightly less than for someone who is 65 this year. In general, using generational mortality anticipates increases in the cost of the Plan over time as participants' life expectancies are projected to increase. This is in contrast to updating a static mortality assumption with each experience study as we have proposed in this and prior experience studies.

Using generational mortality rather than static mortality incorporates a more explicit assumption for future mortality improvement. Accordingly, the goal is to start with a mortality table that closely matches the current experience (without a margin for future mortality improvement), and then reflect mortality improvement by projecting lower mortality rates in future years. That is why, for an illustrative generational mortality table that we developed for the Plan, the current actual to expected ratio shown in the tables below is only around 100%. In future years these ratios would remain around 100%, as long as actual mortality improved at the same rates as anticipated in the generational mortality tables.

	General – Healthy			Safety – Healthy		
	Expected Deaths	Actual Deaths	Proposed Expected Deaths*	Expected Deaths	Actual Deaths	Proposed Expected Deaths**
Male	106	95	93	21	15	16
Female	<u>131</u>	<u>143</u>	<u>143</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total	237	238	236	22	16	17
Actual / Expected	100%		101%	73%		94%

* For illustration purposes only and shown for the RP-2000 Combined Healthy Mortality Table projected to 2013 (middle year of the experience study period) with Scale BB, with age set back three years for males and no age set back for females.

** For illustration purposes only and shown for the RP-2000 Combined Healthy Mortality Table projected to 2013 (middle year of the experience study period) with Scale BB, with ages set back five years for males and females.

Note that using generational mortality increases current liabilities and costs more than using static mortality but should result in fewer changes (and cost increases) in later years. For example, the generational mortality table developed above would increase the total (employer and member) contribution rate by about 1.5% of compensation more than the updated static table that we are recommending.¹

Note that there are currently unresolved issues regarding how generational mortality tables would be used in determining member contribution rates, optional forms of payments and reserve values. These issues would need to be addressed for VCERA before using a generational mortality table.

Mortality Table for Member Contributions

We recommend that the mortality table used for determining contributions for General members be changed from RP-2000 Combined Healthy Mortality Table projected with Scale AA to 2025 set back one year weighted 35% male and 65% female to the RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2035 set back one year for males and set forward one year for females weighted one-third male and two-third female. This is based on the proposed valuation mortality table for General members and the actual sex distribution of General members.

For Safety members, we recommend the mortality table be changed from the RP-2000 Combined Healthy Mortality Table projected with Scale AA to 2025 set back one year weighted 80% male and 20% female to the RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2035 set back three years weighted 80% male and 20% female. This is based on the proposed valuation mortality table for Safety members and the actual sex distribution of Safety members.

¹ These cost increases reflect the hypothetical adoption of generational mortality for both healthy and disabled retirees.

Chart 5
Post - Retirement Deaths
Non - Disabled General Members

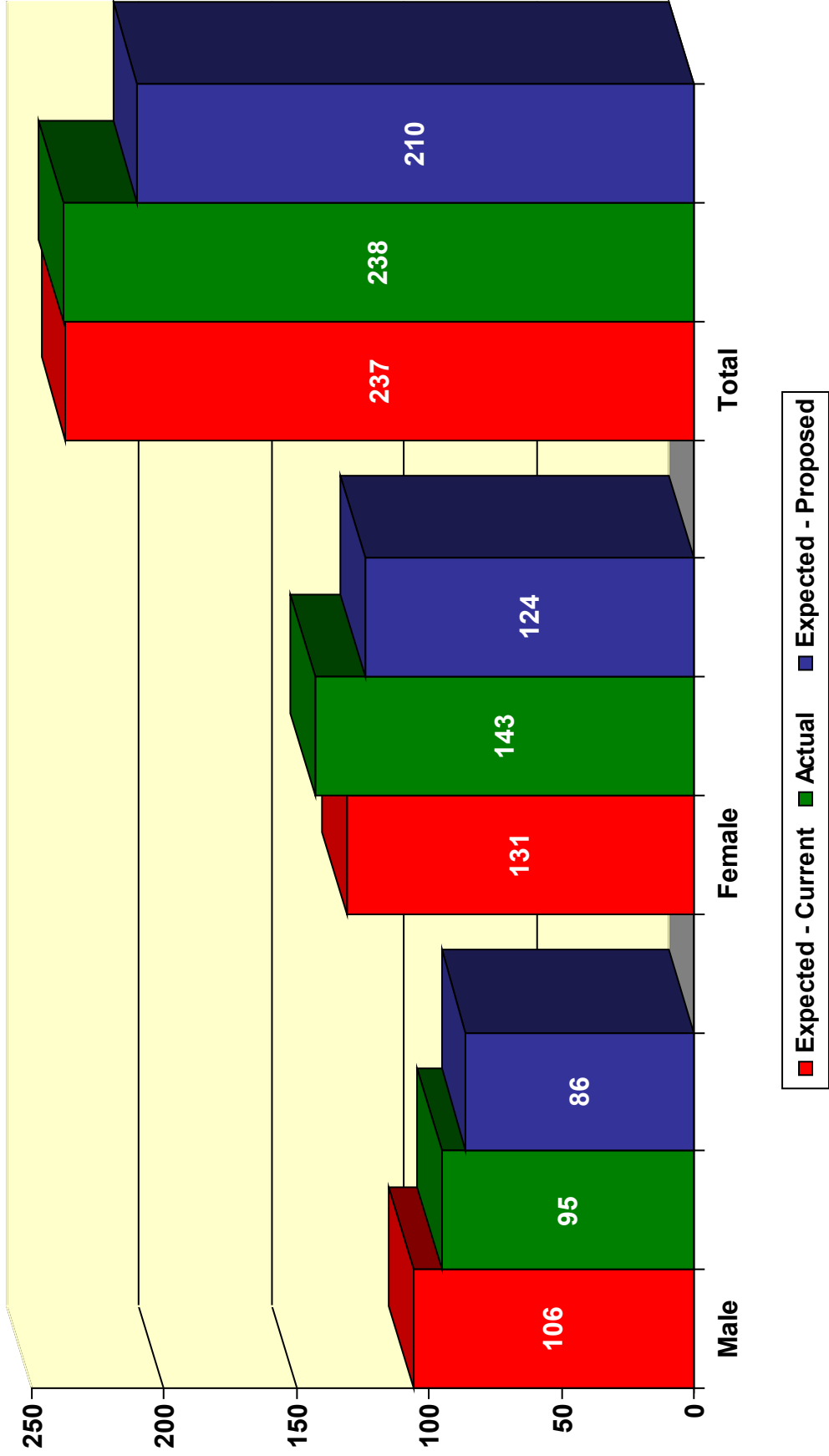


Chart 6
Post - Retirement Deaths
Non - Disabled Safety Members

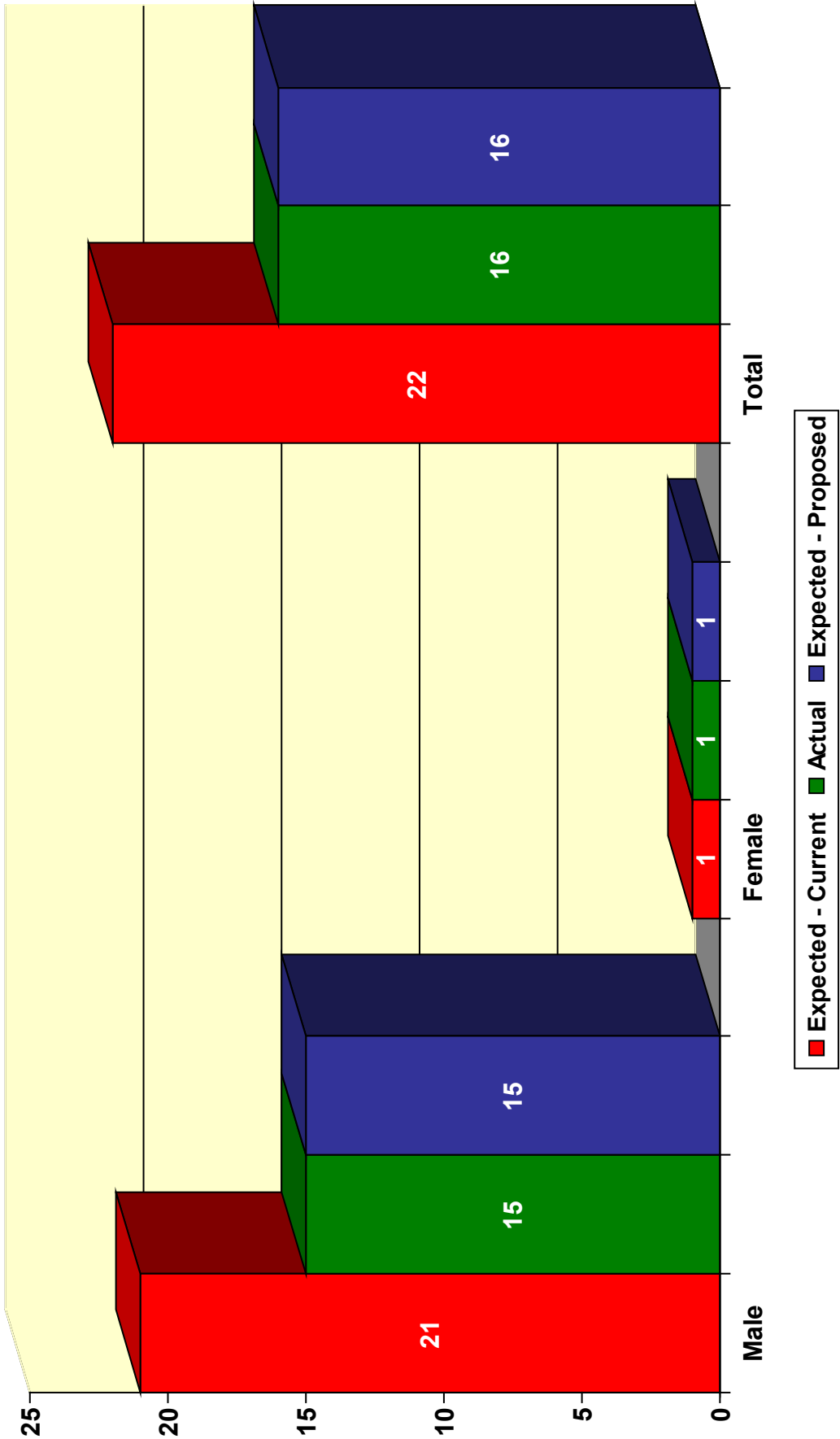


Chart 7
Life Expectancies
Non - Disabled General Members

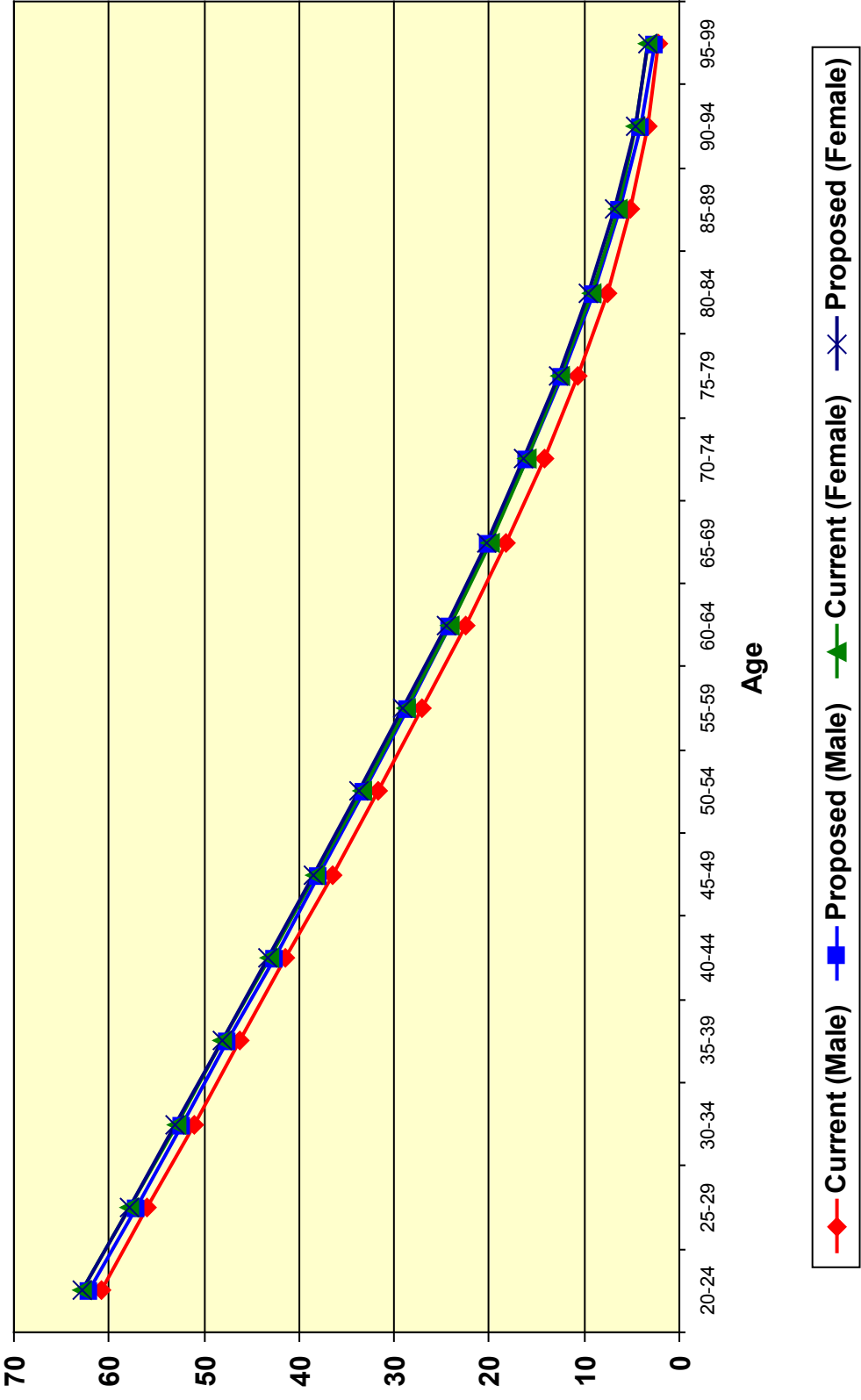
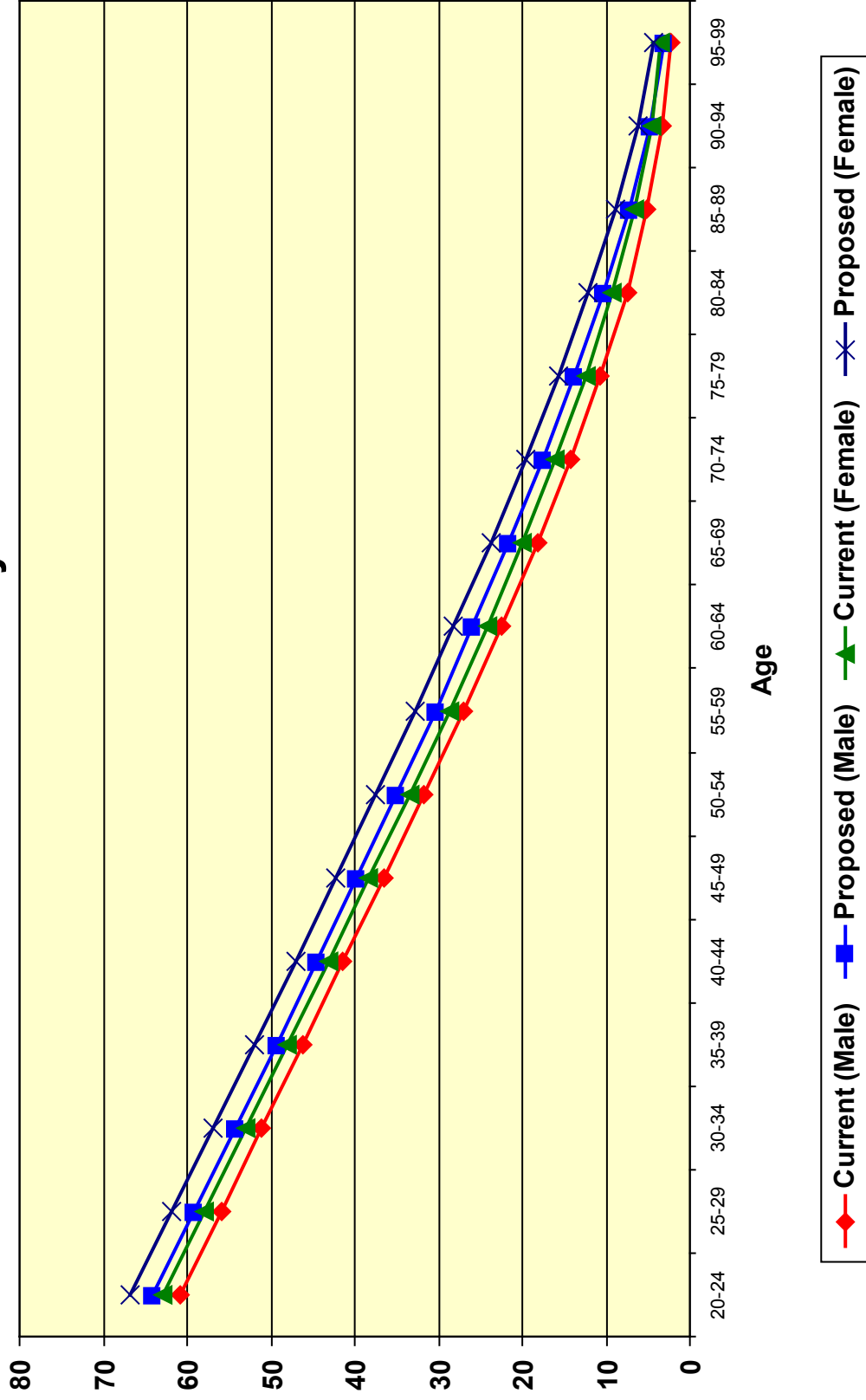


Chart 8

Life Expectancies

Non - Disabled Safety Members



D. MORTALITY RATES - DISABLED

Since mortality rates for disabled members can vary from those of healthy members, a different mortality assumption is often used. For General members, the table currently being used is the RP-2000 Combined Healthy Mortality Table (separate tables for males and females) projected with Scale AA to 2025 with ages set forward five years for males and seven years for females. For Safety members, the table currently being used is the RP-2000 Combined Healthy Mortality Table (separate tables for males and females) projected with Scale AA to 2025 with ages set back one year for both males and females.

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

	<u>General – Disabled</u>			<u>Safety – Disabled</u>		
	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths	Current Expected Deaths	Actual Deaths	Proposed Expected Deaths
Male	17	17	16	13	19	15
Female	<u>26</u>	<u>26</u>	<u>23</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total	43	43	39	14	20	16
Actual / Expected	100%		110%	143%		125%

Based on this experience, we recommend that the mortality table for General members be changed to the RP-2000 Combined Healthy Mortality Table (separate tables for males and females) projected with Scale BB to 2035 with ages set forward six years for males and set forward eight years for females. We recommend that the mortality table for Safety members be changed to the RP-2000 Combined Table (separate tables for males and females) projected with Scale BB to 2035 with ages set forward two years.

Chart 9 compares actual to expected deaths under both the current and proposed assumptions for disabled General members over the last three years. Experience shows that there were exactly the same number of deaths as predicted by the current table. Our recommendation for General members incorporates a margin for future mortality improvement.

Chart 10 has the same comparison for Safety members. Although experience shows that there were more deaths than predicted by the current table, our recommendation for Safety members still incorporates a reduced but sufficient margin for future mortality improvement.

Chart 11 shows the life expectancies under both the current and proposed tables for General members.

Chart 12 shows the same information for Safety members.

Chart 9
Post - Retirement Deaths
Disabled General Members

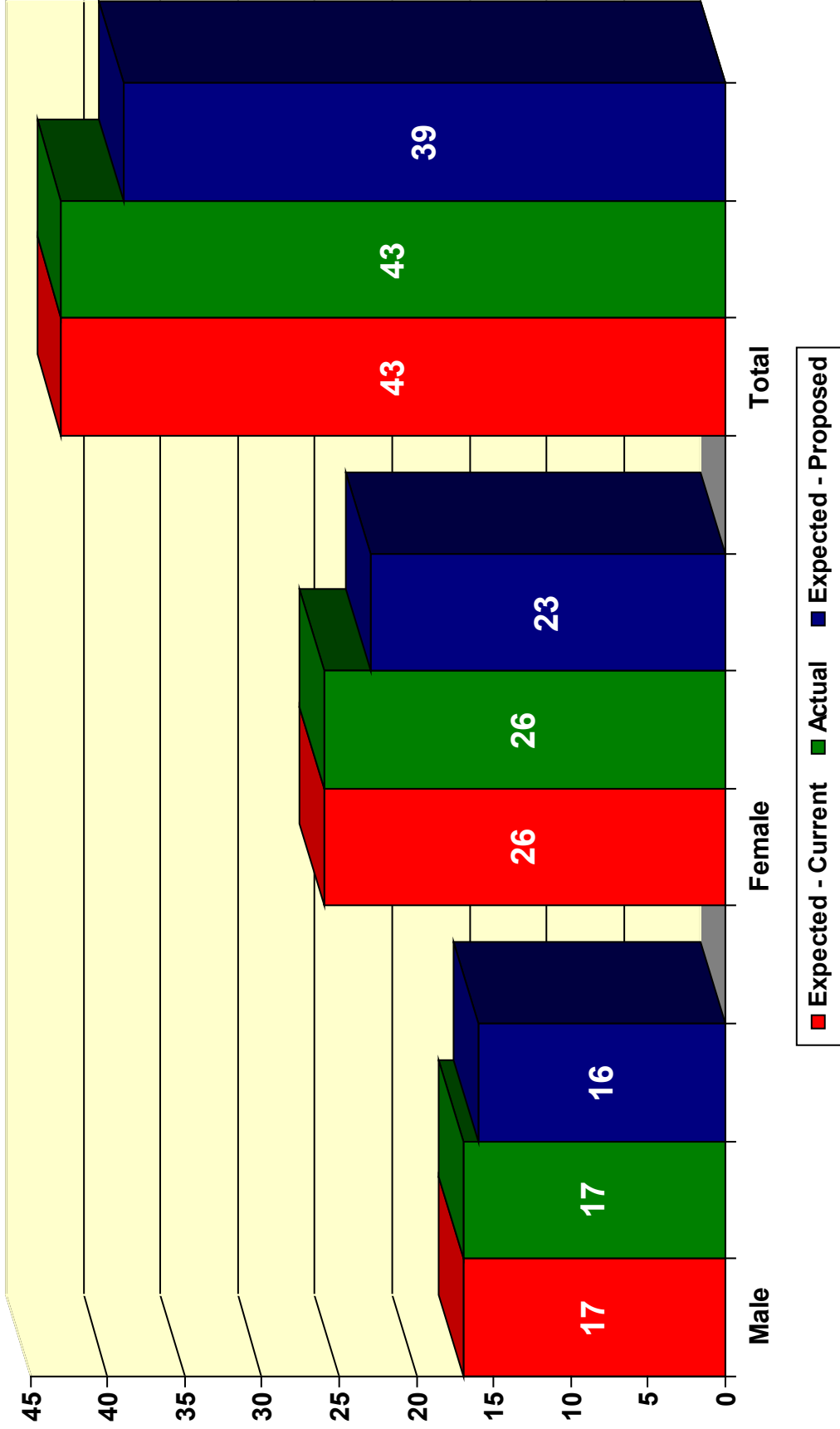


Chart 10
Post - Retirement Deaths
Disabled Safety Members

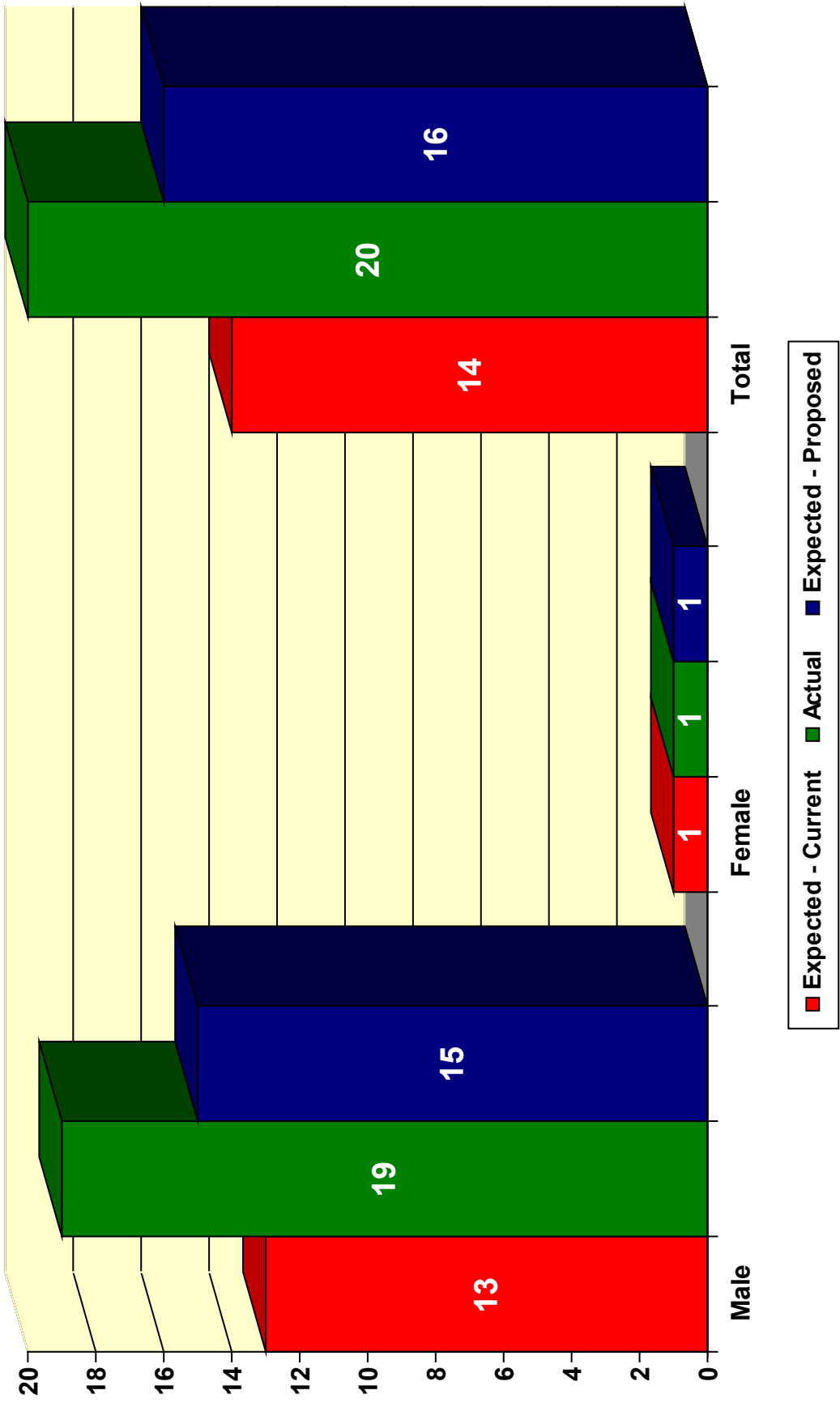


Chart 11
Life Expectancies
Disabled General Members

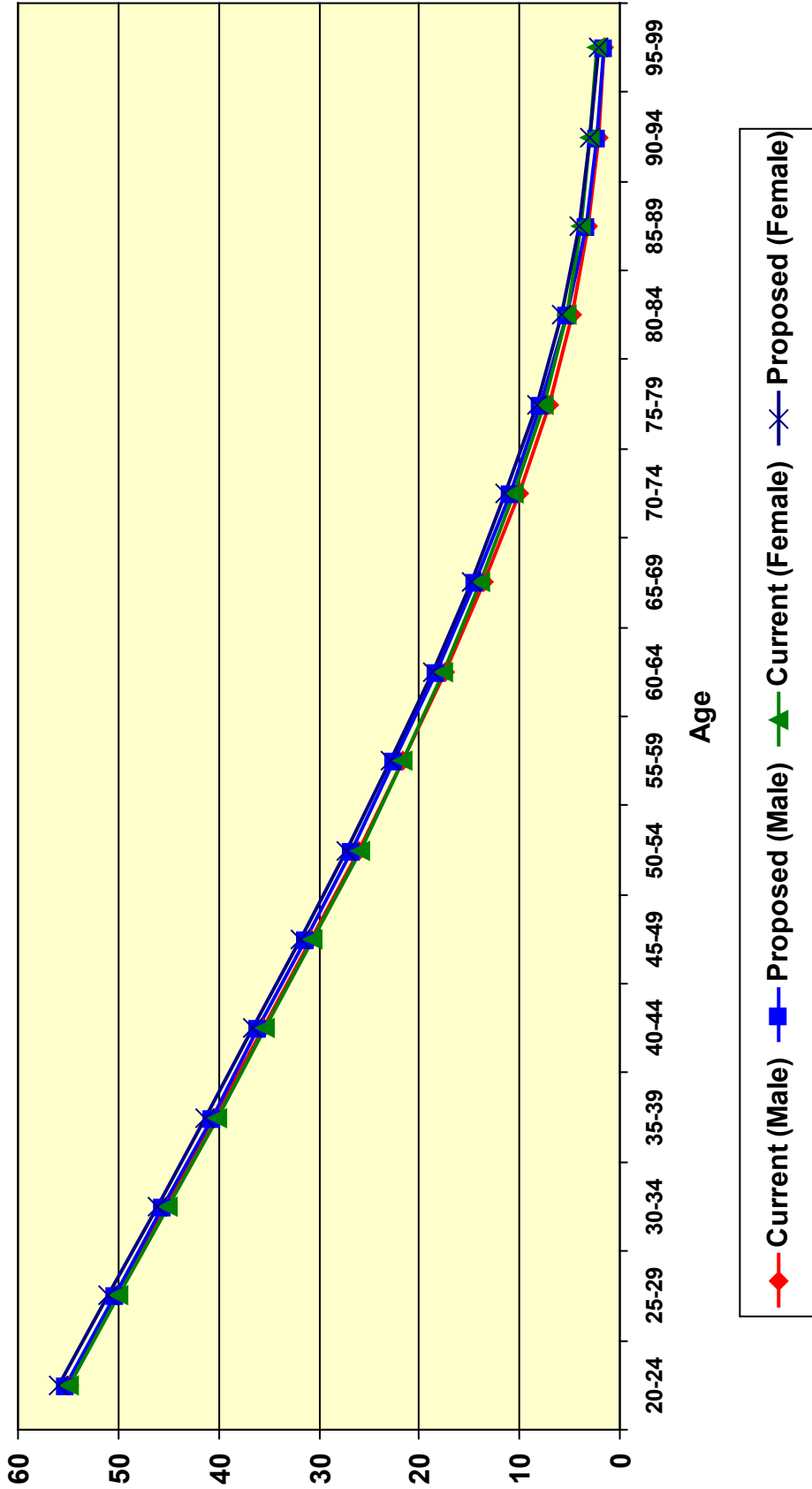
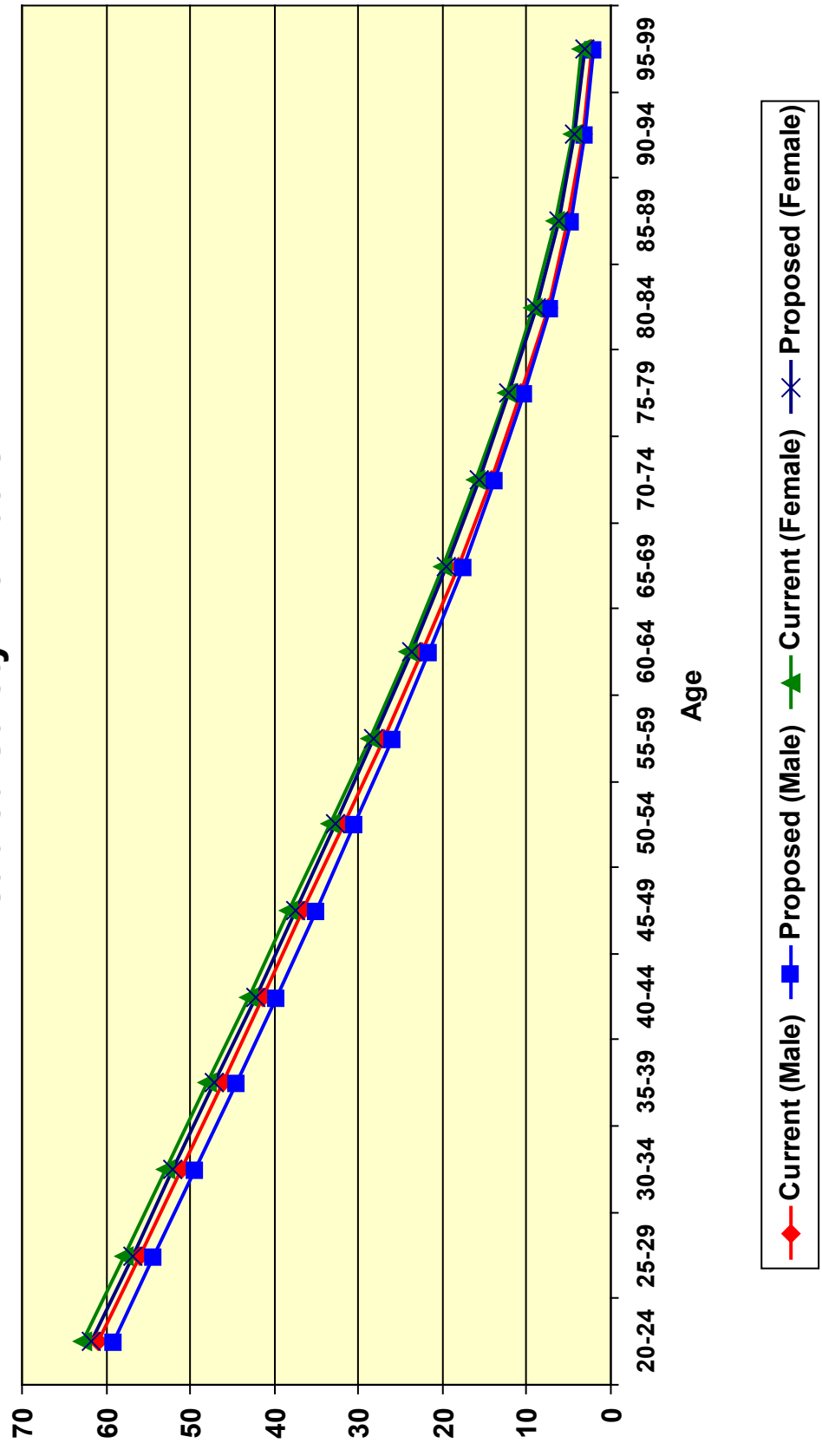


Chart 12
Life Expectancies
Disabled Safety Members



E. TERMINATION RATES

Termination rates include all terminations for reasons other than death, disability, or retirement. Under the current assumptions there is an overall incidence of termination assumed, combined with an assumption that a member will choose between a refund of contributions and a deferred vested benefit based on which option is more valuable. With this study, we continue to recommend that this same assumption structure be used.

Currently, the assumed termination rates are a function of a member's age for members with five or more years of service. Our experience review analyzed terminations both as a function of age and as a function of years of service. Our review found that while termination rates correlate with both years of service and age, we believe there is a stronger correlation with years of service. This is consistent with our experience from other systems.

As a result of this review, we recommend that the termination rate assumption be structured solely as a function of years of service.

The termination experience over the last three years for General and Safety members is shown by years of service in the following tables. Please note that we have excluded any members that were eligible for retirement. We also show the current and proposed assumptions.

Rates of Termination (General)

Years of Service	Current Rate*	Observed Rate	Proposed Rate
Less than 1	15.00%	12.80%	14.00%
1	10.00	9.81	10.00
2	8.00	8.20	8.00
3	7.00	6.16	7.00
4	6.00	6.15	6.00
5	3.56	4.32	4.00
6	3.38	2.76	3.75
7	3.21	4.03	3.50
8	3.07	2.44	3.50
9	3.30	2.28	3.25
10	3.75	3.68	3.25
11	3.65	2.66	3.00
12	3.55	3.21	3.00
13	3.49	1.82	2.75
14	3.38	2.53	2.75
15	3.22	2.89	2.50
16	3.17	3.07	2.50
17	2.99	1.31	2.25
18	2.93	0.76	2.00
19	2.81	0.85	2.00
20 or more	2.71	4.41	2.00

* *The rate shown for five or more years of service is an average rate developed from the current age based assumption for members in that service category.*

Rates of Termination (Safety)

Years of Service	Current Rate*	Observed Rate	Proposed Rate
Less than 1	12.00%	3.42%	10.00%
1	6.00	6.90	6.00
2	5.50	4.83	5.50
3	5.00	4.92	5.00
4	4.00	3.56	4.00
5	2.79	2.61	2.75
6	2.62	1.98	2.50
7	2.48	1.32	2.00
8	2.08	1.47	1.80
9	1.98	0.79	1.60
10	1.81	0.59	1.40
11	1.67	0.61	1.20
12	1.54	0.88	1.00
13	1.42	1.10	0.95
14	1.27	0.61	0.90
15	1.21	0.00	0.85
16	1.11	0.69	0.80
17	1.01	0.00	0.75
18	0.91	0.88	0.70
19	0.92	0.00	0.65
20 or more	0.54	100.00	0.60

* *The rate shown for or more five years of service is an average rate developed from the current age based assumption for members in that service category.*

It is important to note that not every service category has enough exposures and/or decrements such that the results in that category are statistically credible. This is mainly the case at the highest service categories since most members in those categories are eligible to retire and so have been excluded from our review of this experience. It is also the case in the tables that follow due to the even more limited experience regarding actual terminations.

Chart 13 compares actual to expected terminations over the past three years for both the current and proposed assumptions for General members.

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

Chart 15 shows the actual termination rates over the past three years compared to the current and proposed assumptions for General members.

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

Based upon the recent experience, the termination rates for General members have been increased for those with 5 to 8 years of service and decreased for all other years of service categories. For Safety, we have decreased the termination rates at most years of service categories. Overall, for both General and Safety members, the proposed termination rates are lower than those under the current assumptions.

It is our understanding that General Tier 2 COLA members can elect a refund of all or a portion of their Tier 2 COLA member contributions and forgo the Tier 2 COLA upon retirement. Based on the data, about 97% of General Tier 2 COLA retirees during the three-experience period are receiving a COLA on their Tier 2 benefits. We will continue to assume that all members retiring with the Tier 2 COLA will elect to have the COLA applied to their benefit.

We will also continue to assume that termination rates are zero at any age where members are assumed to retire. In other words, at those ages, members will either retire in accordance with the retirement rate assumptions or continue working, rather than terminate and defer their benefit.

Chart 13
Actual Number of Terminations Compared
to Expected - General Members

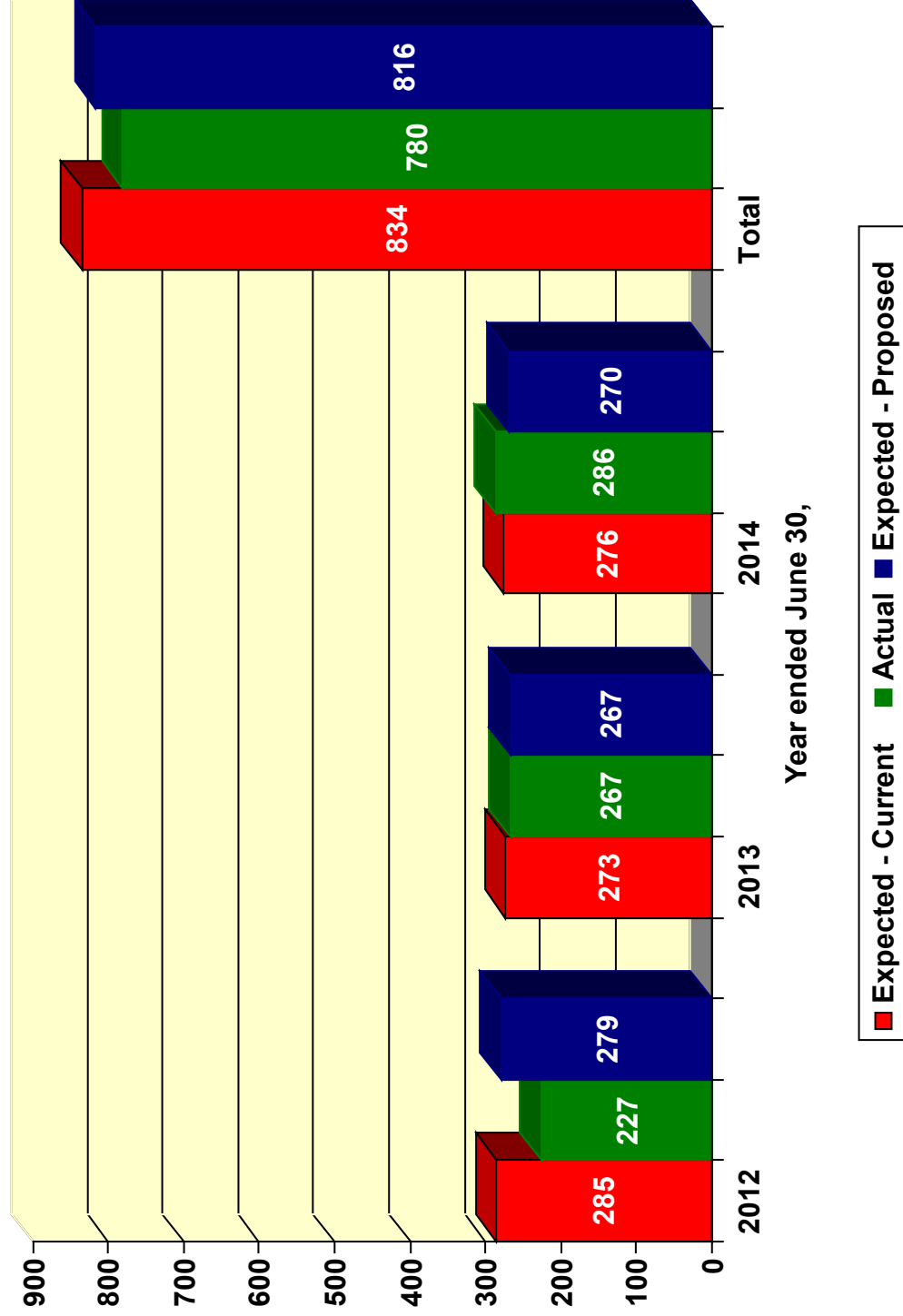


Chart 14
Actual Number of Terminations Compared
to Expected - Safety members

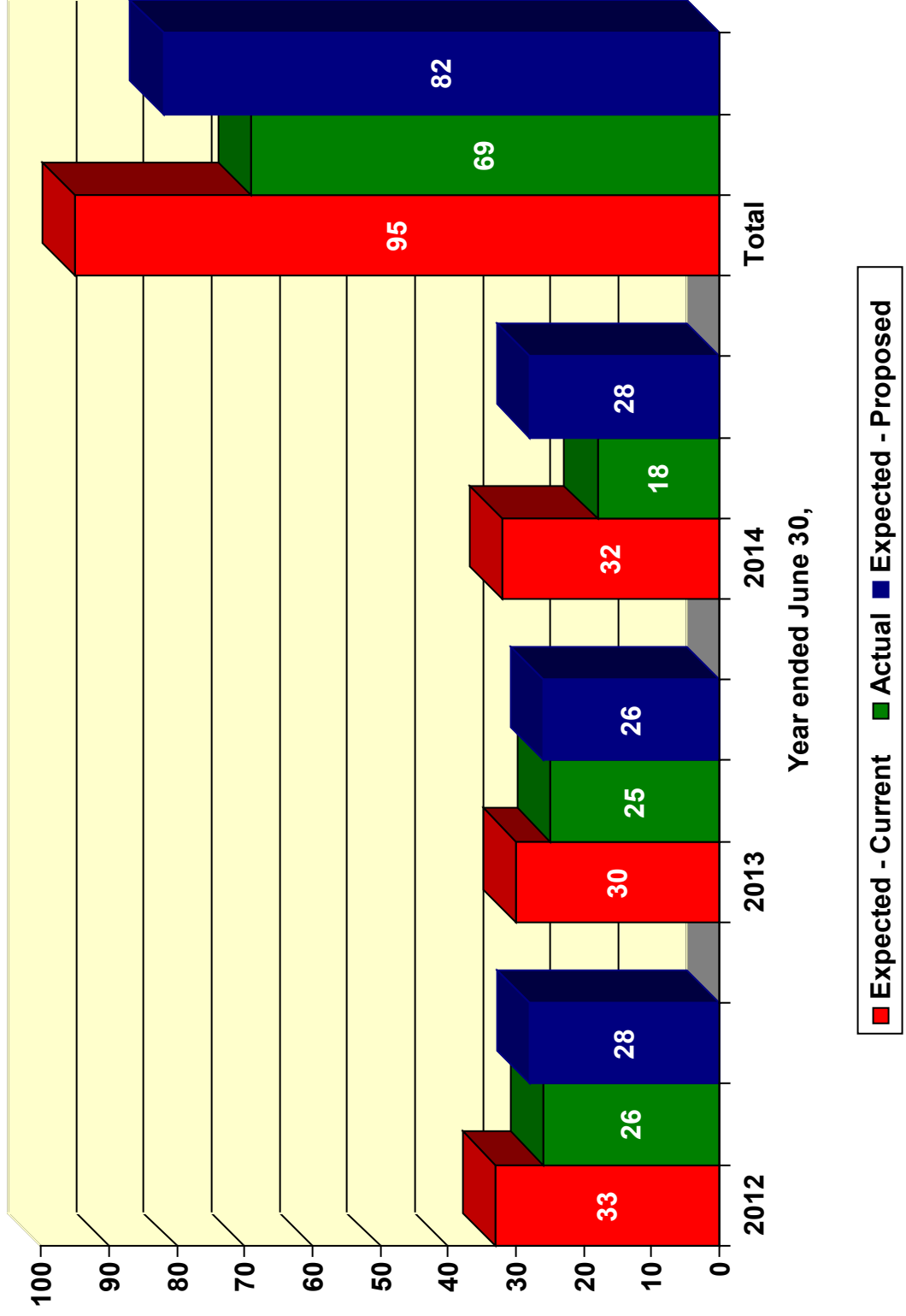


Chart 15
Termination Rates - General Members

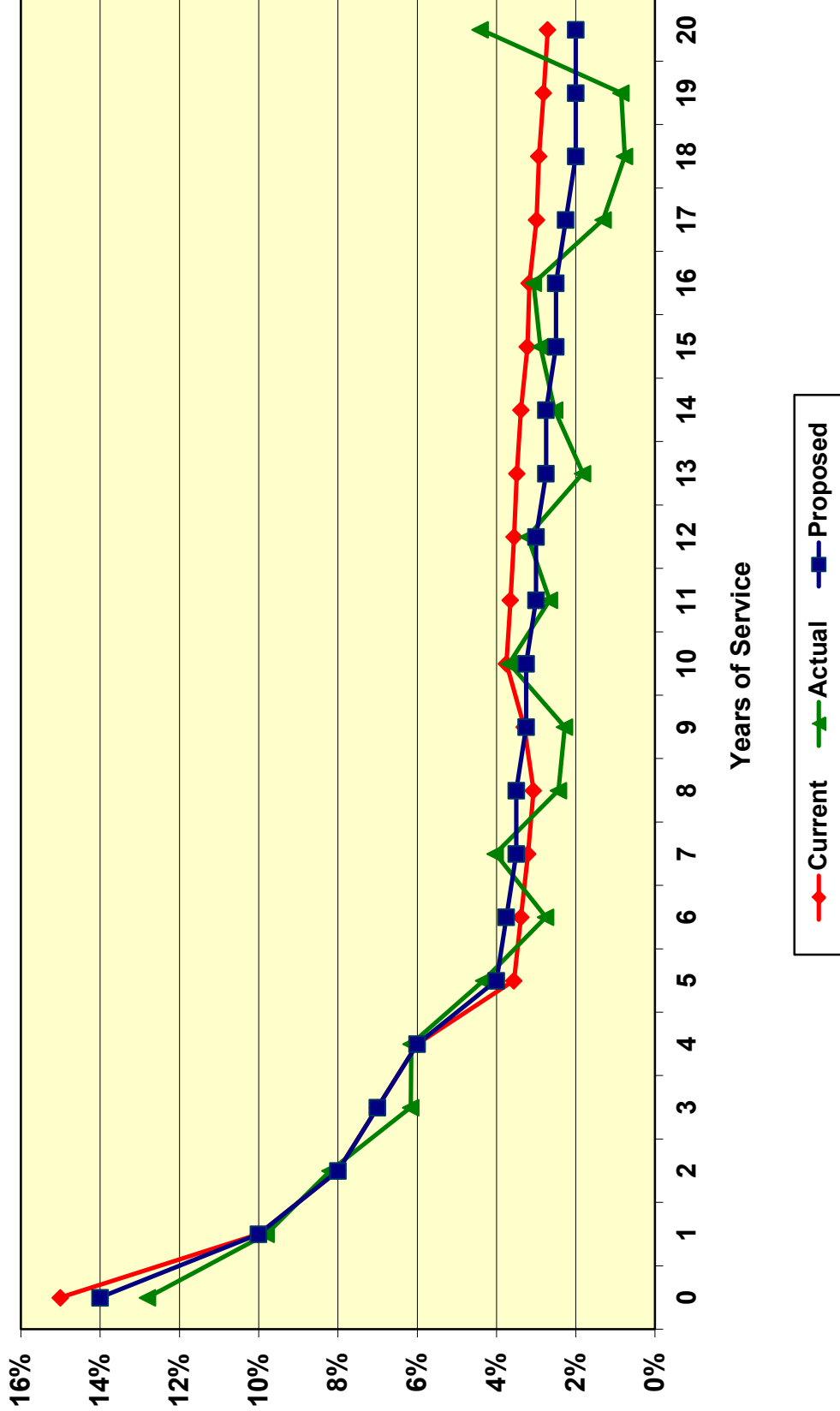
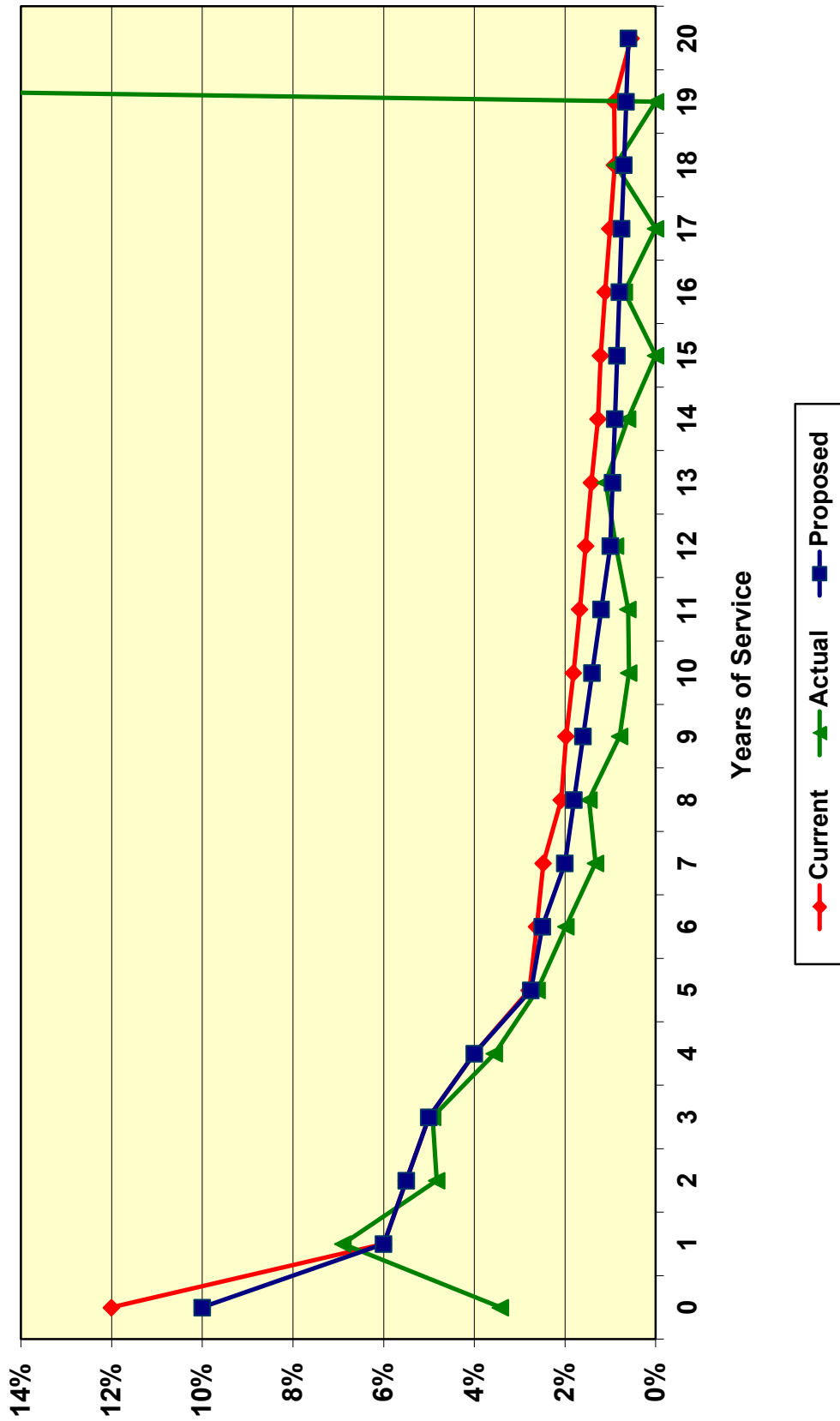


Chart 16
Termination Rates - Safety Members



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)

Age	Current Rate*	Observed Rate	Proposed Rate
20 – 24	0.01%	0.00%	0.01%
25 – 29	0.02	0.00	0.02
30 – 34	0.05	0.00	0.05
35 – 39	0.10	0.05	0.10
40 – 44	0.15	0.12	0.15
45 – 49	0.25	0.26	0.25
50 – 54	0.50	0.22	0.35
55 – 59	0.60	0.25	0.45
60 – 64	0.75	0.50	0.60
65 – 69	1.00	0.18	0.75
70 – 74	1.00	0.80	1.00

** Total current rate for duty and non-duty disabilities.*

Rates of Disability Incidence (Safety)

Age	Current Rate*	Observed Rate	Proposed Rate
20 – 24	0.05%	0.00%	0.05%
25 – 29	0.20	0.00	0.15
30 – 34	0.30	0.29	0.30
35 – 39	0.60	0.13	0.40
40 – 44	1.10	0.23	0.70
45 – 49	1.20	0.90	1.00
50 – 54	2.50	0.51	1.80
55 – 59	4.00	3.51	3.60
60 – 64	5.00	7.89	6.00

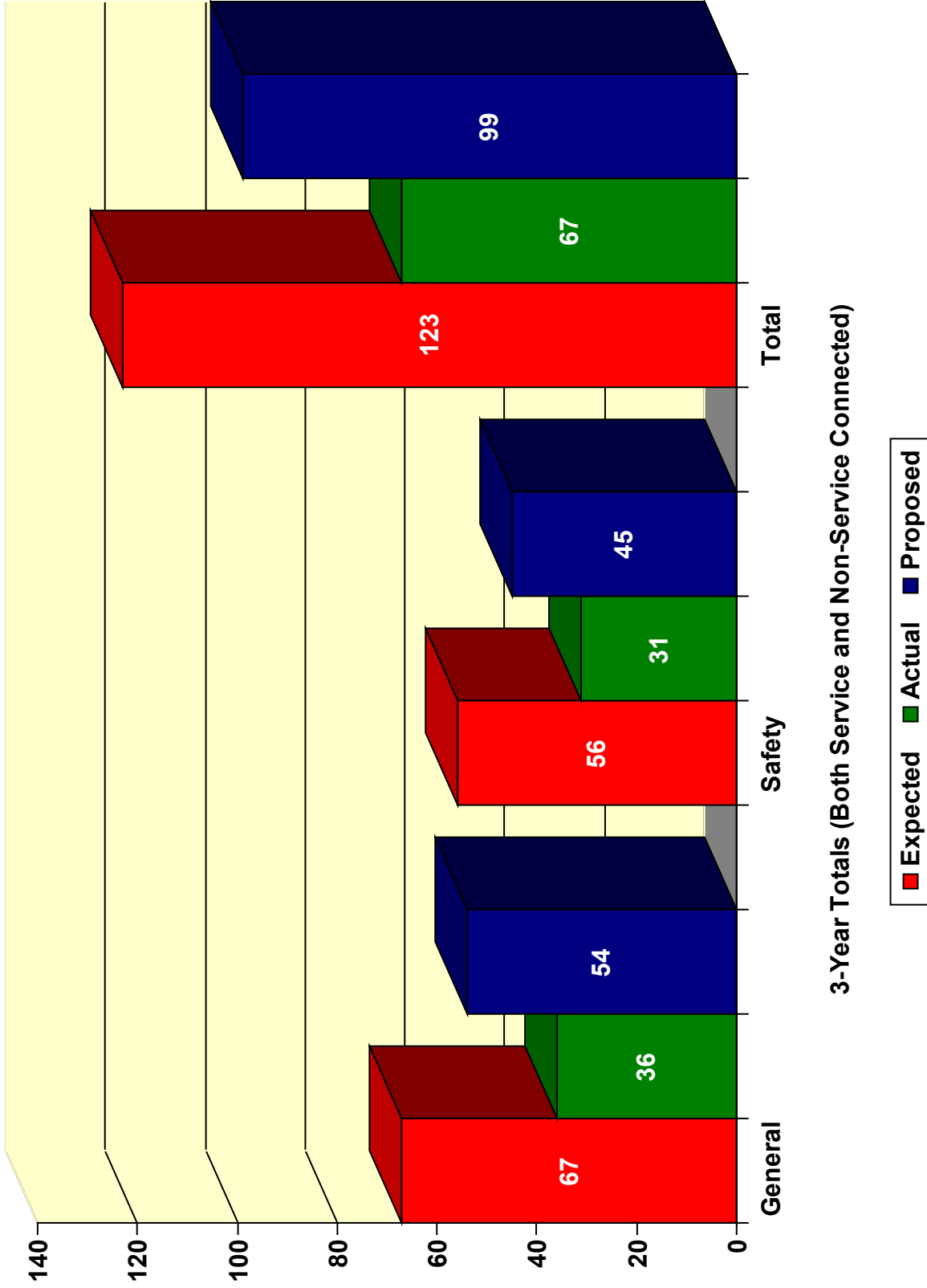
** Total current rate for duty and non-duty disabilities.*

Chart 17 compares the actual number of duty and ordinary 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. Overall, there are decreases in the rates proposed for both General and Safety members.

Chart 18 shows actual disability incidence rates, compared to the assumed and proposed rates for General members. Since 25% of disabled General members received a duty disability, we recommend reducing the current assumption from 40% to 35% of disabilities being entitled to a duty disability retirement. The remaining 65% of disabled General members are assumed to receive an ordinary disability retirement.

Chart 19 graphs the same information as Charts 18, but for Safety members. Since 97% of disabled Safety members received a duty disability, we recommend maintaining the current assumption that 90% of disabilities will receive a duty disability retirement. This recommendation is based partially on the fact that 79% of Safety members received a duty disability in the prior experience study period. The remaining 10% of disabled Safety members are assumed to receive an ordinary disability retirement.

Chart 17
Actual Number of Disabilities Compared to Expected



3-Year Totals (Both Service and Non-Service Connected)

Chart 18

Disability Incidence Rates for General Members

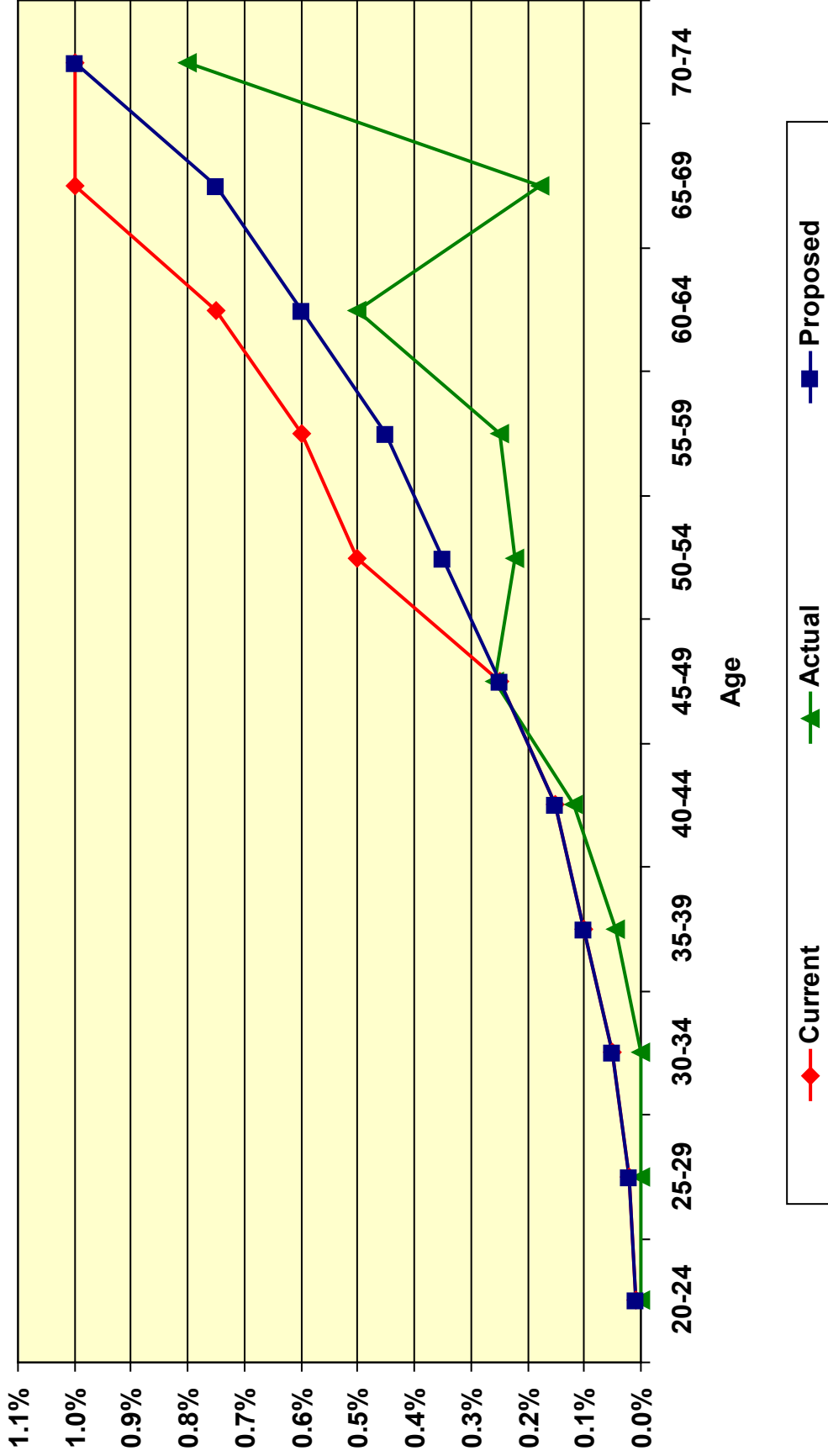
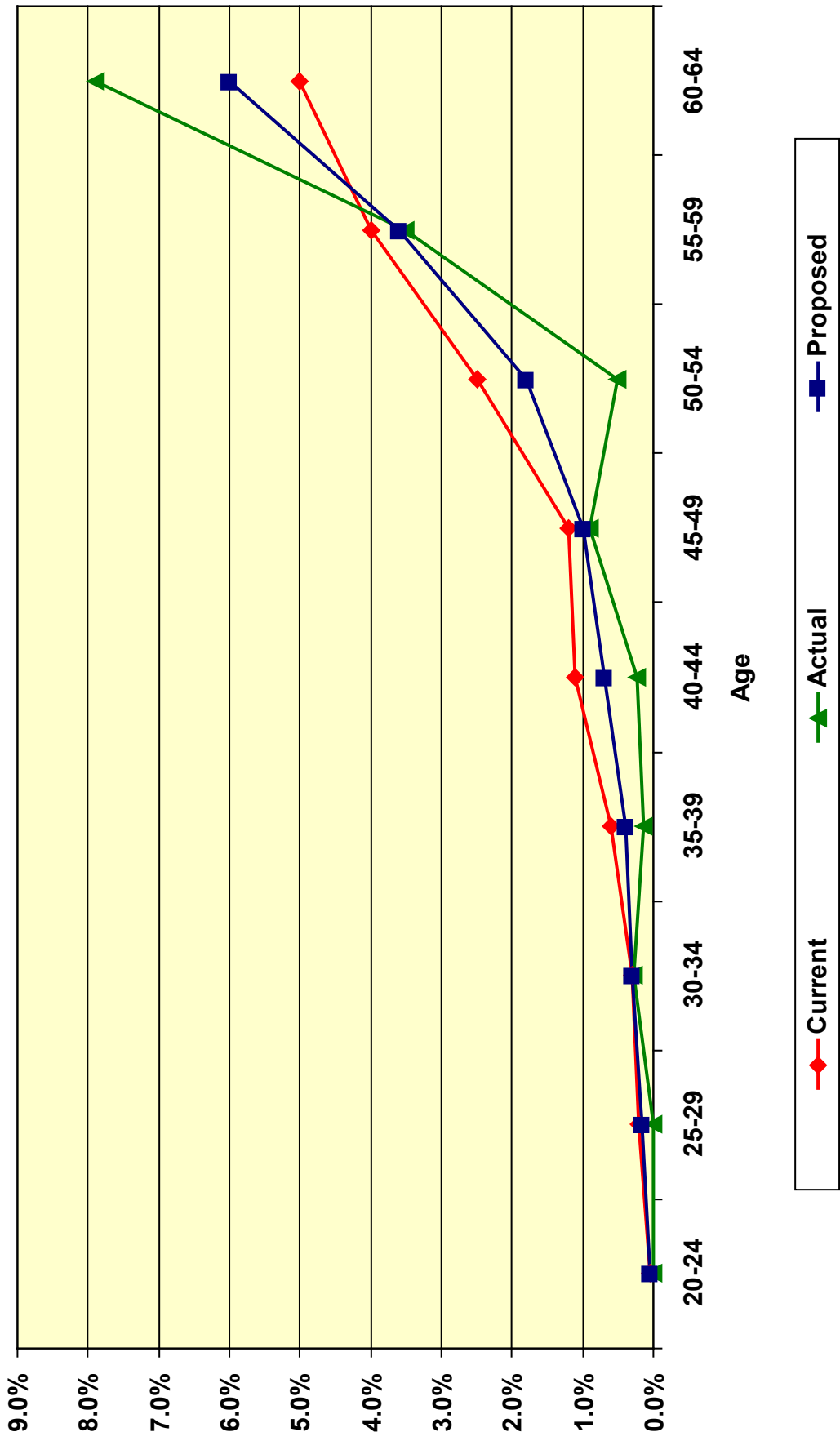


Chart 19
Disability Incidence Rates for Safety Members



G. PROMOTIONAL AND MERIT 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
- Promotional and merit increases.

The inflationary increases are assumed to follow the general annual price inflation assumption discussed in our separate economic assumptions report where we recommended a decrease in the inflation assumption from 3.25% to 3.00%. We also discussed in that report decreasing the annual "across the board" pay increase assumptions from 0.75% to 0.50%. Therefore, the total assumed inflation and real "across the board" pay increase (i.e., wage inflation) decreases from 4.00% to 3.50%. This is the annual rate of payroll growth at which payments to amortize the Unfunded Actuarial Accrued Liability (UAAL) are assumed to increase.

The annual promotional and merit 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;
- Excluding any members with increases of more than 50% or decreases of more than 10% during any particular year;
- Categorizing these increases according to member demographics;
- Removing the wage inflation component from these increases (assumed to be 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."

Note that, to be consistent with other economic assumptions, these merit and promotional assumptions should be used in combination with the proposed 3.50% inflation and real "across the board" increases shown in our economic assumptions report.

The following table shows the General members' actual average promotional and merit increases by years of service over the three-year period from July 1, 2011 through June 30, 2014 along with the actual average increases based on a combination of increases in the current three-year period and those shown in the prior experience study. The current and proposed assumptions are also shown. The actual increases for the most recent three-year period and the prior three-year period were reduced by the actual average inflation plus "across the board" increase (i.e., wage inflation, estimated as the increase in average salaries) for each year over the three-year experience period (0.8% and 3.8% respectively, on average).

General				
Years of Service	Current Assumptions	July 1, 2011 Through June 30, 2014 Average Promotional and Merit Increases	Actual Average Increases from Current and Prior Study	Proposed Assumptions
Less than 1	5.00%	7.65%	7.14%	6.00%
1	3.75	5.35	4.82	4.25
2	3.00	3.77	3.38	3.25
3	2.50	2.97	2.92	2.75
4	2.00	2.54	2.35	2.25
5	1.50	2.04	1.90	1.75
6	1.00	2.46	1.77	1.25
7	1.00	1.72	1.35	1.00
8	0.75	1.18	0.79	0.75
9	0.50	0.62	0.43	0.50
10	0.50	0.86	0.31	0.50
11	0.50	0.90	0.77	0.50
12	0.50	0.93	0.70	0.50
13	0.50	1.21	0.34	0.50
14	0.50	1.45	0.67	0.50
15	0.50	1.25	0.60	0.50
16	0.50	0.87	0.42	0.50
17	0.50	0.68	0.42	0.50
18	0.50	1.21	0.43	0.50
19	0.50	0.33	0.14	0.50
20 & over	0.50	0.33	-0.21	0.50

The following table provides the same information for Safety members. The actual average promotional and merit increases for the most recent three-year period and the prior three-year period were determined by reducing the actual average total salary increases by the actual average inflation plus “across the board” increase (i.e., wage inflation, estimated as the increase in average salaries) for each year over the three-year experience period (0.2% and 5.4% respectively, on average).

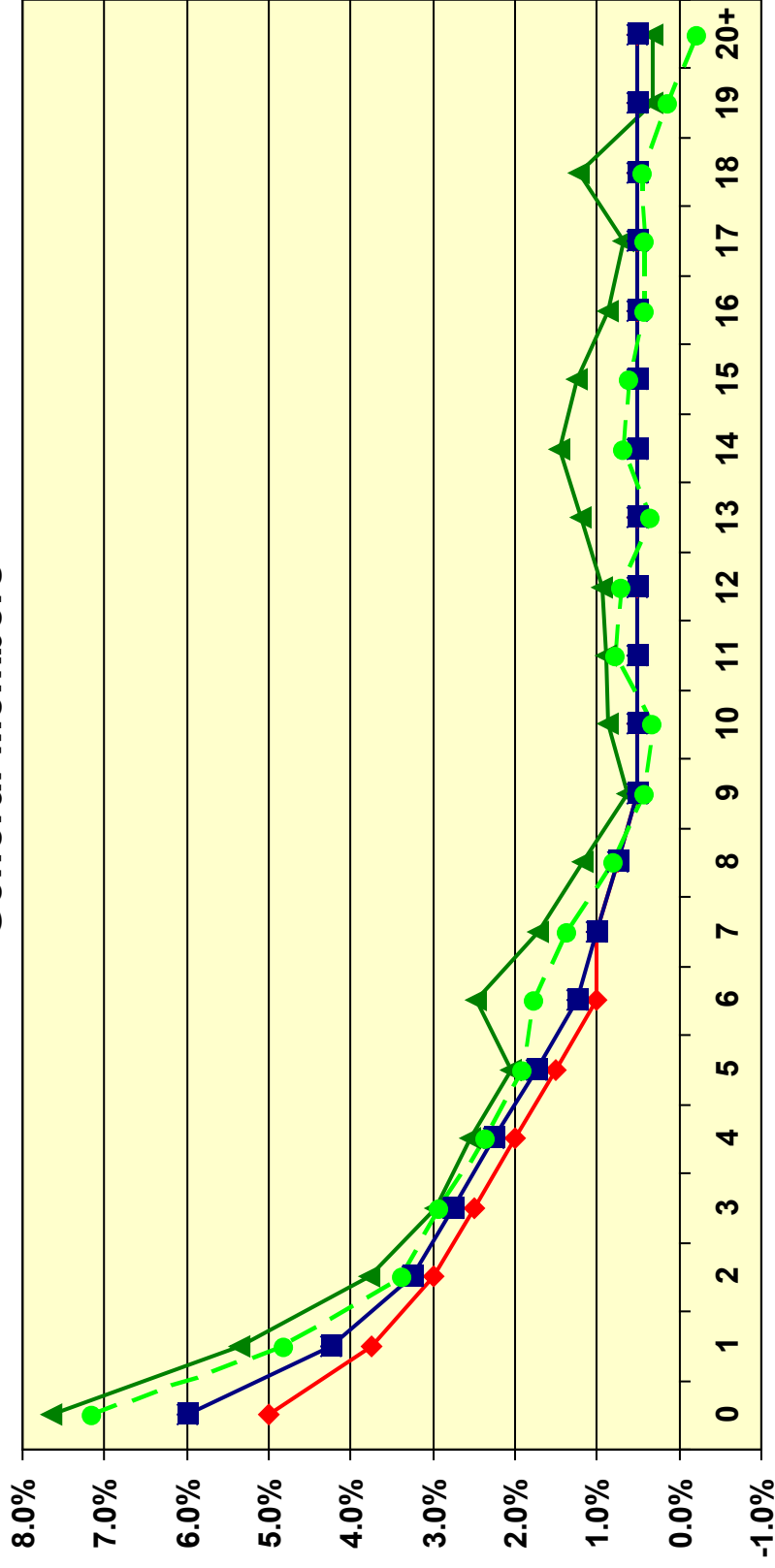
Safety				
Years of Service	Current Assumptions	July 1, 2011 Through June 30, 2014 Average Promotional and Merit Increases	Actual Average Increases from Current and Prior Study	Proposed Assumptions
Less than 1	8.50%	7.29%	7.36%	8.00%
1	6.25	6.31	5.96	6.25
2	4.75	4.91	4.92	4.75
3	4.00	3.83	4.53	4.00
4	3.00	5.06	3.67	3.25
5	2.50	3.99	3.42	3.00
6	2.00	2.68	2.81	2.25
7	1.50	1.38	0.65	1.50
8	1.25	1.86	0.98	1.25
9	1.00	1.65	1.33	1.00
10	0.75	-0.21	0.51	0.75
11	0.75	0.88	0.53	0.75
12	0.75	0.24	0.70	0.75
13	0.75	1.03	1.08	0.75
14	0.75	0.93	0.63	0.75
15	0.75	1.32	1.37	0.75
16	0.50	0.64	0.04	0.50
17	0.50	0.91	0.14	0.50
18	0.50	1.46	0.88	0.50
19	0.50	1.36	0.22	0.50
20 & over	0.50	0.70	-0.29	0.50

Charts 20 and 21 provide a graphical comparison of the actual promotional and merit increases, compared to the proposed and current assumptions. The charts also show the actual promotional and merit increases based on an average of both the current and previous experience periods. This is discussed below. Chart 20 shows this information for General members and Chart 21 for Safety members.

We realize that the most recent three-year experience period may not be typically indicative of future long-term promotional and merit salary increases. This appears to be the case for both General and Safety members as they received virtually no “across the board” salary increases (based on the very low increase in average wages). Note that, in this situation, our model may lead to higher estimated promotional and merit increases. Therefore, we also examined the promotional and merit salary experience used in the prior experience study (which actually consisted of two years of experience). We believe that when the experience from the last two studies are combined into an average result it provides a more reasonable representation of potential future promotional and merit salary increases over the long term. Nevertheless, in our proposed changes to the promotional and merit increases, we have still given relatively less weight to the actual average increases experience during the last two studies.

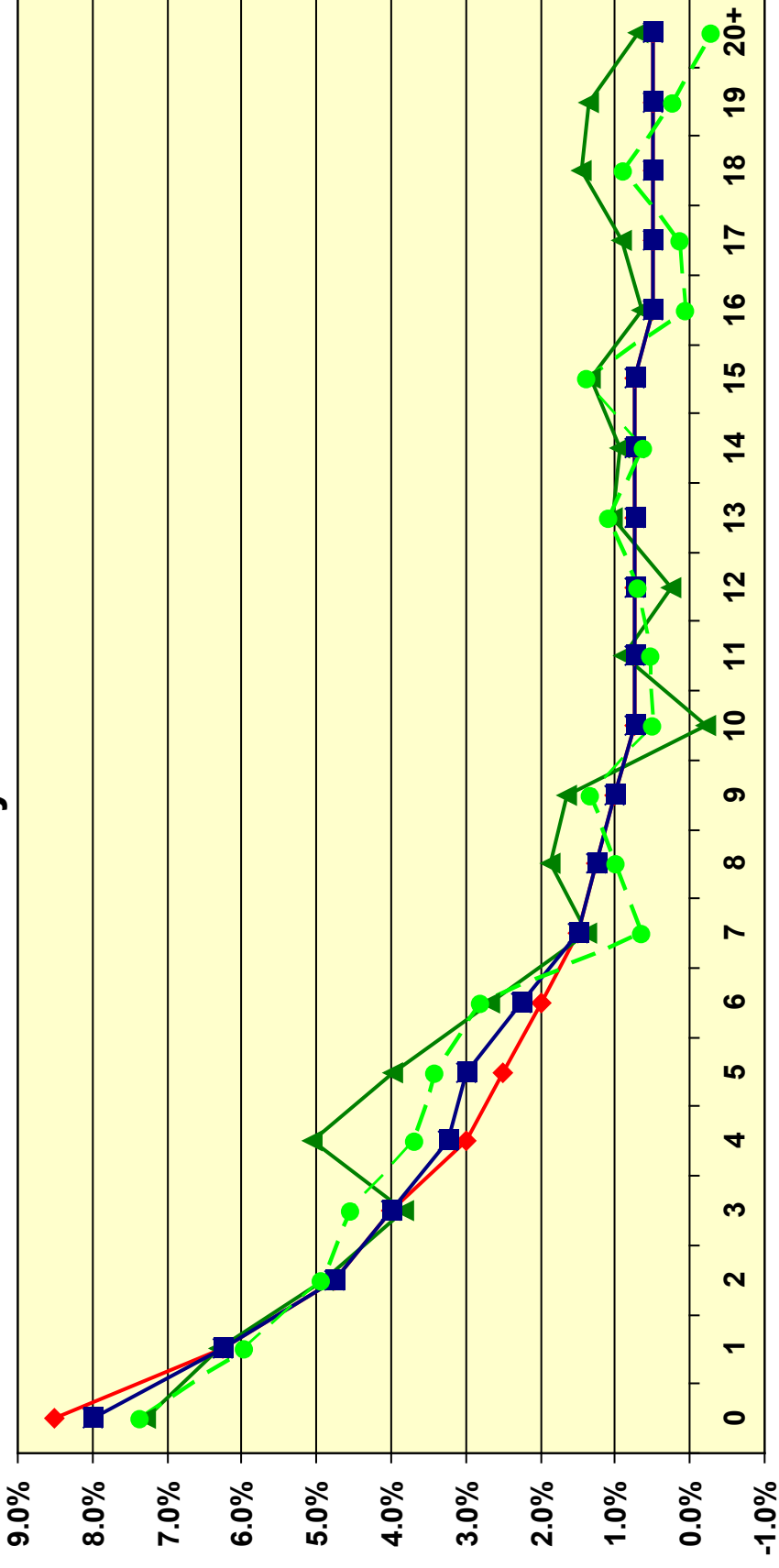
Based on this experience, we are proposing slight increases in the promotional and merit salary increases for both General and Safety members. Overall, salary increases are lower for General and Safety members due to the lower price inflation and real “across the board” pay increase assumptions.

Chart 20
Promotional and Merit Salary Increase Rates -
General Members



◆ Current
 ▲ Actual
 ■ Proposed
 ● Actual Average of Last Two Studies

Chart 21
Promotional and Merit Salary Increase Rates -
Safety Members



◆ Current
 ▲ Actual
 ■ Proposed
 ● Actual Average of Last Two Studies

H. IN-SERVICE REDEMPTIONS

In 1998, the Board of Retirement, in the course of actions related to the Ventura Settlement, determined that several additional pay elements should be included as Earnable Compensation. These additional pay elements fall into two categories:

Ongoing Pay Elements – Those that are expected to be received relatively uniformly over a member’s employment years; and

In-Service Redemption 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 a separate actuarial assumption to anticipate its impact on a member’s retirement benefit.

In this study, we have collected data for the last three years to estimate in-service redemptions for non-PEPRA active members as a percentage of final average pay. The results are summarized in the following table:

Actual Average In-Service Redemptions for Non-PEPRA Members			
Year	General Tier 1	General Tier 2	Safety
2012	9.42%	3.42%	6.92%
2013	6.63%	3.84%	7.73%
2014	<u>5.38%</u>	<u>3.04%</u>	<u>7.63%</u>
Average	7.13%	3.42%	7.38%
Current Assumptions	8.00%	3.50%	7.50%
Proposed Assumption	7.50%	3.50%	7.25%

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

Based on the data in the above table, the in-service redemption assumption has been maintained for General Tier 2 members and decreased for General Tier 1 members and Safety members.

I. AVERAGE ENTRY AGE (FOR MEMBER CONTRIBUTIONS)

The assumption for average entry age of active members is used in determining the rate at which members who were hired after November 1974 contribute. The current assumption is age 36 for General members and age 27 for Safety members. The actual average entry ages for all active members as of June 30, 2014 is age 35.2 for General members and age 27.1 for Safety members.

Based on this experience we recommend that the average entry age for General members used for determining member contribution rates be decreased from age 36 to age 35. For Safety members we recommend that the average entry age used for determining member contribution rates be maintained at age 27.

IV. COST IMPACT OF ASSUMPTION CHANGES

The tables below show the changes in the employer and member contribution rates due to the proposed assumption changes as if they were applied in the June 30, 2014 actuarial valuation. Please note that the rates shown below do not reflect the 50/50 sharing of Normal Cost for non-PEPRA Tiers. If all of the proposed assumption changes (both economic and demographic) were implemented, the Plan's average employer rate would have increased by 3.45% of compensation. The average member rate would have increased by 0.20% of compensation. The Plan's UAAL would have increased by \$224 million. The results include the impact of the proposed change to an explicit administrative expense load that would increase total costs by 0.7% of payroll or \$5 million annually. As discussed in the economic assumptions report, the cost associated with the administrative expense load has been allocated to both the employer and the member based on the components of the total contribution rate (before expenses) for the member and the employer.

Employer Contribution Rate Impact (% of Compensation)

Contributions	General Tier 1	General Tier 2	PEPRA General Tier 2	General Tier 2C	PEPRA General Tier 2C	Safety	PEPRA Safety	Overall
Normal Cost	0.44%	0.30%	0.15%	0.44%	0.27%	-0.30%	0.16%	0.20%
UAAL	2.11%	1.21%	1.21%	2.11%	2.11%	5.66%	5.66%	2.70%
Admin Expense	<u>0.55%</u>	<u>0.55%</u>	<u>0.55%</u>	<u>0.55%</u>	<u>0.55%</u>	<u>0.55%</u>	<u>0.55%</u>	<u>0.55%</u>
Total	3.10%	2.06%	1.91%	3.10%	2.93%	5.91%	6.37%	3.45%

Employer Contribution Rate Impact (Estimated Annual Dollar Amounts in Thousands)

Contributions	General Tier 1	General Tier 2	PEPRA General Tier 2	General Tier 2C	PEPRA General Tier 2C	Safety	PEPRA Safety	Overall
Total	\$305	\$4,233	\$222	\$6,951	\$689	\$9,225	\$237	\$21,862

Member Contribution Rate Impact (% of Compensation)

Contributions	General Tier 1	General Tier 2	PEPRA General Tier 2	General Tier 2C	PEPRA General Tier 2C	Safety	PEPRA Safety	Overall
Total	0.16%	0.10%	0.30%	0.10%	0.30%	0.45%	0.31%	0.20%

**Member Contribution Rate Impact
(Estimated Annual Dollar Amounts in Thousands)**

Contributions	General Tier 1	General Tier 2	PEPRA General Tier 2	General Tier 2C	PEPRA General Tier 2C	Safety	PEPRA Safety	Overall
Total	\$16	\$209	\$36	\$228	\$72	\$719	\$12	\$1,292

If all of the proposed demographic assumption changes were implemented, the average employer rate would have increased by 1.57% of compensation. The average member rate would have increased by 0.05% of compensation. Of the various demographic assumption changes, the most significant cost impact is from the mortality assumption change.

If all of the proposed economic assumptions (recommended in a separate report) were implemented (including the proposed change to an explicit administrative expense load), the average employer rate would have increased by 1.88% of compensation and the average member rate would have been increased by 0.15%. Of the various economic assumption changes, the most significant cost impact is from the investment return assumption change from 7.75% net of administrative expenses to 7.50% gross of administrative expenses.

Therefore, the estimated cost impact of all proposed assumption changes (both demographic and economic) is 3.45% of compensation for the average employer rate, where the Normal Cost rate increased by 0.20%, the UAAL amortization rate increased by 2.70% and the explicit administrative expense load is 0.55%. The average member rate would have increased by 0.20% of compensation, including the explicit administrative load of 0.15%. The allocation of the explicit administrative expense load between employers and members is discussed in the economic assumptions report.

As noted earlier, the above results do not include 50/50 sharing of Normal Cost for non-PEPRA Tiers. If we include that provision, then the total increase in the Normal Cost of 0.25% would be shared 50/50 between the employers and the members (with the cost of the cessation of member contributions after 30 years of service allocated to the employer) and the allocation of the administrative expense load would be slightly different. This would shift about 0.07% of the average cost increase from the employers to the members.

APPENDIX A

CURRENT ACTUARIAL ASSUMPTIONS

Mortality Rates

- Healthy:** For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale AA to 2025 set back one year.
For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale AA to 2025 set back one year.
- Disabled:** For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale AA to 2025 set forward five years for males and seven years for females.
For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale AA to 2025 set back one year.
- Beneficiaries:** Beneficiaries are assumed to have the same mortality as a General Member of the opposite sex who has taken a service (non-disability) retirement.
- Member Contribution Rates:** For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale AA to 2025 set back one year weighted 35% male and 65% female.
For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale AA to 2025 set back one year weighted 80% male and 20% female.

Termination Rates Before Retirement:

Age	Rate (%)			
	Mortality			
	General		Safety	
	Male	Female	Male	Female
25	0.03	0.01	0.03	0.01
30	0.04	0.02	0.04	0.02
35	0.06	0.03	0.06	0.03
40	0.09	0.04	0.09	0.04
45	0.10	0.07	0.10	0.07
50	0.13	0.10	0.13	0.10
55	0.19	0.19	0.19	0.19
60	0.40	0.39	0.40	0.39
65	0.79	0.76	0.79	0.76

All pre-retirement deaths are assumed to be non-duty related.

Termination Rates Before Retirement (continued):

Age	Rate (%)	
	Disability	
	General⁽¹⁾	Safety⁽²⁾
25	0.02	0.14
30	0.04	0.26
35	0.08	0.48
40	0.13	0.90
45	0.21	1.16
50	0.40	1.98
55	0.56	3.40
60	0.69	4.60
65	0.90	0.00
70	1.00	0.00

⁽¹⁾ 40% of General disabilities are assumed to be duty disabilities and the other 60% are assumed to be ordinary disabilities.

⁽²⁾ 90% of Safety disabilities are assumed to be duty disabilities and the other 10% are assumed to be ordinary disabilities.

Termination Rates Before Retirement (continued):

Rate (%)

Withdrawal (< 5 Years of Service) *

Years of Service	General	Safety
0	15.00	12.00
1	10.00	6.00
2	8.00	5.50
3	7.00	5.00
4	6.00	4.00

Withdrawal (5+ Years of Service) *

Age	General	Safety
20	6.00	4.00
25	6.00	4.00
30	5.70	3.40
35	4.90	2.40
40	3.90	1.40
45	2.90	0.70
50	2.20	0.20
55	1.70	0.00
60	1.20	0.00
65	1.00	0.00
70	0.00	0.00

* The greater of a refund of member contributions and a deferred annuity is valued when a member withdraws.

No withdrawal is assumed after a member is first assumed to retire.

Retirement Rates:

Rate (%)

Age	General Tier 1 and 2	PEPRA General Tier 1 and 2	Safety	PEPRA Safety
40	0.00	0.00	1.00	0.00
41	0.00	0.00	1.00	0.00
42	0.00	0.00	1.00	0.00
43	0.00	0.00	1.00	0.00
44	0.00	0.00	1.00	0.00
45	0.00	0.00	1.00	0.00
46	0.00	0.00	1.00	0.00
47	0.00	0.00	1.00	0.00
48	0.00	0.00	1.00	0.00
49	0.00	0.00	1.00	0.00
50	3.00	0.00	2.00	4.00
51	3.00	0.00	2.00	2.00
52	4.00	2.00	4.00	5.00
53	4.00	2.00	6.00	8.00
54	6.00	3.00	18.00	18.00
55	6.00	5.00	25.00	20.00
56	7.00	5.00	20.00	20.00
57	8.00	6.00	20.00	18.00
58	10.00	7.00	18.00	18.00
59	10.00	8.00	25.00	30.00
60	14.00	10.00	25.00	30.00
61	18.00	12.50	30.00	30.00
62	22.00	20.00	40.00	50.00
63	20.00	20.00	50.00	50.00
64	25.00	20.00	50.00	50.00
65	35.00	25.00	100.00	100.00
66	35.00	30.00	100.00	100.00
67	35.00	30.00	100.00	100.00
68	25.00	30.00	100.00	100.00
69	20.00	30.00	100.00	100.00
70	20.00	50.00	100.00	100.00
71	20.00	50.00	100.00	100.00
72	20.00	50.00	100.00	100.00
73	20.00	50.00	100.00	100.00
74	40.00	50.00	100.00	100.00
75	100.00	100.00	100.00	100.00

Retirement Age and Benefit for Deferred Vested Members:

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

General Age: 58

Safety Age: 54

We assume that 50% and 65% of future General and Safety deferred vested members, respectively, will continue to work for a reciprocal employer. For reciprocals, we assume 4.50% compensation increases per annum.

Future Benefit Accruals:

1.0 year of service per year.

Unknown Data for Members:

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

Definition of Active Members:

All active members of VCERA as of the valuation date.

Percent Married:

70% of male members and 50% of female members are assumed to be married at pre-retirement death or retirement. There is no explicit assumption for children's benefits.

Age of Spouse:

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

Net Investment Return:

7.75%, net of investment and administration expenses.

Member Contribution Crediting Rate:

3.25% (actual increase is based on projected long term ten-year Treasury rate).

Consumer Price Index:

Increase of 3.25% per year; retiree COLA increases due to CPI are subject to a 3.0% maximum change per year for General Tier 1 and Safety. For General Tier 2, SEIU members receive a fixed 2% cost-of-living adjustment, not subject to changes in the CPI, that applies to future service after March 2003.

In-Service Redemptions:

Non-PEPRA Formulas

The following assumptions for in-service redemptions pay as a percentage of final average pay are used:

General Tier 1	8.00%
General Tier 2	3.50%
Safety	7.50%

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

PEPRA Formulas

None

Salary Increases:

<u>Annual Rate of Compensation Increase</u>		
Inflation: 3.25% per year; plus “across the board” salary increases of 0.75% per year; plus the following promotional and merit increases:		
<u>Years of Service</u>	<u>General</u>	<u>Safety</u>
Less than 1	5.00%	8.50%
1	3.75	6.25
2	3.00	4.75
3	2.50	4.00
4	2.00	3.00
5	1.50	2.50
6	1.00	2.00
7	1.00	1.50
8	0.75	1.25
9	0.50	1.00
10	0.50	0.75
11	0.50	0.75
12	0.50	0.75
13	0.50	0.75
14	0.50	0.75
15	0.50	0.75
16	0.50	0.50
17	0.50	0.50
18	0.50	0.50
19	0.50	0.50
20 and Over	0.50	0.50

Increase in the Internal Revenue

Code Section 401(a)(17)

Compensation Limit:

Increase of 3.25% per year from the valuation date.

Increase in Section 7522.10

Compensation Limit:

Increase of 3.25% per year from the valuation date.

Average Entry Age for

Member Contribution Rates:

For non-PEPRA members hired after November 1974, they will pay a contribution corresponding to a General and Safety member hired at entry age 36 and 27, respectively.

APPENDIX B

PROPOSED ACTUARIAL ASSUMPTIONS

Mortality Rates

Healthy:	For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2035 set back one year for males and set forward one year for females. For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2035 set back three years.
Disabled:	For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2035 set forward six years for males and eight years for females. For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2035 set forward two years.
Beneficiaries:	Beneficiaries are assumed to have the same mortality as a General Member of the opposite sex who has taken a service (non-disability) retirement.
Member Contribution Rates:	For General Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2035 set back one year for males and set forward one year for female weighted one-third male and two-third female. For Safety Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2035 set back three years weighted 80% male and 20% female.

Termination Rates Before Retirement:

Rate (%)				
Mortality				
Age	General		Safety	
	Male	Female	Male	Female
25	0.03	0.02	0.03	0.02
30	0.04	0.03	0.03	0.02
35	0.06	0.05	0.05	0.03
40	0.09	0.07	0.08	0.05
45	0.13	0.11	0.11	0.08
50	0.18	0.17	0.16	0.12
55	0.29	0.25	0.24	0.18
60	0.48	0.39	0.41	0.27
65	0.77	0.72	0.64	0.44

All pre-retirement deaths are assumed to be non-duty related.

Termination Rates Before Retirement (continued):

Age	Rate (%)	
	Disability	
	General⁽¹⁾	Safety⁽²⁾
25	0.02	0.11
30	0.04	0.24
35	0.08	0.36
40	0.13	0.58
45	0.21	0.88
50	0.31	1.48
55	0.41	2.88
60	0.54	5.04
65	0.69	0.00
70	0.90	0.00

⁽¹⁾ 35% of General disabilities are assumed to be duty disabilities and the other 65% are assumed to be ordinary disabilities.

⁽²⁾ 90% of Safety disabilities are assumed to be duty disabilities and the other 10% are assumed to be ordinary disabilities.

Termination Rates Before Retirement (continued):

Years of Service	Rate (%)	
	Withdrawal *	
	General	Safety
Less than 1	14.00	10.00
1	10.00	6.00
2	8.00	5.50
3	7.00	5.00
4	6.00	4.00
5	4.00	2.75
6	3.75	2.50
7	3.50	2.00
8	3.50	1.80
9	3.25	1.60
10	3.25	1.40
11	3.00	1.20
12	3.00	1.00
13	2.75	0.95
14	2.75	0.90
15	2.50	0.85
16	2.50	0.80
17	2.25	0.75
18	2.00	0.70
19	2.00	0.65
20 or more	2.00	0.60

* The greater of a refund of member contributions and a deferred annuity is valued when a member withdraws.

No withdrawal is assumed after a member is first assumed to retire.

Retirement Rates:

Rate (%)

Age	General Tier 1 and 2	PEPRA General Tier 1 and 2	Safety	PEPRA Safety
40	0.00	0.00	1.00	0.00
41	0.00	0.00	1.00	0.00
42	0.00	0.00	1.00	0.00
43	0.00	0.00	1.00	0.00
44	0.00	0.00	1.00	0.00
45	0.00	0.00	1.00	0.00
46	0.00	0.00	1.00	0.00
47	0.00	0.00	1.00	0.00
48	0.00	0.00	1.00	0.00
49	0.00	0.00	1.50	0.00
50	2.50	0.00	2.50	5.00
51	2.50	0.00	2.00	2.00
52	3.00	2.00	3.00	4.00
53	3.50	2.00	4.00	6.00
54	4.00	2.50	17.00	16.00
55	4.50	4.00	22.00	20.00
56	5.00	4.50	22.00	20.00
57	6.00	5.00	20.00	18.00
58	8.00	6.00	19.00	18.00
59	8.00	7.00	22.00	25.00
60	12.00	9.00	22.00	25.00
61	15.00	11.00	25.00	25.00
62	22.00	20.00	35.00	40.00
63	20.00	20.00	40.00	40.00
64	22.00	18.00	40.00	40.00
65	30.00	20.00	100.00	100.00
66	35.00	30.00	100.00	100.00
67	35.00	30.00	100.00	100.00
68	35.00	30.00	100.00	100.00
69	20.00	30.00	100.00	100.00
70	20.00	50.00	100.00	100.00
71	20.00	50.00	100.00	100.00
72	20.00	50.00	100.00	100.00
73	20.00	50.00	100.00	100.00
74	30.00	50.00	100.00	100.00
75	100.00	100.00	100.00	100.00

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

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

General Age: 59

Safety Age: 54

We assume that 50% and 60% of future General and Safety deferred vested members, respectively, will continue to work for a reciprocal employer. For reciprocals, we assume 4.00% compensation increases per annum.

Future Benefit Accruals:

1.0 year of service per year.

Unknown Data for Members:

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

Definition of Active Members:

All active members of VCERA as of the valuation date.

Percent Married:

70% of male members and 55% of female members are assumed to be married at pre-retirement death or retirement. There is no explicit assumption for children's benefits.

Age of Spouse:

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

Net Investment Return:

7.50%, net of investment expenses.

Administrative Expenses:

0.70% of payroll allocated to both employer and member based on the components of the total contribution rate (before expenses) for the employer and member.

**Member Contribution
Crediting Rate:**

3.00% (actual increase is based on projected long term ten-year Treasury rate).

Consumer Price Index:

Increase of 3.00% per year; retiree COLA increases due to CPI are subject to a 3.0% maximum change per year for General Tier 1 and Safety. For General Tier 2, SEIU members receive a fixed 2% cost-of-living adjustment, not subject to changes in the CPI, that applies to future service after March 2003.

In-Service Redemptions:

Non-PEPRA Formulas

The following assumptions for in-service redemptions pay as a percentage of final average pay are used:

General Tier 1	7.50%
General Tier 2	3.50%
Safety	7.25%

For determining the cost of the basic benefit (i.e., non-COLA component), the cost of this pay element is currently recognized

in the valuation as an employer only cost and does not affect member contribution rates.

PEPRA Formulas

None

Salary Increases:

<u>Annual Rate of Compensation Increase</u>		
Inflation: 3.00% per year; plus “across the board” salary increases of 0.50% per year; plus the following promotional and merit increases:		
<u>Years of Service</u>	<u>General</u>	<u>Safety</u>
Less than 1	6.00%	8.00%
1	4.25	6.25
2	3.25	4.75
3	2.75	4.00
4	2.25	3.25
5	1.75	3.00
6	1.25	2.25
7	1.00	1.50
8	0.75	1.25
9	0.50	1.00
10	0.50	0.75
11	0.50	0.75
12	0.50	0.75
13	0.50	0.75
14	0.50	0.75
15	0.50	0.75
16	0.50	0.50
17	0.50	0.50
18	0.50	0.50
19	0.50	0.50
20 and Over	0.50	0.50

Increase in the Internal Revenue

*Code Section 401(a)(17)
Compensation Limit:*

Increase of 3.00% per year from the valuation date.

*Increase in Section 7522.10
Compensation Limit:*

Increase of 3.00% per year from the valuation date.

**Average Entry Age for
Member Contribution Rates:**

For non-PEPRA members hired after November 1974, they will pay a contribution corresponding to a General and Safety member hired at entry age 35 and 27, respectively.