

**City of Fresno Fire and Police
Retirement System**

ACTUARIAL EXPERIENCE STUDY

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

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June 7, 2010

Board of Retirement
City of Fresno Fire and Police Retirement System
2828 Fresno Street, Suite 201
Fresno, CA 93721-1327

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

Dear Members of the Board:

We are pleased to submit this report of our review of the actuarial experience of the City of Fresno Fire and Police Retirement System. This study utilizes the census data from the last three actuarial valuations ending June 30, 2009. The study includes the proposed actuarial assumptions to be used effective with the June 30, 2010 valuation.

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

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

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

Sincerely,

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

Andy Yeung, ASA, MAAA, EA
Vice President & 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 recognizing gains or losses as they occur.

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 review the demographic actuarial assumptions and to compare the actual experience with that expected under the current assumptions during the three year experience period from July 1, 2006 through June 30, 2009. The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 35, "Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations" and, as appropriate, ASOP No. 27 "Selection of Economic Assumptions for Measuring Pension Obligations." These Standards of Practice put forth guidelines for the selection of the various actuarial assumptions utilized in a pension plan actuarial valuation. Based on the study's results and expected near-term experience, we are recommending various changes in the current actuarial assumptions.

We are recommending changes in the assumptions for pre-retirement mortality, healthy life post-retirement mortality, disabled life post-retirement mortality, Tier 2 termination (withdrawal and vested terminations), duty disability, the length of participation in DROP and salary increases.

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

Retirement Rates - The probability of retirement at each age at which participants are eligible to retire.
Recommendation: We recommend maintaining the current assumptions for both Tier 1 and Tier 2 members. We also recommend maintaining the current marriage/domestic partnership assumption.

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

Recommendation: For members who retire from service, we recommend adjusting the rates as developed in Section III (C) to include about a one-year improvement in mortality. We recommend using the same tables for pre-retirement mortality as those recommended for post-retirement mortality and assuming all pre-retirement deaths are duty related. The disabled member mortality rates have also been decreased as developed in Section III (D) to include about a two-year improvement in mortality.

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

Recommendation: We recommend adjusting the termination rates (withdrawal and vested terminations) for Tier 2 members only to those developed in Section III (E) to reflect higher incidence of termination.

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

Recommendation: We recommend decreasing the current duty disability rates for both Tier 1 and Tier 2 members to those developed in Section III (F) to reflect lower incidence of disability.

DROP Assumptions – The probability that a participant elects DROP and the duration of DROP participation.

Recommendation: We recommend maintaining the current DROP participation probability for both Tier 1 and Tier 2 members. However, we recommend increasing the length of time members are assumed to remain in DROP from four years to seven years.

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

Recommendation: We recommend increasing the merit and promotion rates to those developed in Section III (H) to reflect past experience.

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 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 June 30, 2010 valuation is provided in a separate report. Demographic assumptions include the probabilities of certain events occurring in the population of members, referred to as “decrements,” e.g., withdrawal from service, disability retirement, service retirement, DROP election, and death after retirement. We also reviewed the individual salary increases in excess of general salary increases (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 withdrawal from service, we compare the number of employees who actually withdraw in a certain age and/or service category (i.e., the number of “decrements”) with those who could have withdrawn (i.e., the number of “exposures”). For example, if there were 500 active employees in the 20-24 age group at the beginning of the year and 50 of them left during the year, we would say the probability of withdrawal in that age group is $50 \div 500$ or 10%.

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

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

III. ACTUARIAL ASSUMPTIONS

A. ECONOMIC ASSUMPTIONS

The economic assumptions are reviewed in a separate report titled “Review of Economic Actuarial Assumptions for the June 30, 2010 Actuarial Valuation.”

B. RETIREMENT RATES

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

The tables on the following page show the observed service retirement rates 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 rates assumed and the rates we propose.

Please note that the actual retirement experience was only a reflection of those members who never elected to participate in the DROP. Based on the data collected, only one Tier 1 member and no Tier 2 members have retired during the past three years who never elected the DROP. As most Tier 1 and Tier 2 members are expected to elect DROP, the service retirement rates are not expected to have a material impact in projecting the cost for the plan. For this reason, we are not recommending any changes in these rates.

Tier 1

Age	Current and Proposed Rate of Retirement	Actual Rate of Retirement
50	12.72%	2.94%
51	7.63	0.00
52	7.63	0.00
53	5.09	0.00
54	5.09	0.00
55	10.60	0.00
56	13.77	0.00
57	14.03	0.00
58	16.66	0.00
59	29.67	0.00
60	100.00	0.00

Tier 2

Age	Current and Proposed Rate of Retirement	Actual Rate of Retirement
50	5.31%	0.00%
51	4.12	0.00
52	4.64	0.00
53	14.28	0.00
54	16.74	0.00
55	19.46	0.00
56	11.72	0.00
57	7.82	0.00
58	9.69	0.00
59	9.17	0.00
60	100.00	0.00

Chart 1 compares actual experience with the assumed and the proposed rates of retirement for Tier 1 members. Chart 2 has similar data for Tier 2 members.

In prior valuations, deferred vested Tier 1 and Tier 2 members were assumed to retire at age 50. The average age at retirement over the prior three years was 50. We recommend maintaining the assumed retirement age for deferred vested participants.

Based on the actual experience that 46% of all deferred vested members went on to be covered by a reciprocal retirement system, we recommend maintaining the current 50% reciprocal assumption. Currently we assume a 4.20% annual salary increase to anticipate salary increases from termination to the expected date of retirement from the reciprocal employer. We propose that this annual salary increase assumption be increased to 4.30%, consistent with the salary increase assumption for active members. This includes general salary increases of 4.0% plus 0.3% merit and promotion increases.

In prior valuations, it was assumed that 85% of all active members would be married or have an eligible domestic partner when they retired. According to experience of members who retired from active employment or started their participation in the DROP during the last three years, about 81% of all members were married or had a domestic partner at retirement. We recommend maintaining the marriage assumption at 85%.

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

Chart 1
Retirement Rates - Tier 1 Members

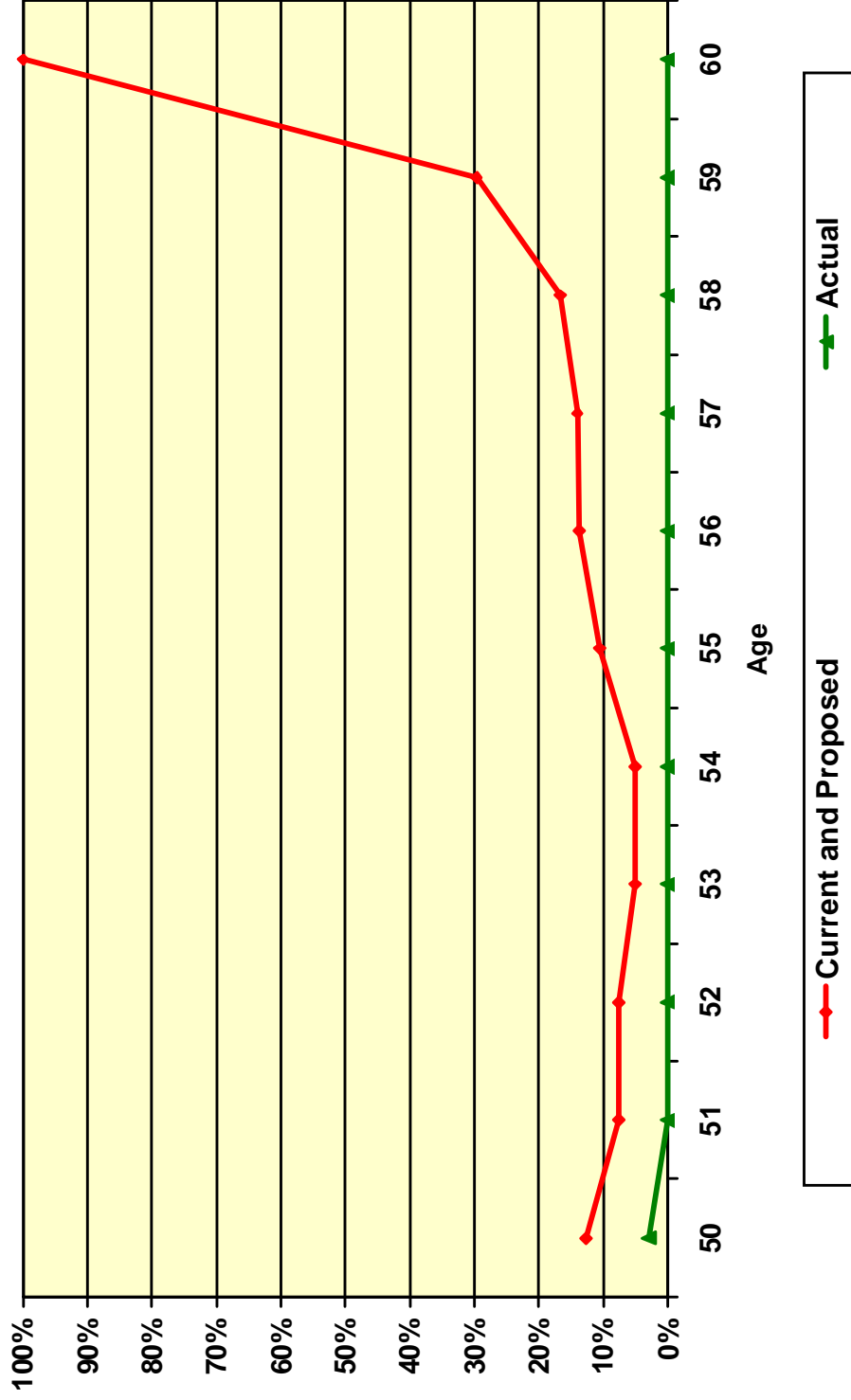
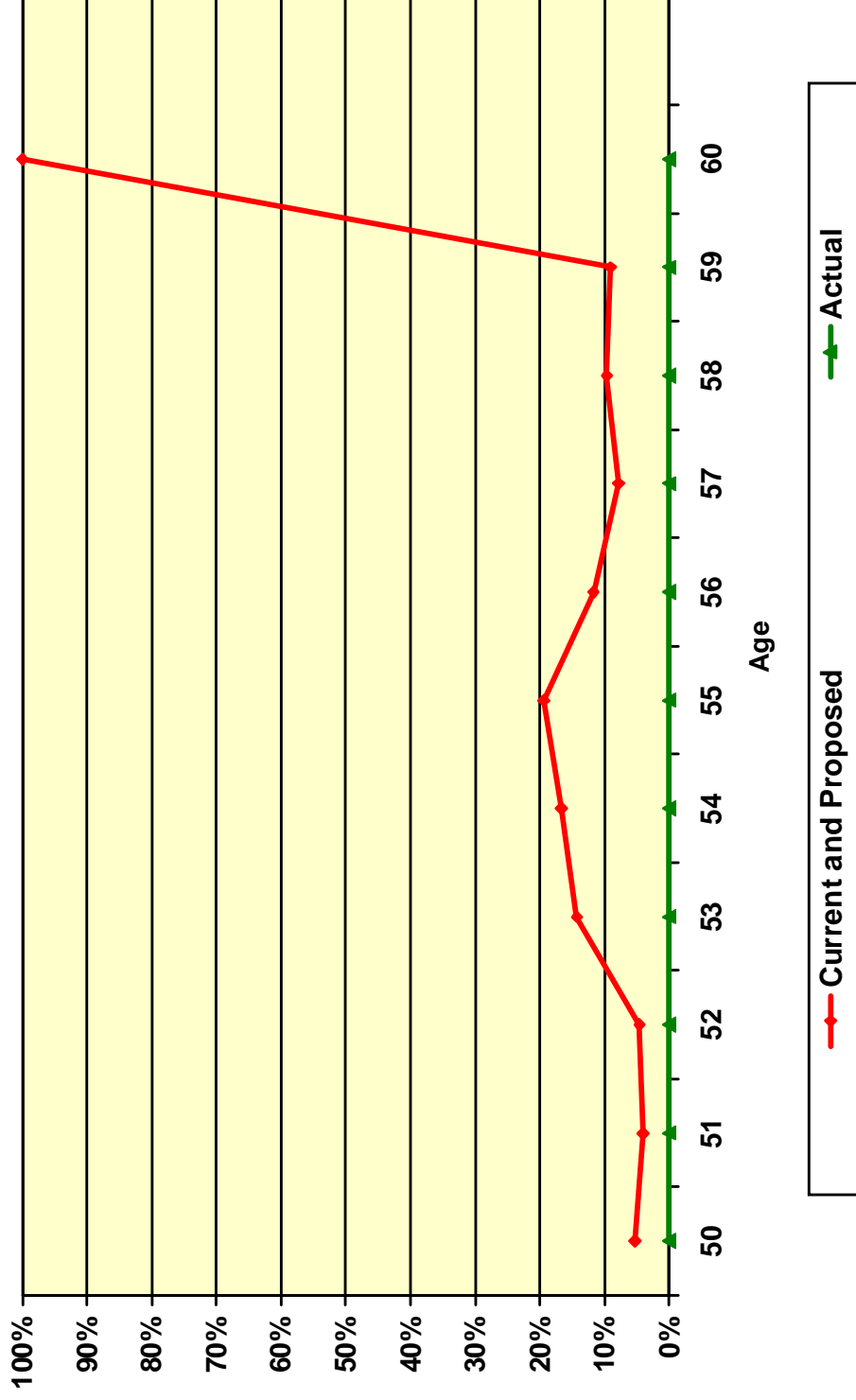


Chart 2
Retirement Rates - Tier 2 Members



C. MORTALITY RATES - HEALTHY

The “healthy” mortality rates project what proportion of members will die before retirement as well as the life expectancy of a member who retires from service (i.e., who did not retire on a disability pension). The tables currently being used for post-service retirement mortality rates are the 1994 Group Annuity Mortality Table (separate tables for males and females), with ages set back one year.

Pre-Retirement Mortality

The number of deaths among active members is not large enough to provide statistics credible enough to develop a unique table. Therefore, it is assumed that pre-retirement mortality and post-retirement mortality will follow the same tables. Consistent with the prior experience study, it is assumed that all pre-retirement death are assumed to be duty related.

Post-Retirement Mortality (Service Retirements)

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

Year Ended June 30	Healthy Retirees and Beneficiaries		
	Actual Deaths	Current Expected Deaths	Proposed Expected Deaths
2007	4	18	16
2008	24	20	17
2009	24	21	18
Total	52	59	51
Actual / Expected		88%	102%

Chart 3 compares actual to expected deaths for all members and beneficiaries under the current and the proposed assumptions over the last three years. Experience shows that there were fewer deaths than predicted by the current table.

For retirees and beneficiaries, the ratio of actual to expected deaths was 88%. We recommend changing to the RP-2000 Combined Healthy Mortality Table (separate tables for males and females) set back three years. Standard actuarial practice generally includes some margin in the rates to anticipate expected future improvement in life expectancy. While the proposed assumption will only bring the actual to expected rates to 102% and will not provide the 10%

margin that we would normally recommend for future improvements, we have made this recommendation based on the observation that the 4 deaths reported for the year ended June 30, 2007 were much fewer than the average number of 19 deaths per year observed during the last experience study and we have weighted the experience from the last study somewhat heavily in formulating our recommendation. We will continue to monitor this assumption closely in future studies.

Chart 4 shows the life expectancies under the current and the proposed tables for male members.

Chart 5 shows the same information for female members.

Mortality Table for Tier 1 Member Contributions and Tier 1 and Tier 2 Optional Benefits

We recommend that the mortality table used for determining contributions for members be changed from the 1994 Group Annuity Mortality Table set back one year weighted 90% male and 10% female to the RP-2000 Combined Healthy Mortality Table set back three years weighted 90% male and 10% female. This is based on the proposed valuation tables for members and beneficiaries and the actual sex distribution of all members.

Chart 3
Post - Retirement Deaths
Non - Disabled Members

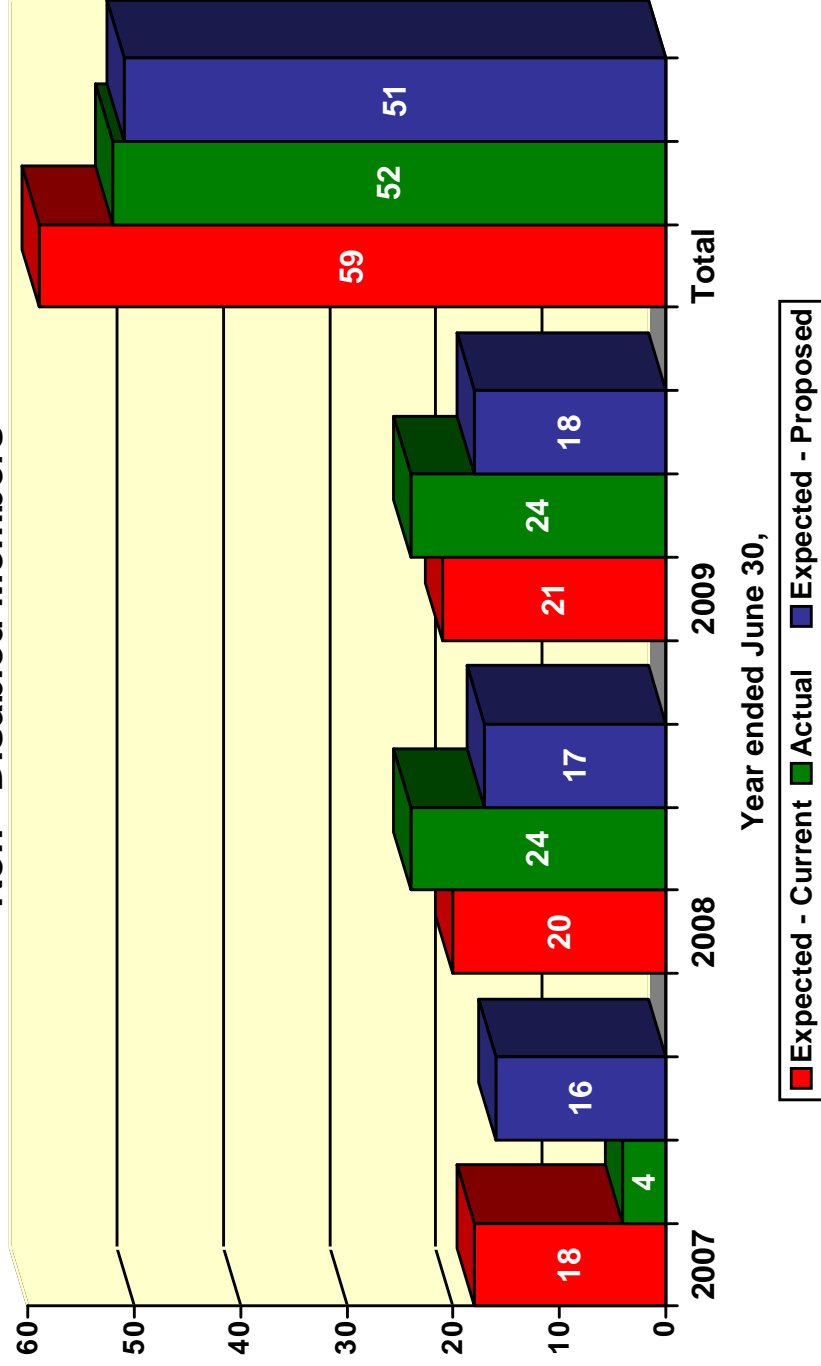


Chart 4 Life Expectancies (Male)

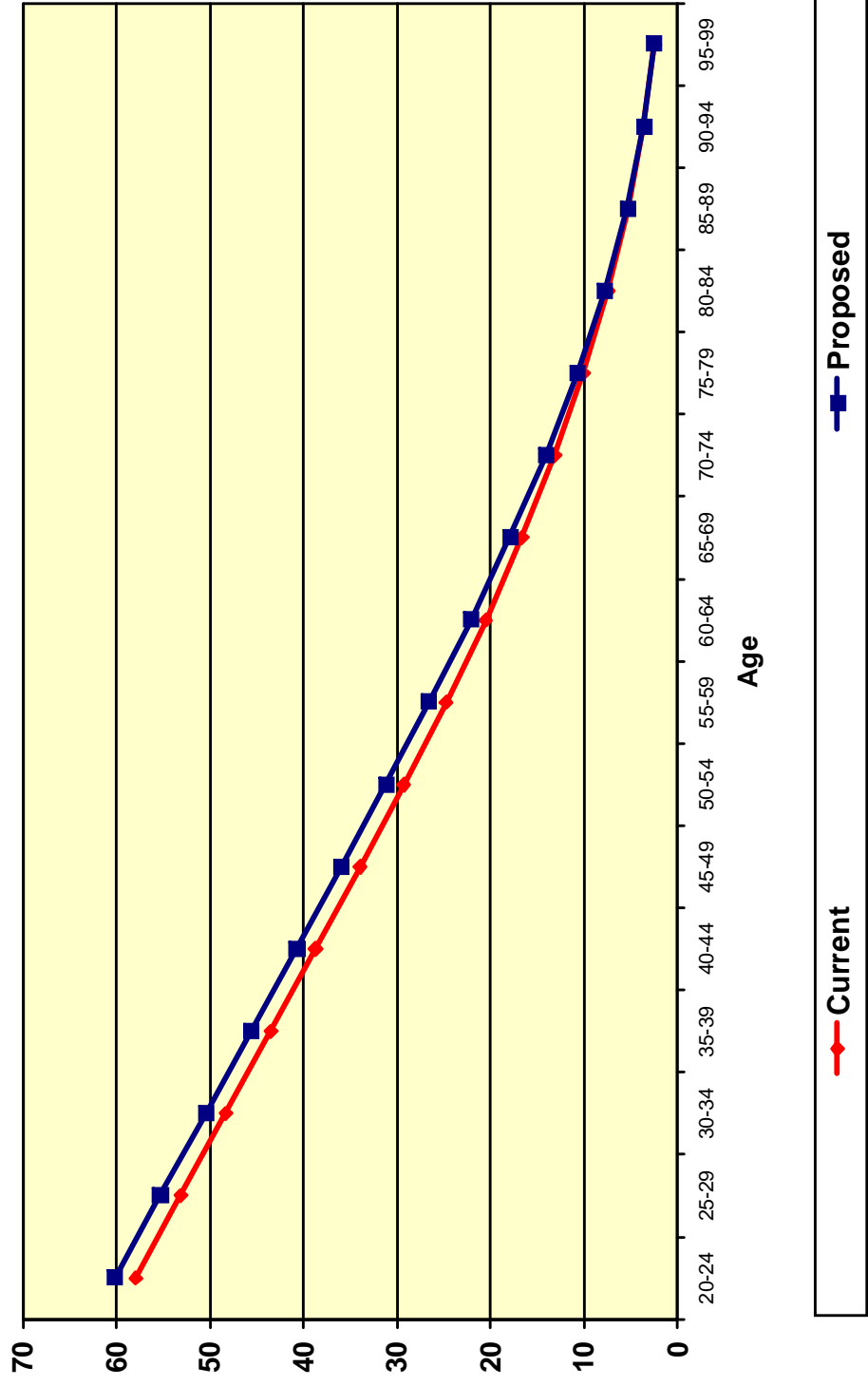
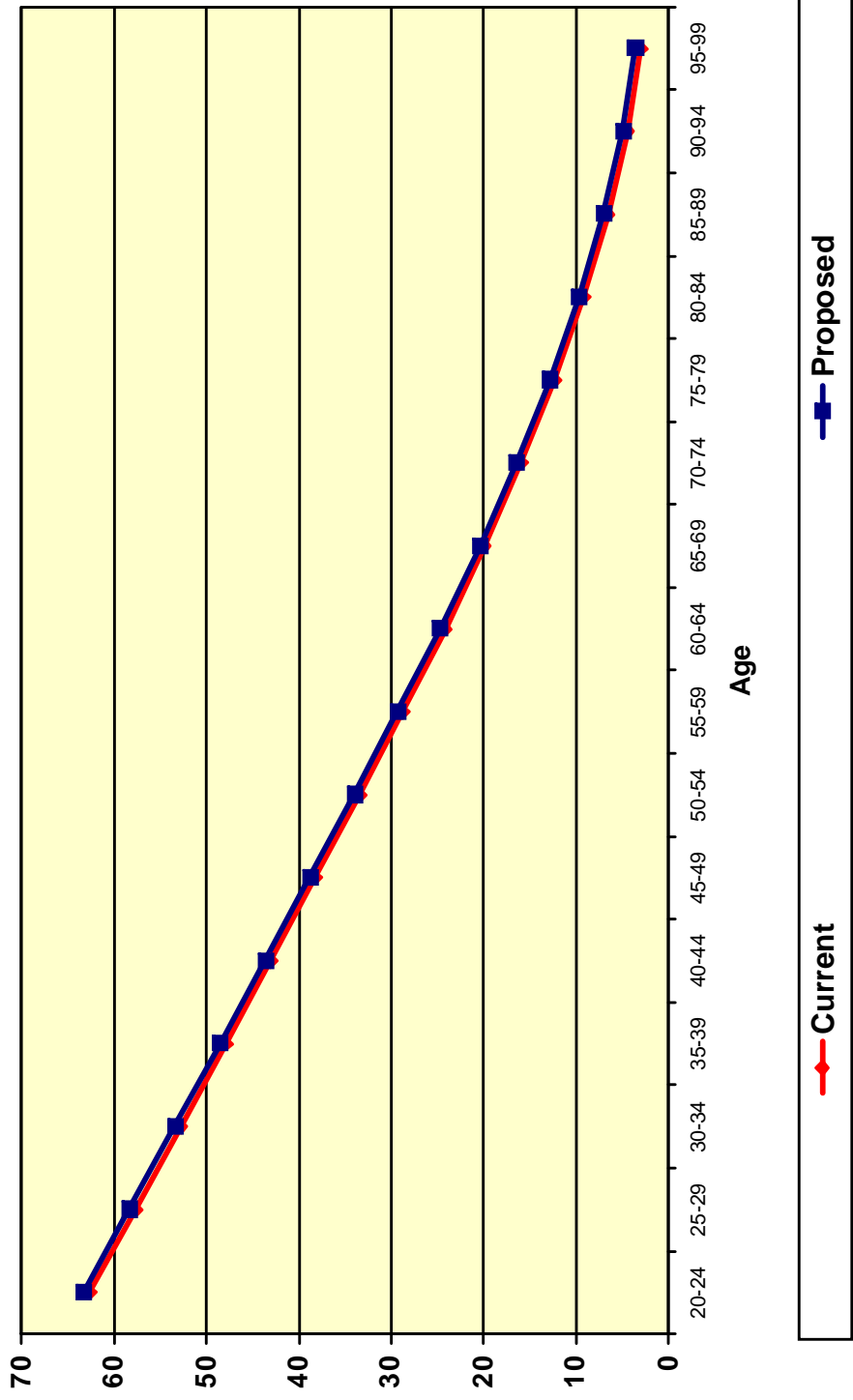


Chart 5
Life Expectancies (Female)



D. MORTALITY RATES - DISABLED

Since death rates for disabled members can be higher than for healthy members, a different mortality assumption is often used. The table currently being used is the 1981 Safety Disability Mortality Table set back five years.

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

Year Ended June 30	Disabled		
	Actual Deaths	Current Expected Deaths	Proposed Expected Deaths
2007	2	5	4
2008	6	6	4
2009	3	6	4
Total	11	17	12
Actual / Expected		65%	92%

Based on the combined experience for all disabled retirees, we recommend changing to the RP-2000 Combined Healthy Mortality Table (separate tables for males and females) set forward one year. In formulating our recommendation, we have again taken into consideration that there were about 4.5 deaths per year observed during the previous experience study and we have given substantial weight to the experience from that previous study in formulating our recommendations. We will continue to monitor the assumption for disableds closely to see if the mortality rates need to be further adjusted.

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

Chart 7 shows the life expectancies under both the current and the proposed tables for male members.

Chart 8 shows the same information for female members.

Chart 6
Post - Retirement Deaths
Disabled General Members

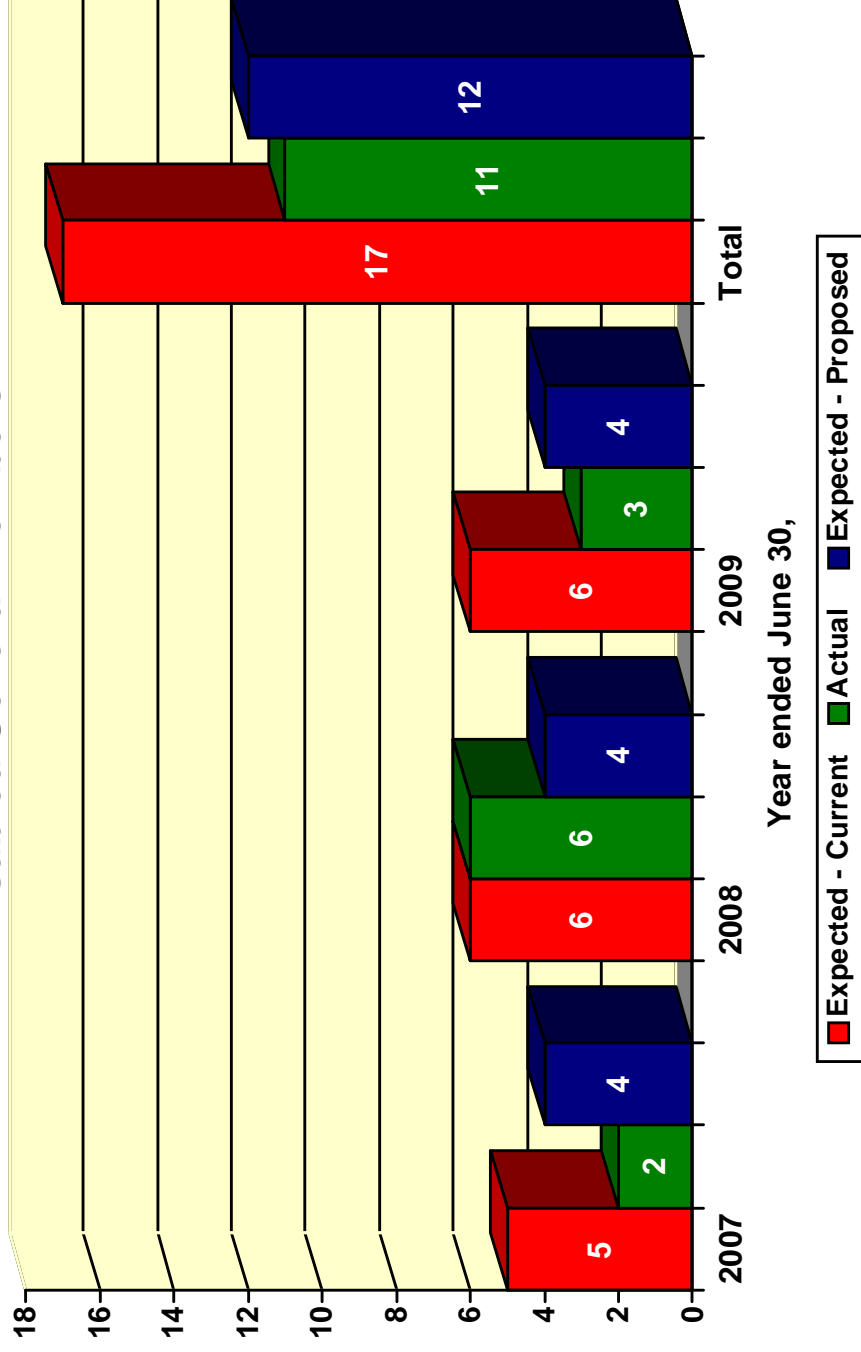


Chart 7
Life Expectancies (Male)
Disabled Members

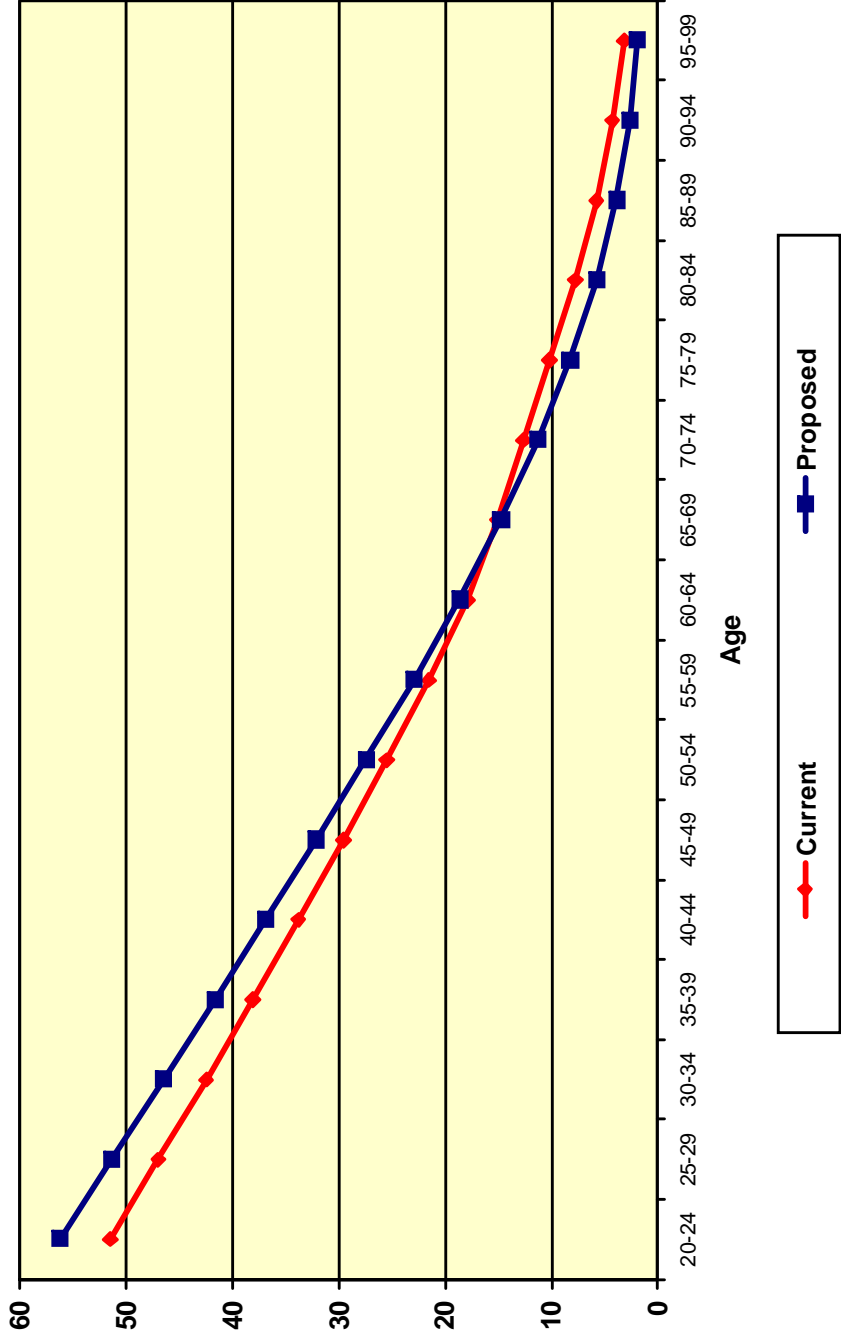
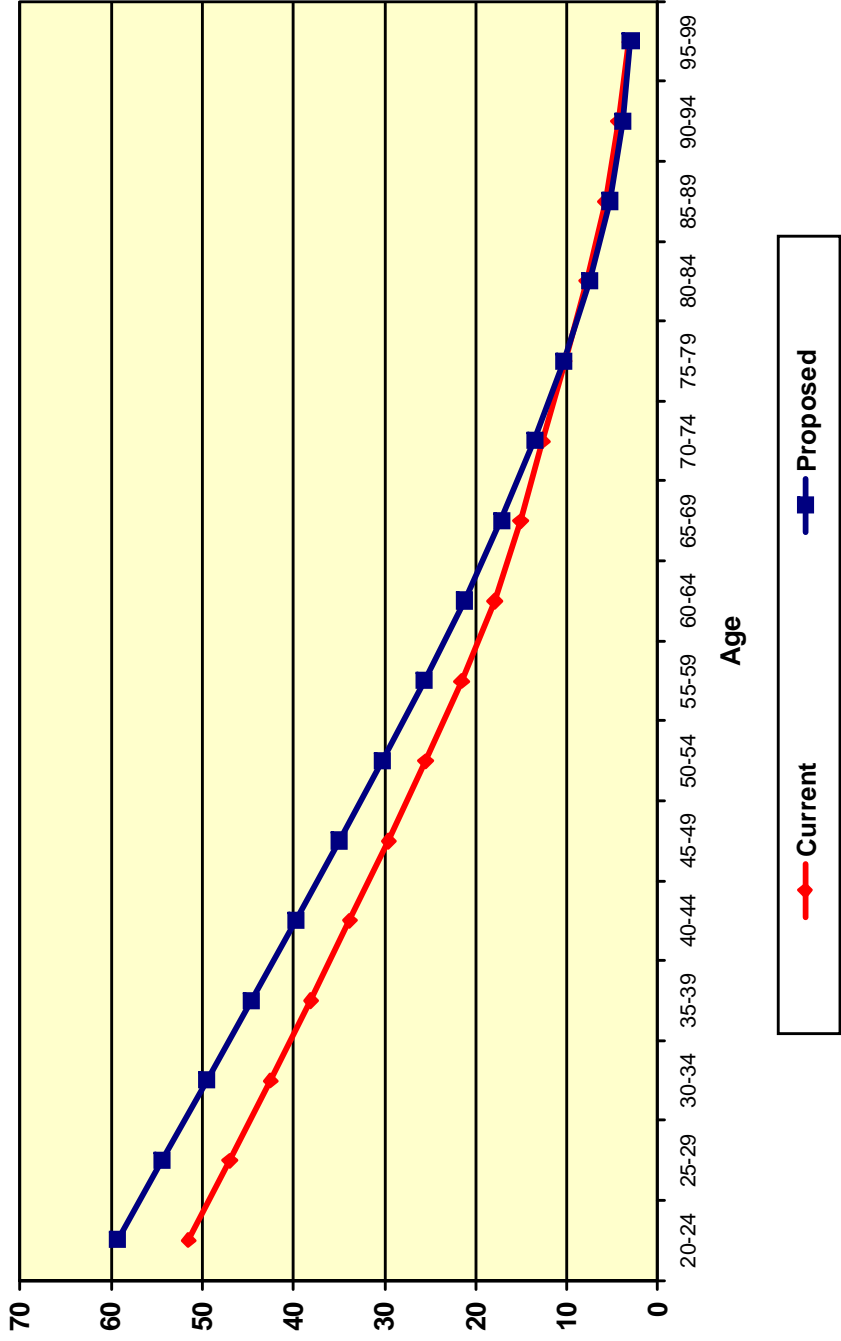


Chart 8 Life Expectancies (Female) Disabled Members



E. TERMINATION RATES

Termination rates include all terminations for reasons other than death, disability, or retirement. Under the current assumptions, there are separate sets of assumptions for ordinary withdrawal and for vested termination to predict, respectively, those members who are anticipated to withdraw their contributions (ordinary withdrawal) or leave their contributions on deposit and receive a deferred vested benefit (vested termination). With this experience study, we are recommending changes to the current Tier 2 assumptions.

The termination experience over the last three years for Tier 1 and Tier 2 members, is shown on the next two pages.

Rates of Withdrawal (Tier 1)
(Fewer than Four Years of Service)

<u>Years of Service</u>	<u>Current and Proposed Rates</u>	<u>Observed Rates</u>
0 – 1	4.47%	0.00%
1 – 2	4.47	0.00
2 – 3	4.47	0.00
3 – 4	4.47	0.00

Rates of Withdrawal (Tier 1)
(More than Four Years of Service)

<u>Age</u>	<u>Current and Proposed Rates</u>		<u>Observed Rates</u>	
	<u>4 -10 Years</u>	<u>10+ Years</u>	<u>4 -10 Years</u>	<u>10+ Years</u>
20-24	2.87%	2.87%	0.00%	0.00%
25-29	2.87	2.87	0.00	0.00
30-34	1.22	1.30	0.00	0.00
35-39	0.64	0.36	0.00	0.00
40-44	0.30	0.12	0.00	1.41
45-49	0.12	0.00	0.00	0.48
50-54	0.00	0.00	0.00	0.00
55-59	0.00	0.00	0.00	0.00

Rates of Vested Termination (Tier 1)

<u>Age</u>	<u>Current and Proposed Rates</u>	<u>Observed Rates</u>
20 – 24	0.70%	0.00%
25 – 29	0.70	0.00
30 – 34	0.70	0.00
35 – 39	0.70	0.00
40 – 44	0.70	0.00
45 – 49	0.50	0.00
50 – 54	0.00	0.00
55 – 59	0.00	0.00

Rates of Withdrawal (Tier 2)
(Fewer than Four Years of Service)

<u>Years of Service</u>	<u>Current Rates</u>	<u>Observed Rates</u>	<u>Proposed Rates</u>
0 – 1	8.94%	9.89%	9.00%
1 – 2	4.47	2.70	3.50
2 – 3	3.00	1.32	2.50
3 – 4	2.50	1.19	2.00

Rates of Withdrawal (Tier 2)
(More than Four Years of Service)

<u>Age</u>	<u>Current Rates</u>		<u>Observed Rates</u>		<u>Proposed Rates</u>	
	<u>4-10 Years</u>	<u>10+ Years</u>	<u>4-10 Years</u>	<u>10+ Years</u>	<u>4-10 Years</u>	<u>10+ Years</u>
20-24	2.50%	2.50%	0.00%	0.00%	2.00%	2.00%
25-29	2.50	2.50	0.81	0.00	2.00	2.00
30-34	1.22	1.30	0.62	0.00	1.00	1.00
35-39	0.64	0.36	0.66	1.57	0.70	0.70
40-44	0.30	0.12	0.00	0.37	0.30	0.30
45-49	0.12	0.00	0.00	0.81	0.10	0.10
50-54	0.00	0.00	0.00	0.00	0.00	0.00
55-59	0.00	0.00	0.00	0.00	0.00	0.00

Rates of Vested Termination (Tier 2)

<u>Age</u>	<u>Current Rates</u>	<u>Observed Rates</u>	<u>Proposed Rates</u>
20 – 24	0.70%	4.62%	1.50%
25 – 29	0.70	1.49	1.25
30 – 34	0.70	1.37	1.00
35 – 39	0.70	0.67	0.80
40 – 44	0.50	0.90	0.60
45 – 49	0.20	0.58	0.30
50 – 54	0.00	9.09	0.00
55 – 59	0.00	0.00	0.00

Chart 9 compares actual to expected terminations (both withdrawal and vested terminations) over the past three years for both the current and proposed assumptions for Tier 1 members.

Chart 10 graphs the same information as Chart 9, but for Tier 2 members.

Chart 11 shows the current and the proposed withdrawal rates for Tier 1 members with less than four years of service.

Chart 12 shows the current and the proposed withdrawal rates for Tier 1 members with four or more years of service.

Chart 13 shows the current and the proposed vested termination rates for Tier 1 members.

Chart 14 shows the same information as Chart 11, but for Tier 2 members.

Chart 15 shows the current and the proposed withdrawal rates for Tier 2 members with more than four and less than ten years of service.

Chart 16 shows the current and the proposed withdrawal rates for Tier 2 members with ten or more years of service.

Chart 17 shows the same information as Chart 13, but for Tier 2 members.

Based upon the recent experience as captured in Charts 9 and 10, we recommend maintaining the current assumptions for withdrawal rates and termination rates for Tier 1 and modifying the current assumptions for withdrawal rates and termination rates for Tier 2.

Chart 9
Actual Number of Terminations Compared
to Expected (Tier 1 Members)

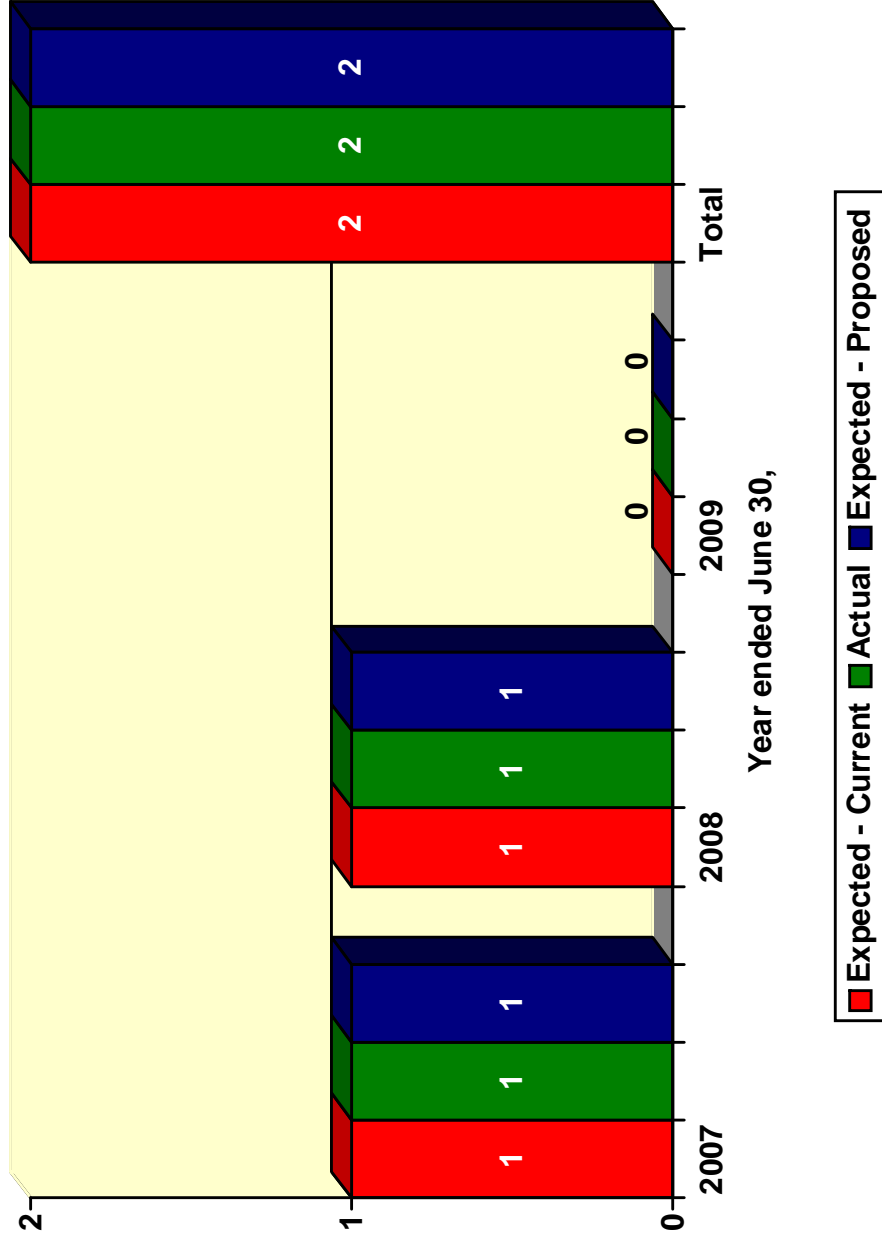
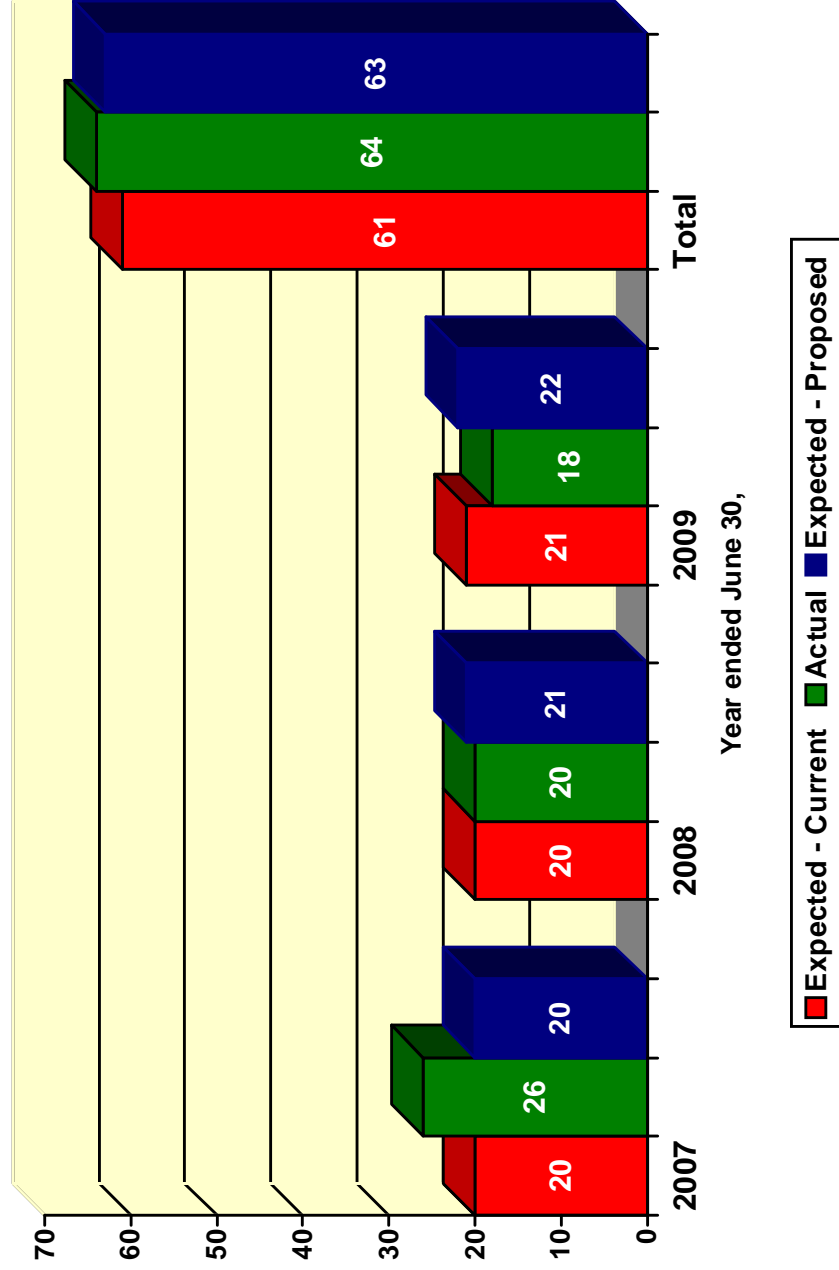


Chart 10
Actual Number of Terminations Compared
to Expected (Tier 2 Members)



* Out of the 64 actual terminations, 34 were ordinary withdrawals and 30 were vested terminations. The current assumptions would have predicted 45 ordinary withdrawals and 16 vested terminations while the proposed assumptions would have predicted 41 ordinary withdrawals and 22 vested terminations.

Chart 11
Withdrawal Rates - Tier 1 Members
(Less than Four Years of Service)

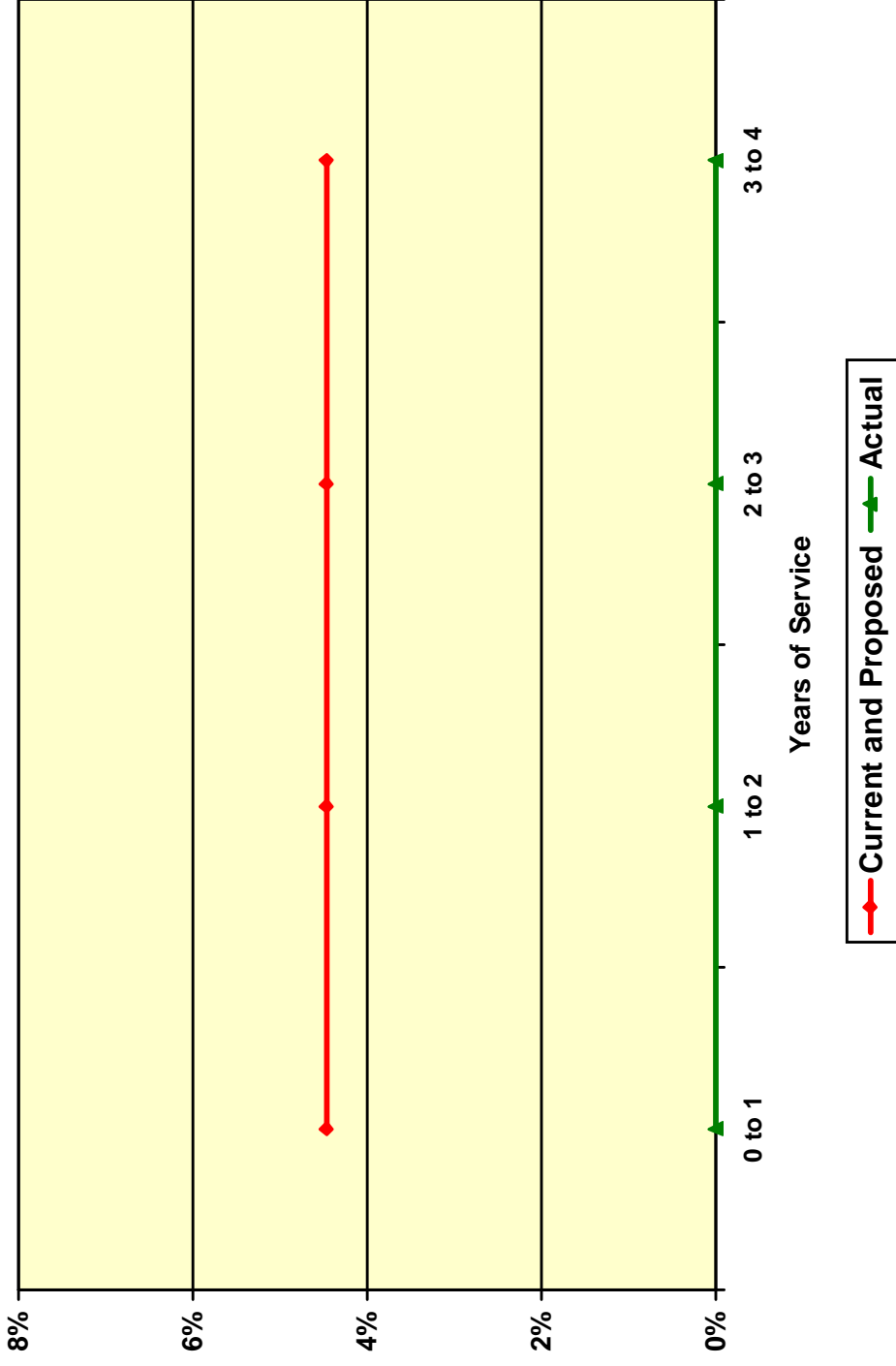


Chart 12
Withdrawal Rates - Tier 1 Members
(More than Four Years of Service)

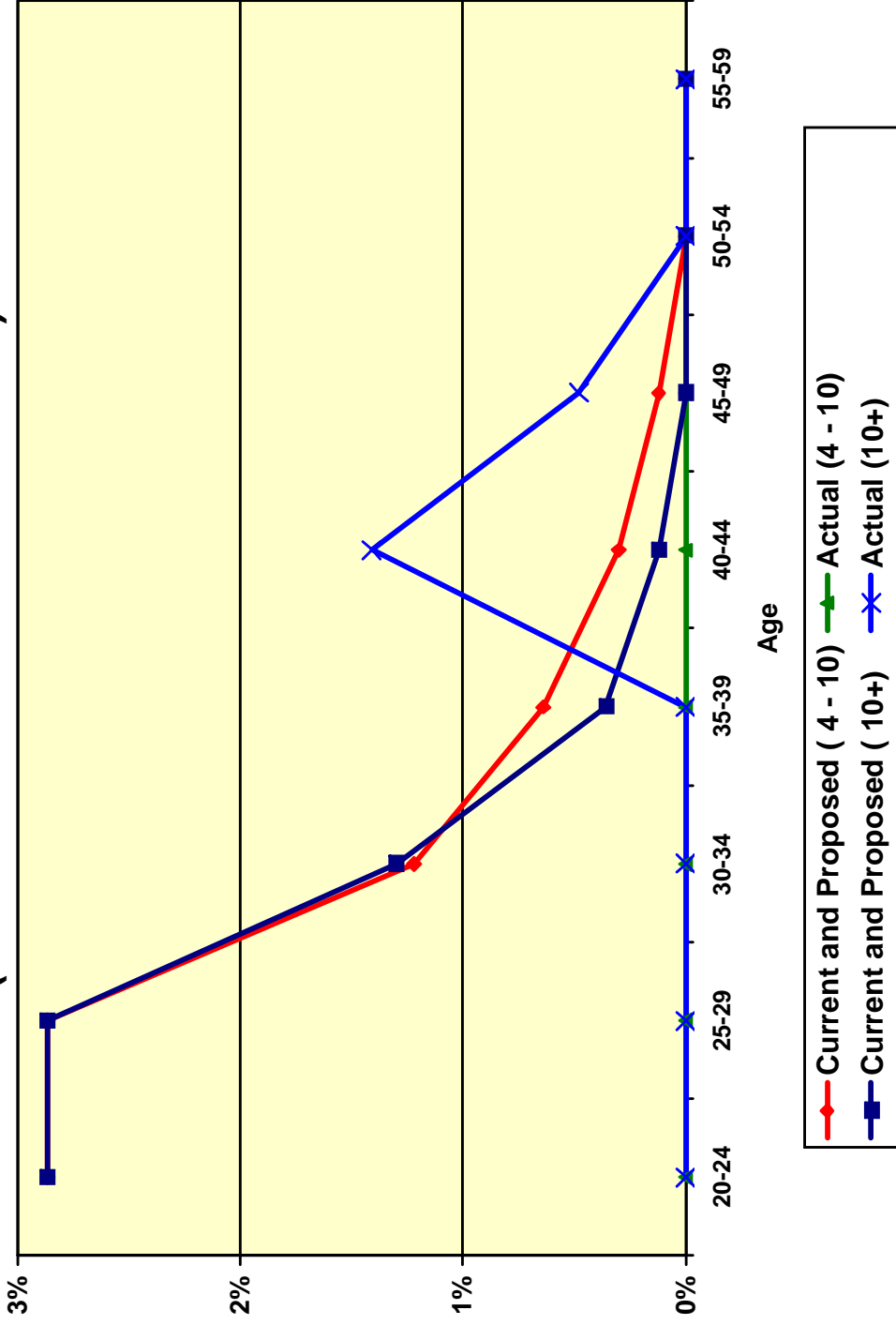


Chart 13
Vested Termination Rates - Tier 1 Members

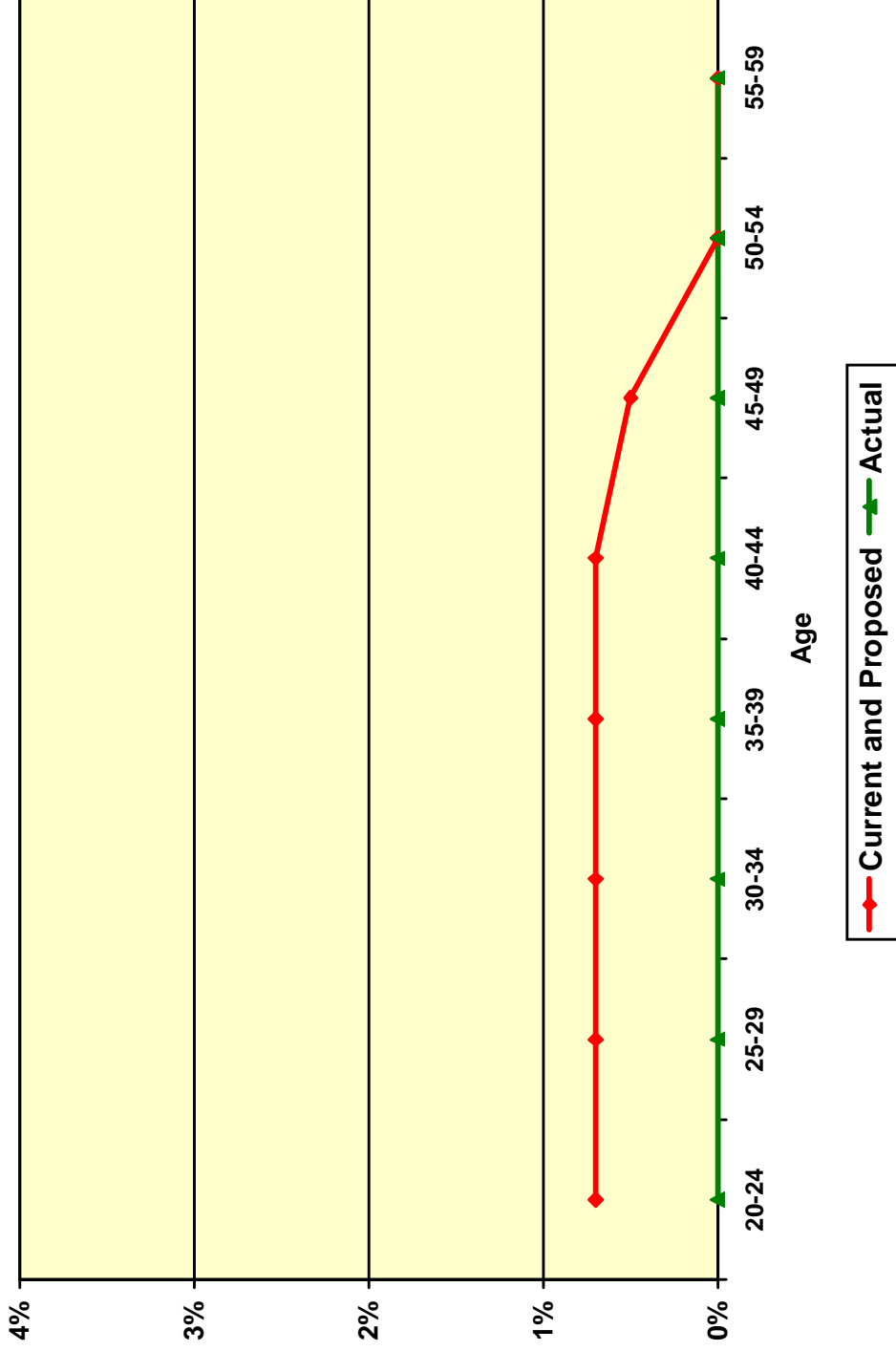


Chart 14
Withdrawal Rates - Tier 2 Members
(Less than Four Years of Service)

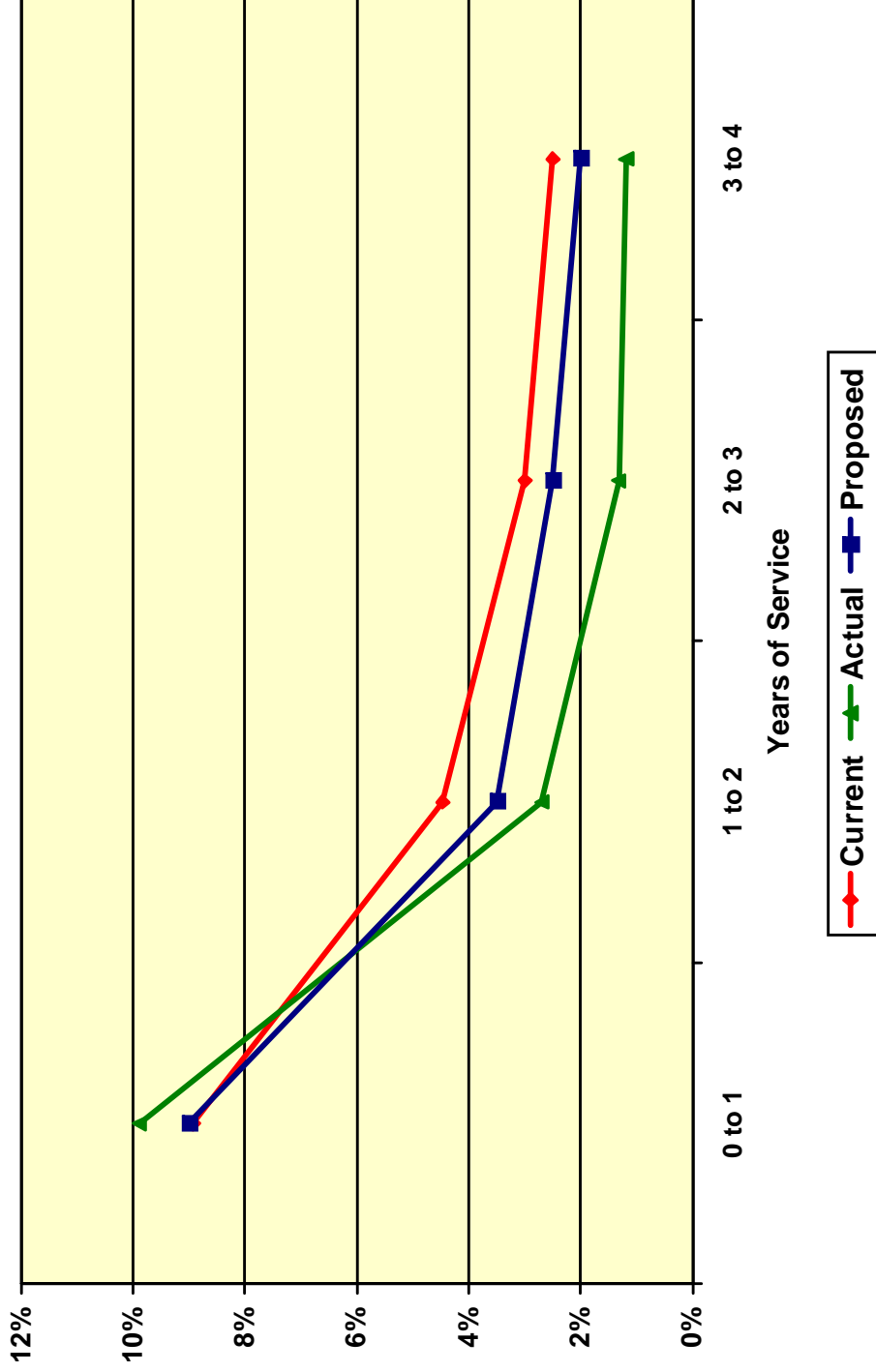


Chart 15
Withdrawal Rates - Tier 2 Members
(More than Four and Less than Ten Years of Service)

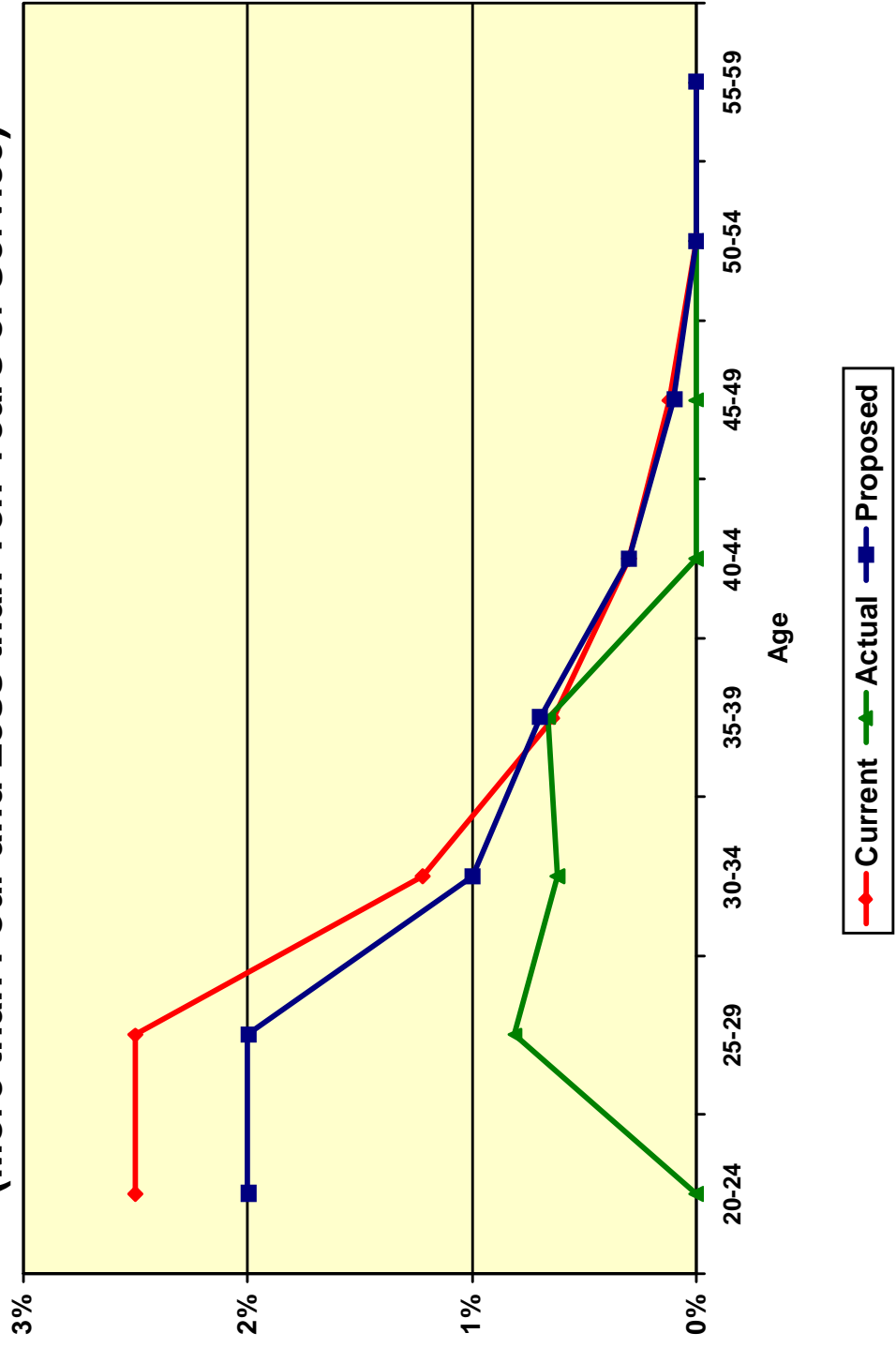


Chart 16
Withdrawal Rates - Tier 2 Members
(More than Ten Years of Service)

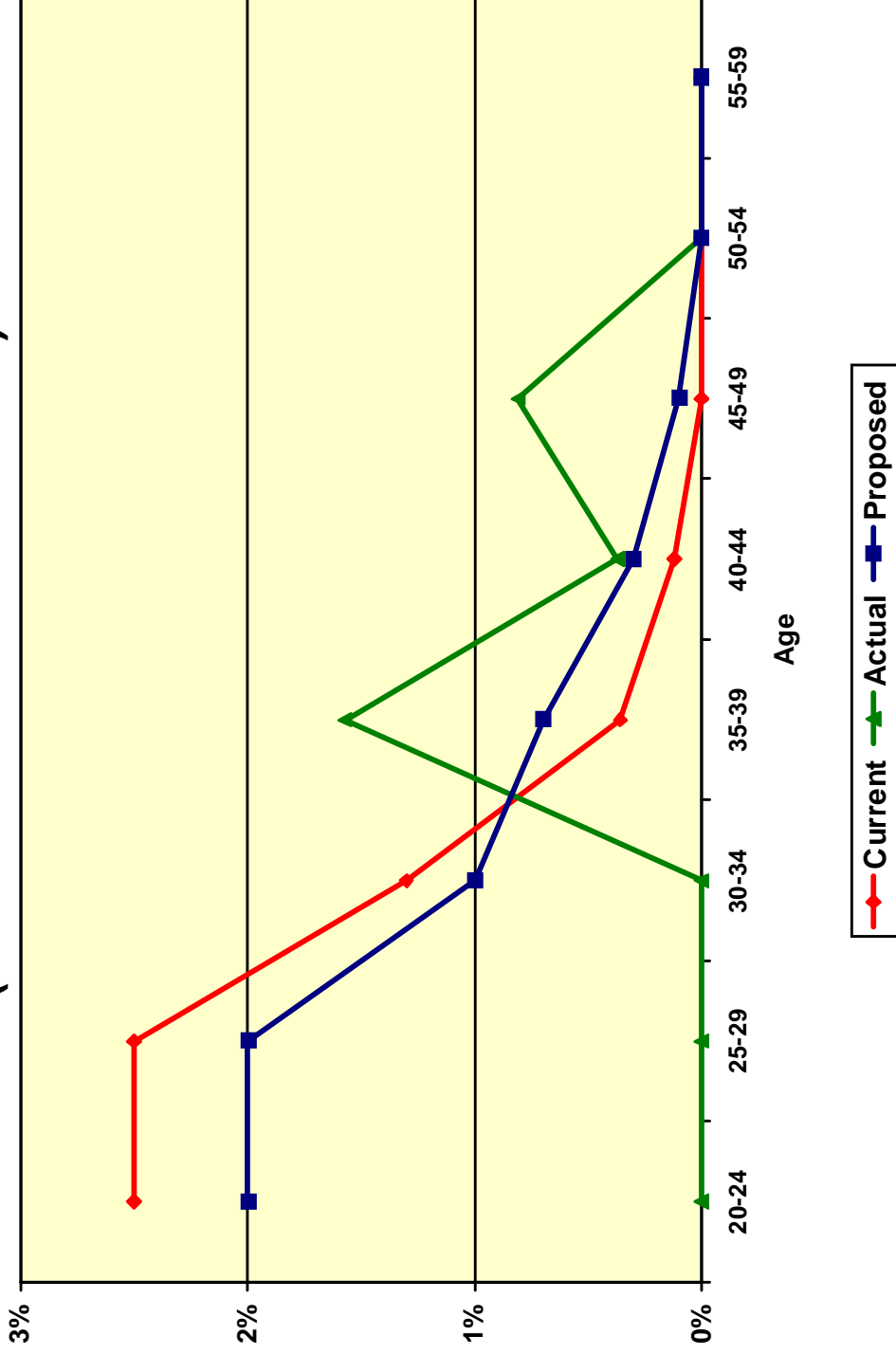
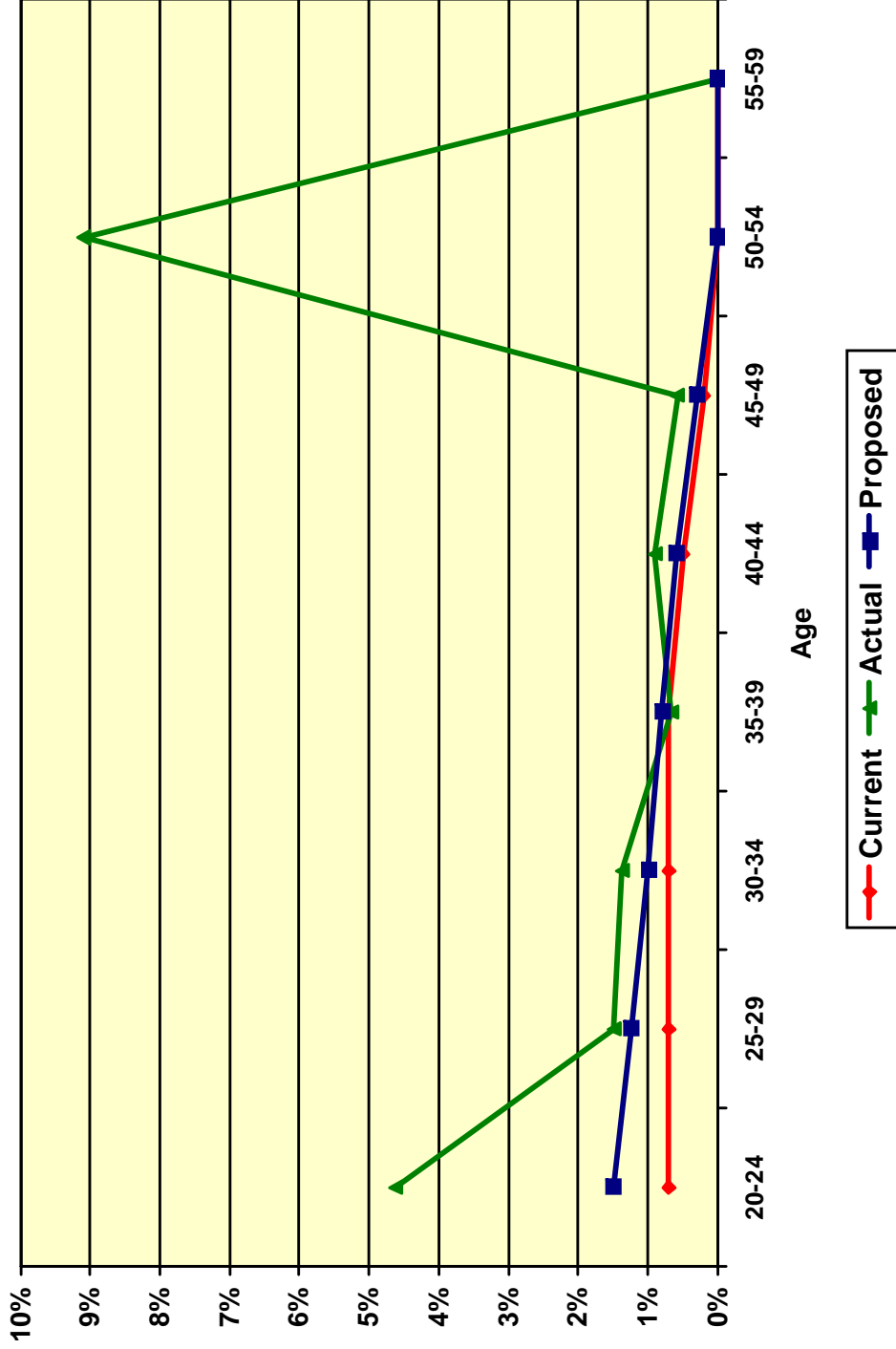


Chart 17
Vested Termination Rates - Tier 2 Members



F. DISABILITY INCIDENCE RATES

When a member becomes disabled, he or she may be entitled to at least a 55% of FAS pension for Tier 1 and 50% of FAS pension for Tier 2 (duty disability), or a pension that may depend upon the member’s years of service (ordinary disability). The following summarizes the actual incidence of duty and ordinary disabilities over the past three years compared to the current and proposed assumptions for both duty and ordinary disability incidence:

Rates of Duty Disability Incidence (Tier 1)

<u>Age</u>	<u>Current Rates</u>	<u>Observed Rates</u>	<u>Proposed Rates</u>
20 – 24	0.09%	0.00%	0.05%
25 – 29	0.40	0.00	0.20
30 – 34	0.45	0.00	0.30
35 – 39	0.80	0.00	0.45
40 – 44	1.05	0.00	0.70
45 – 49	1.25	0.95	1.00
50 – 54	4.00	0.00	4.00
55 – 59	11.00	0.00	11.00
60 – 64	0.00	0.00	0.00

Rates of Duty Disability Incidence (Tier 2)

<u>Age</u>	<u>Current Rates</u>	<u>Observed Rates</u>	<u>Proposed Rates</u>
20 – 24	0.35%	0.00%	0.20%
25 – 29	0.48	0.21	0.35
30 – 34	0.68	0.69	0.60
35 – 39	0.98	0.13	0.80
40 – 44	1.40	0.45	1.10
45 – 49	2.04	0.58	1.30
50 – 54	1.99	0.00	1.60
55 – 59	2.97	0.00	1.90
60 – 64	0.00	0.00	0.00

The above observed rates do not include nine service retirees who were granted a disability status after retirement. They were all Tier 1 duty disabilities. Of those retirees, one member retired between the age of 50 and 54 and eight retired at age 55 and above. With these reclassifications, we recommend maintaining the disability assumption for ages 50 and above.

Rates of Ordinary Disability Incidence (Tier 1)

<u>Age</u>	<u>Current and Proposed Rates</u>	<u>Observed Rates</u>
20 – 24	0.00%	0.00%
25 – 29	0.01	0.00
30 – 34	0.01	0.00
35 – 39	0.05	0.00
40 – 44	0.20	0.00
45 – 49	0.25	0.00
50 – 54	0.10	0.00
55 – 59	0.00	0.00
60 – 64	0.00	0.00

Rates of Ordinary Disability Incidence (Tier 2)

<u>Age</u>	<u>Current and Proposed Rates</u>	<u>Observed Rates</u>
20 – 24	0.00%	0.00%
25 – 29	0.01	0.00
30 – 34	0.01	0.00
35 – 39	0.05	0.00
40 – 44	0.20	0.00
45 – 49	0.25	0.00
50 – 54	0.10	0.00
55 – 59	0.00	0.00
60 – 64	0.00	0.00

Chart 18 compares the actual number of duty and ordinary disabilities over the past three years for Tiers 1 and 2 combined to that expected under both the current and proposed assumptions.

Chart 19 shows actual duty disablement rates, compared to the assumed and the proposed rates for Tier 1 members.

Chart 20 graphs the same information as Chart 19, but for Tier 2 members.

Chart 21 shows actual ordinary disablement rates, compared to the assumed and the proposed rates for Tier 1 members.

Chart 22 graphs the same information as Chart 21, but for Tier 2 members.

We recommend adjusting the current duty disability assumption for both Tiers. Since there were no ordinary disability awards for either Tier 1 or Tier 2, we recommend maintaining the ordinary disability assumptions for both Tiers.

Chart 18
Actual Number of Disabilities Compared to Expected

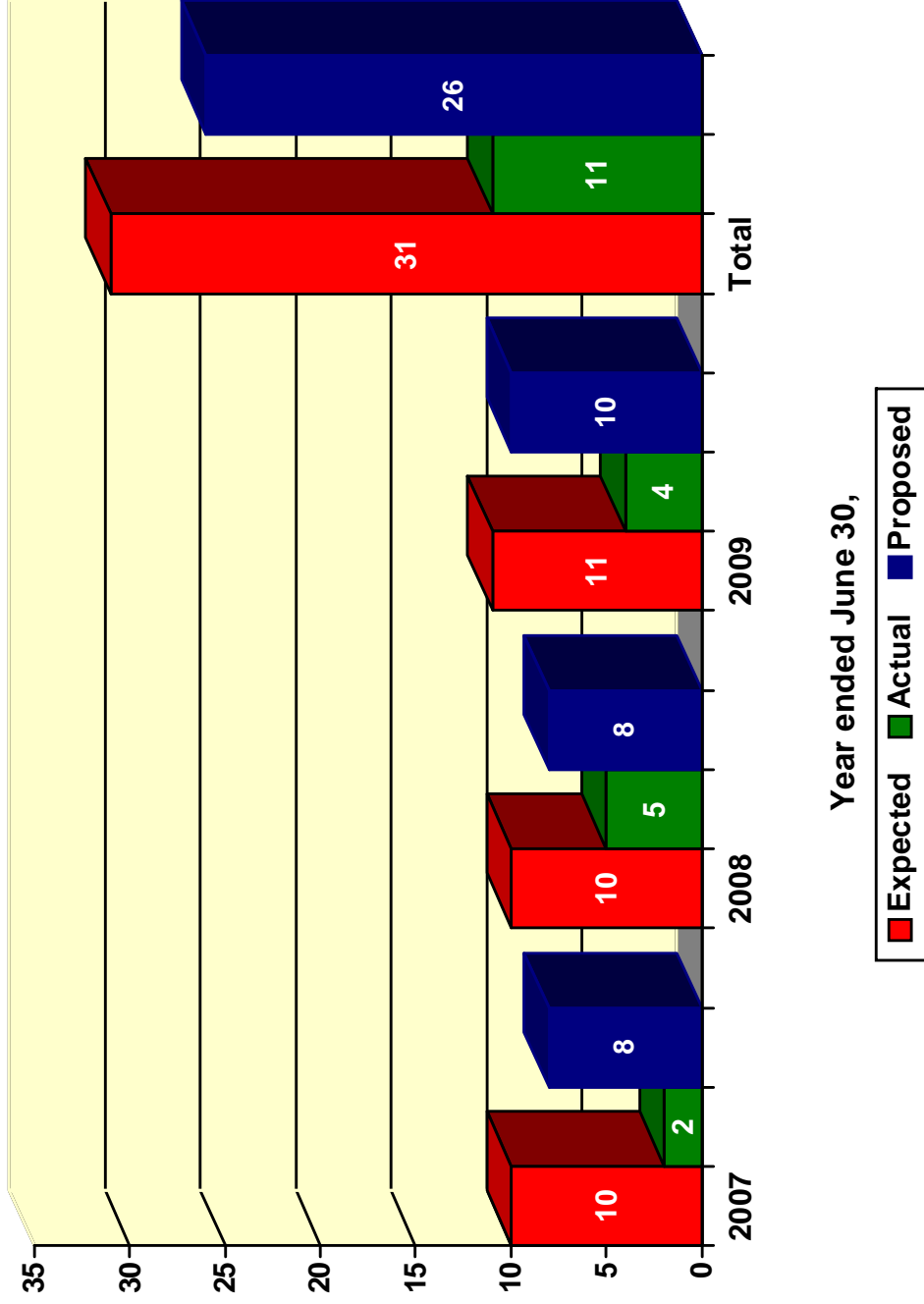


Chart 19
Duty Disablement Rates for Tier 1 Members

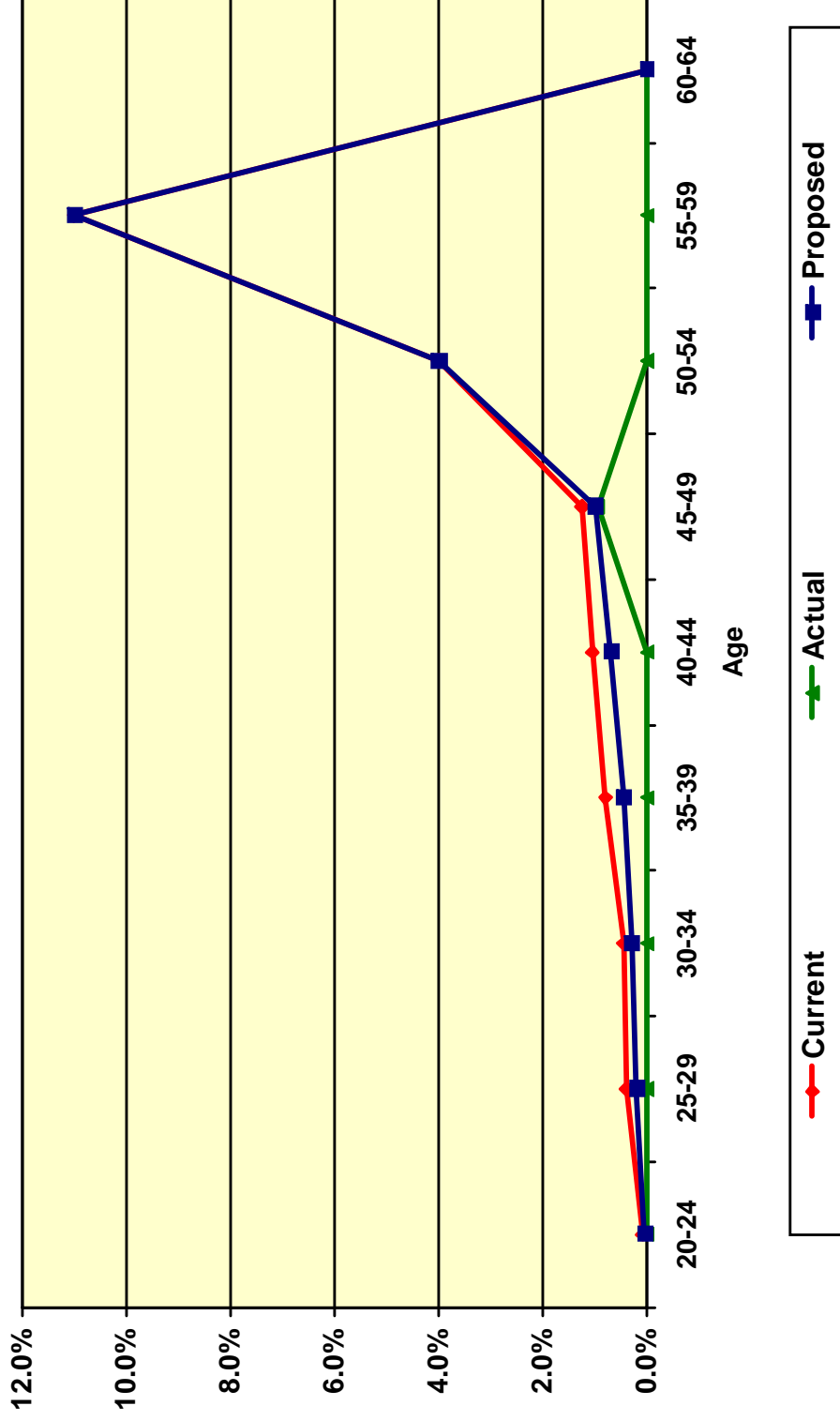


Chart 20
Duty Disablement Rates for Tier 2 Members

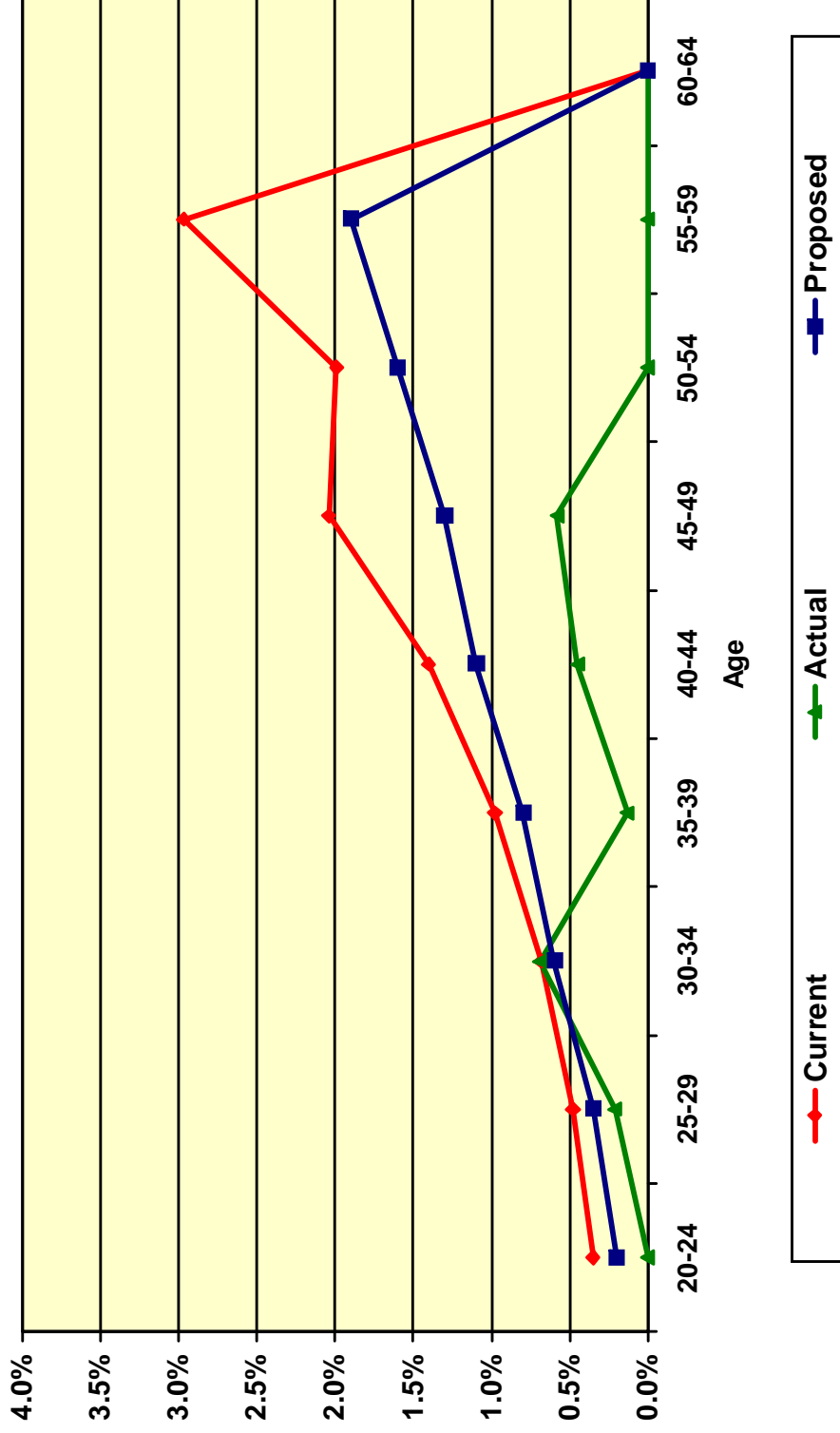


Chart 21
Ordinary Disablement Rates for Tier 1 Members

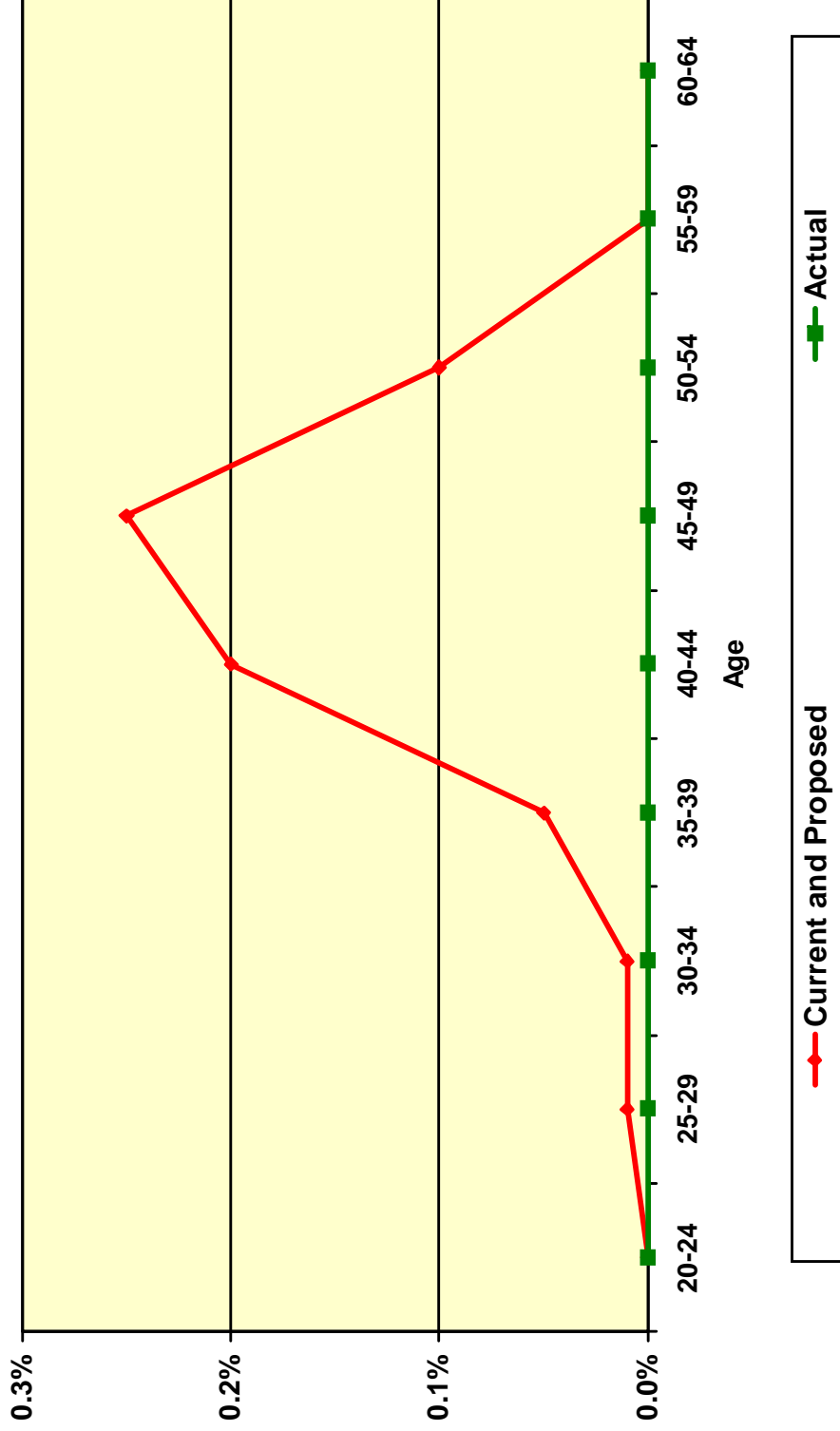
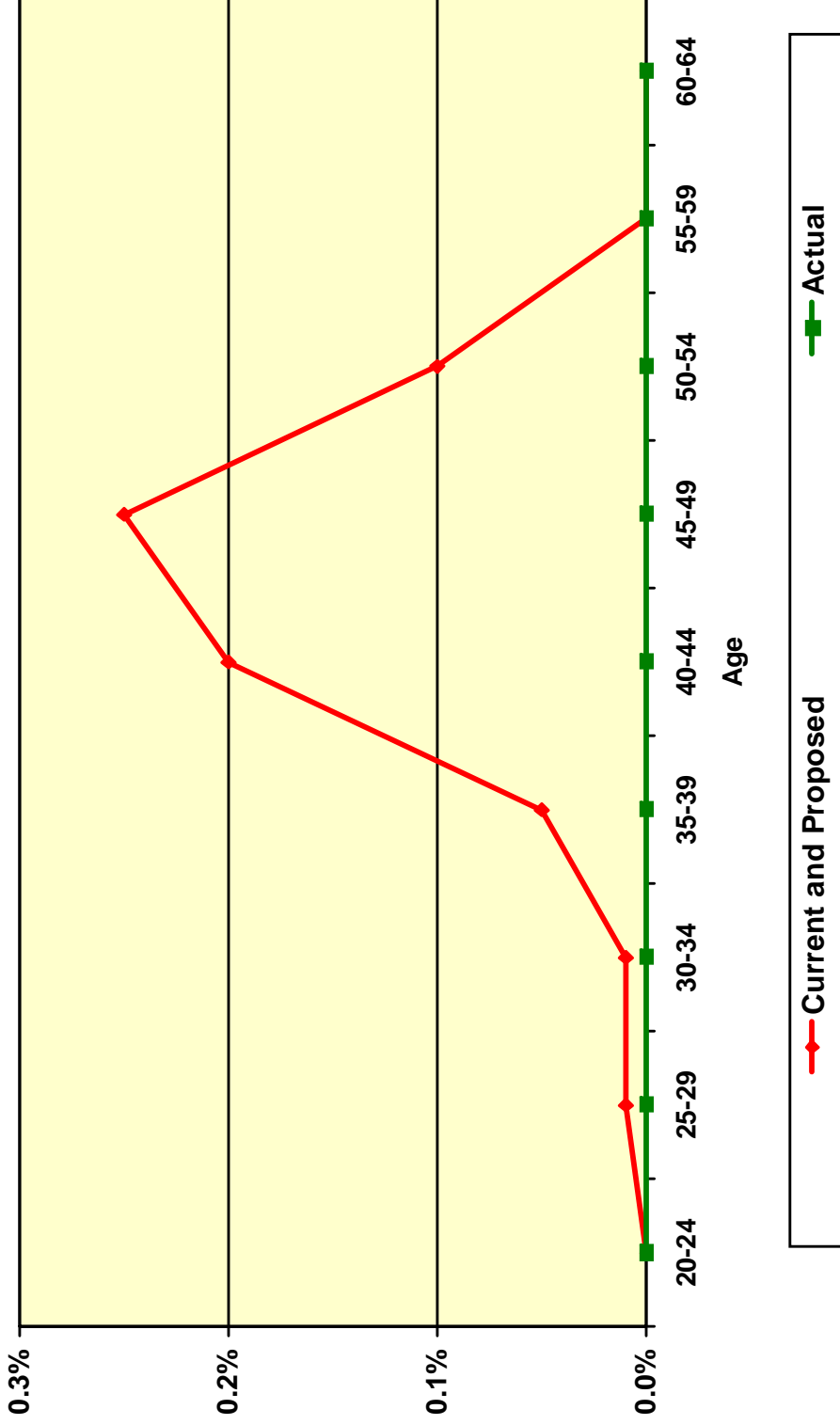


Chart 22
Ordinary Disablement Rates for Tier 2 Members



G. DROP ELECTION RATES

The DROP election experience over the last three years for Tier 1 and Tier 2 members is shown below:

Rates of DROP Election (Tier 1)

<u>Year Eligible</u>	<u>Current and Proposed Rates</u>	<u>Observed Rate</u>
1st	100%	92%
2nd	0	50
3rd	0	50
Thereafter	0	75

Rates of DROP Election (Tier 2)

<u>Year Eligible</u>	<u>Current and Proposed Rates</u>	<u>Observed Rate</u>
1st	50%	6%
2nd	25	0
3rd	10	0
Thereafter	0	17

Please note that the Tier 1 DROP observed election rates were based on a total of 55 actual Tier 1 DROP elections. 49 out of the 55 elections were made during the first year of eligibility while there were only 6 elections after the first year of eligibility. Also note that the Tier 2 DROP observed election rates were only based on a total of 4 actual Tier 2 DROP elections.

It is assumed that members remain in DROP for 4 years. Based on the experience of members who retired from the DROP during the past three years, the average number of years of participation in the DROP was 7.7. We recommend increasing the current DROP participation period to 7 years while maintaining the current DROP election rates. We will continue to monitor the participation period in the DROP and the DROP election rates.

H. MERIT AND PROMOTION SALARY INCREASES

The System's retirement benefits are determined in large part by a member's compensation just prior to retirement or election to participate in the DROP. 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 annual inflation assumption of 3.50% discussed in our separate economic assumption report. We also discussed in that report our recommended assumption of an annual 0.50% "across the board" pay increase. Therefore, the total annual inflation and real "across the board" increase of 4.00% is used as the assumed annual rate of payroll growth at which payments to the UAAL or Prefunded Actuarial Accrued Liability 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 in combination for Tier 1 and Tier 2 members. This is accomplished by:

- Measuring each member's actual salary increase over each year of the experience period;
- Categorizing these increases into service groups;
- Removing the general salary increases (including inflation and "across the board" components) from these increases. These general increases are 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."

Based on our analysis, we are recommending adjustments in the merit and promotion assumptions for members.

The following table shows the average annual increases over the three-year experience period (July 1, 2006 through June 30, 2009) before removing the general increases (inflationary and “across the board” components):

<u>Service Group</u>	<u>Fewer Than Five Years of Service</u>
0 - 1	24.97%
1 - 2	15.55
2 - 3	9.53
3 - 4	10.35
4 - 5	8.55

<u>Age Group</u>	<u>More Than Five Years of Service</u>
25-29	6.98%
30-34	6.60
35-39	6.44
40-44	6.47
45-49	6.98
50-54	6.18
55-59	3.51
60+	5.76

The annual increase in average salary over this three-year period was about 5.3% for members with less than five years of service and about 5.5% for members with at least five years of service. After removing these general increases, the following table shows the average annual merit and promotion increases for the three-year period:

<u>Service Group</u>	<u>Fewer Than Five Years of Service</u>
0 - 1	19.84%
1 - 2	10.43
2 - 3	4.08
3 - 4	4.89
4 - 5	3.24

<u>Age Group</u>	<u>More Than Five Years of Service</u>
25-29	1.50%
30-34	1.15
35-39	1.02
40-44	1.10
45-49	1.53
50-54	0.99
55-59	(0.47)
60+	0.30

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

<u>Less Than Five Years of Service</u>		
<u>Service Group</u>	<u>Current</u>	<u>Recommended</u>
0 - 1	6.00%	8.00%
1 - 2	5.75	7.00
2 - 3	5.50	5.50
3 - 4	5.25	5.00
4 - 5	5.25	4.50

<u>More Than Five Years of Service</u>		
<u>Age Group</u>	<u>Current</u>	<u>Recommended</u>
25-29	1.70%	1.60%
30-34	1.30	1.20
35-39	1.10	1.00
40-44	0.50	0.60
45-49	0.25	0.50
50-54	0.15	0.30
55-59	0.00	0.00
60+	0.00	0.00

Charts 23 and 24 provide a graphical comparison of the current, actual experience and recommended merit and promotion increases.

Please note that in the June 30, 2004 experience study, there was an evaluation of the impact of cashouts of management employees on final average salaries. Until the data required for the study is collected again, we would recommend that the current assumption of an additional 0.75% increase in average salary at retirement be maintained in the next valuation. Also, we recommend that the current assumption of increasing the normal cost and actuarial accrued liability by 7% to anticipate the conversion of sick leave to increase final average salary at retirement for non-management Fire and Police member be maintained as this assumption was reviewed last year in the June 30, 2008 valuation.

Chart 23
Merit and Longevity Salary Increase Rates
(Less than Five Years of Service)

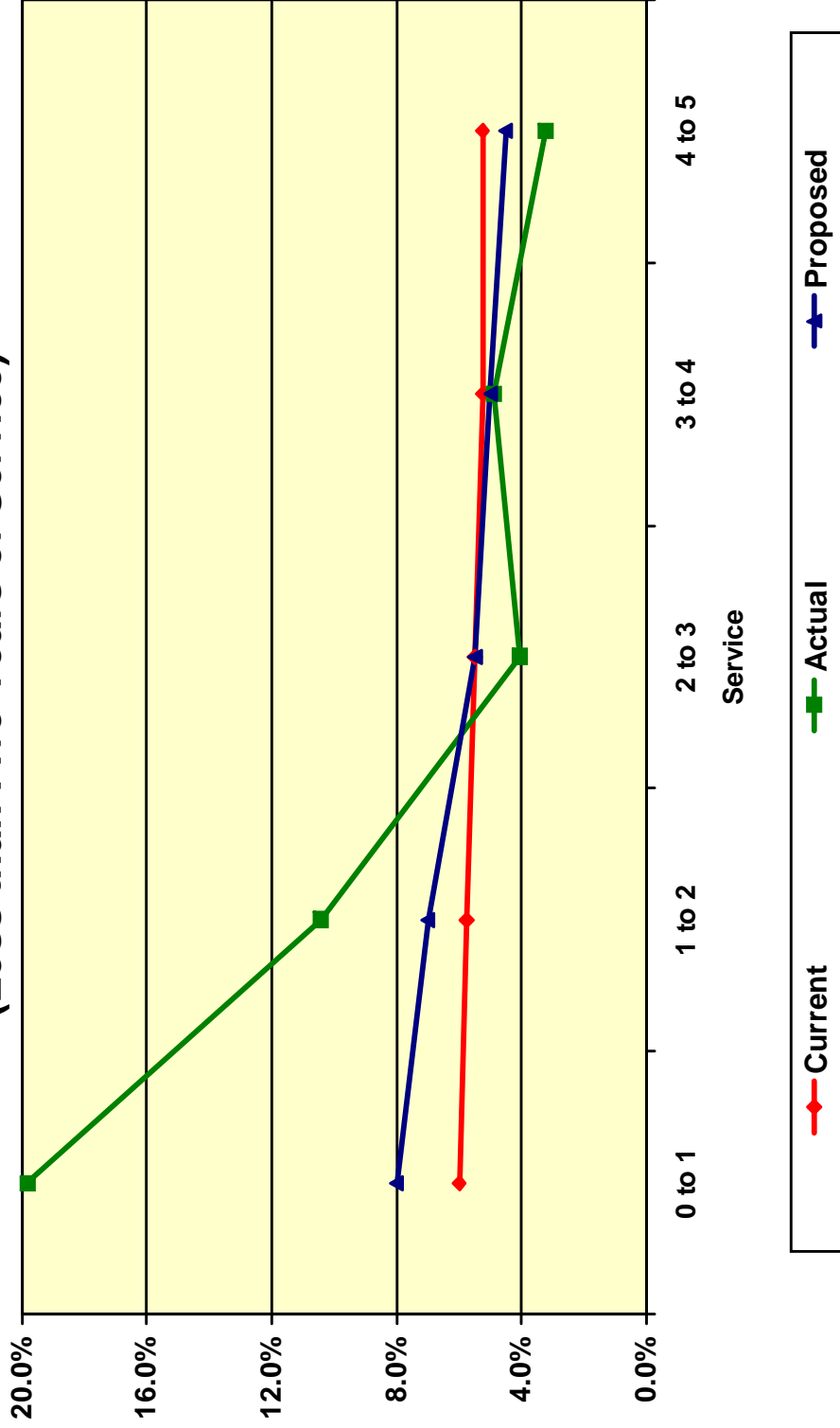
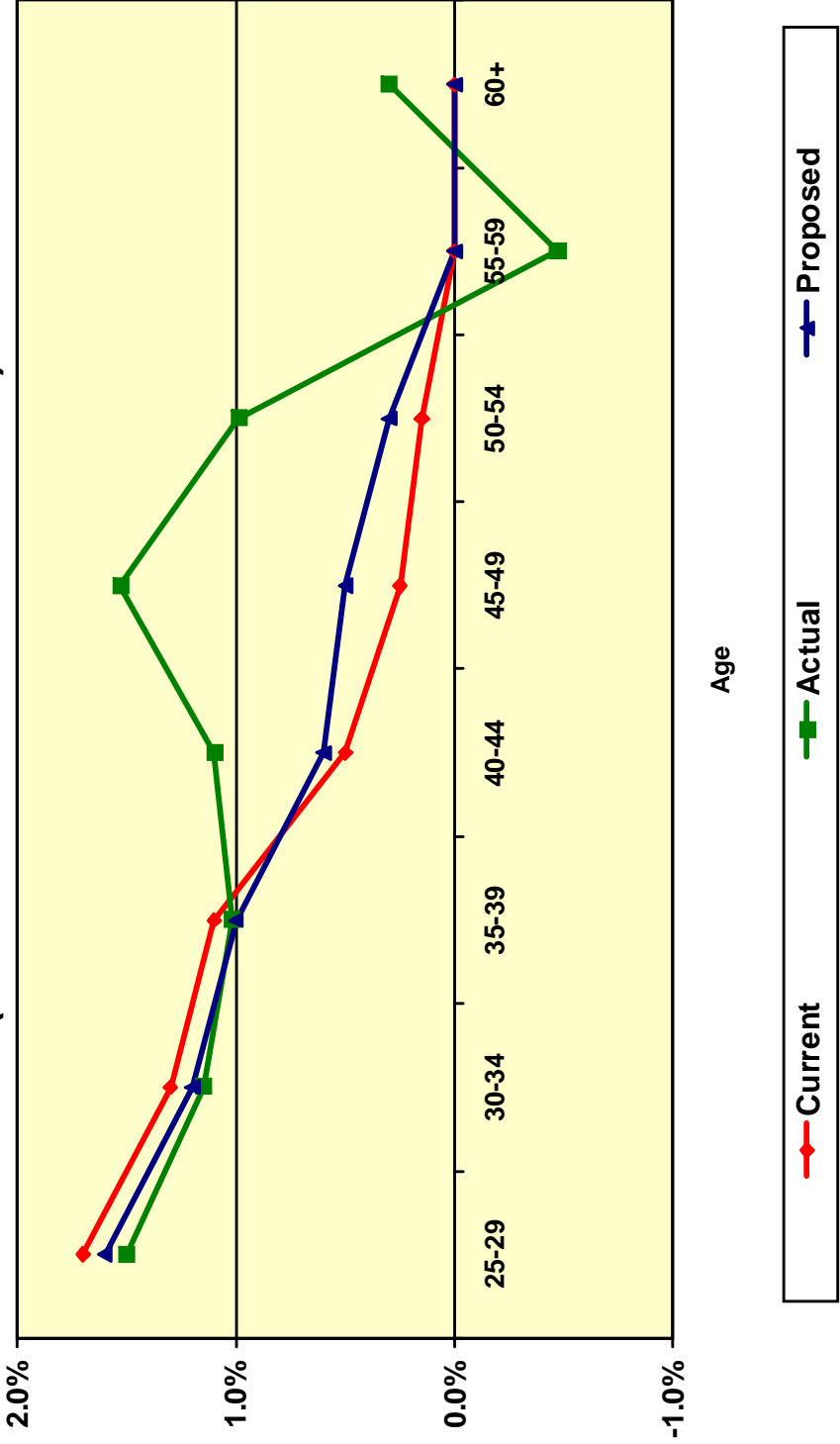


Chart 24
Merit and Promotion Salary Increase Rates
(More than Five Years of Service)



APPENDIX A

CURRENT ACTUARIAL ASSUMPTIONS

Mortality Rates

Healthy: 1994 Group Annuity Mortality Table (separate tables for males and females) set back one year.

Disabled: 1981 Safety Disability Mortality Table set back five years.

Employee Contribution Rates

and Optional Benefits:

For healthy members: 1994 Group Annuity Mortality Table set back one year weighted 90% male and 10% female.

For beneficiaries: 1994 Group Annuity Mortality Table set back one year weighted 10% male and 90% female.

For disabled members: 1981 Safety Disability Mortality Table set back five years.

Termination Rates Before Retirement:

Rate (%)		
Mortality		
Tier 1 & Tier 2		
Age	Male	Female
25	0.06	0.03
30	0.08	0.03
35	0.08	0.04
40	0.10	0.07
45	0.15	0.09
50	0.23	0.13
55	0.40	0.21
60	0.71	0.39
65	1.29	0.76

All pre-retirement deaths are assumed to be duty.

Termination Rates Before Retirement (continued):

Rate (%)				
Disability				
Age	Tier 1		Tier 2	
	Duty	Non-Duty	Duty	Non-Duty
20	0.09	0.00	0.30	0.00
25	0.28	0.01	0.42	0.01
30	0.31	0.01	0.60	0.01
35	0.70	0.03	0.84	0.03
40	0.95	0.12	1.22	0.12
45	1.25	0.25	1.76	0.25
50	2.50	0.20	1.71	0.20
55	7.00	0.00	2.53	0.00
60	0.00	0.00	0.00	0.00

Rate (%)												
Withdrawal (Refund of Contributions)												
Age	0-1 Yrs		1-2 Yrs		2-3 Yrs		3-4 Yrs		4-10 Yrs		10+ Yrs	
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2
20	4.47	8.94	4.47	4.47	4.47	3.00	4.47	2.50	2.87	2.50	2.87	2.50
25	4.47	8.94	4.47	4.47	4.47	3.00	4.47	2.50	2.87	2.50	2.87	2.50
30	4.47	8.94	4.47	4.47	4.47	3.00	4.47	2.50	1.95	1.95	1.77	1.77
35	4.47	8.94	4.47	4.47	4.47	3.00	4.47	2.50	0.83	0.83	0.58	0.58
40	4.47	8.94	4.47	4.47	4.47	3.00	4.47	2.50	0.38	0.38	0.20	0.20
45	4.47	8.94	4.47	4.47	4.47	3.00	4.47	2.50	0.20	0.20	0.03	0.03
50	4.47	8.94	4.47	4.47	4.47	3.00	4.47	2.50	0.00	0.00	0.00	0.00
55	4.47	8.94	4.47	4.47	4.47	3.00	4.47	2.50	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Termination Rates Before Retirement (continued):

Rate (%)		
Vested Termination (Deferred Vested Benefit)		
Age	Tier 1	Tier 2
20	0.70	0.70
25	0.70	0.70
30	0.70	0.70
35	0.70	0.70
40	0.70	0.60
45	0.60	0.35
50	0.00	0.00
55	0.00	0.00
60	0.00	0.00

Retirement Rates:

Rate (%)		
Age	Tier 1	Tier 2
50	12.72	5.31
51	7.63	4.12
52	7.63	4.64
53	5.09	14.28
54	5.09	16.74
55	10.60	19.46
56	13.77	11.72
57	14.03	7.82
58	16.66	9.69
59	29.67	9.17
60	100.00	100.00

Drop Assumptions:

	Tier 1	Tier 2
First Year Eligible	100%	50%
Second Year Eligible	0%	25%
Third Year Eligible	0%	10%
Thereafter	0%	0%

Members are assumed to remain in DROP for 4 years.

Retirement Age and Benefit for Deferred Vested Members:	For current deferred vested members, the retirement assumption is age 50. It is assumed that no future deferred vested members will continue to work for a reciprocal employer. It is assumed that 50% of future deferred vested members will continue to work for a reciprocal employer. For those that continue to work for a reciprocal employer, a 4.20% compensation increase per annum is assumed.
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.
Inclusion of Deferred Vested Members:	All deferred vested members are included in the valuation.
Percent Married:	85%
Age of Spouse:	Wives are 4 years younger than their husbands.
Net Investment Return:	8.25%, net of administration and investment expenses.
Employee Contribution Crediting Rate:	8.25%, assumed in the valuation.
Consumer Price Index:	Increase of 4.00% per year; Retiree COLA increases due to CPI are limited to maximum at 4.00% per year for Tier 1 and 3.00% for Tier 2.

Salary Increases:

Annual Rate of Compensation Increase

Inflation: 3.75% per year;
plus 0.25% real across-the-board salary increase;
plus the following Merit and Promotion increases based on
completed years of service and age.

5 or less years of service:

Service	Annual Increase
0 - 1	6.00%
1 - 2	5.75
2 - 3	5.50
3 - 4	5.25
4 - 5	5.25

More than 5 years of service:

Age	Annual Increase
25-29	1.70%
30-34	1.30
35-39	1.10
40-44	0.50
45-49	0.25
50-54	0.15
55+	0.00

There is an additional 0.75% increase at the time of service retirement to reflect the average leave time cash outs for management employees.

To reflect the conversion of sick leave to increase final average salary at retirement for non-management Fire and Police members, we have increased the normal cost and actuarial accrued liability for all active members by 7.0% to anticipate the conversion.

APPENDIX B

PROPOSED ACTUARIAL ASSUMPTIONS

Mortality Rates

Healthy:	RP-2000 Combined Healthy Mortality Table (separate tables for males and females) set back three years.
Disabled:	RP-2000 Combined Healthy Mortality Table (separate tables for males and females) set forward one year.

Employee Contribution Rates and Optional Benefits:

For healthy members: RP-2000 Combined Healthy Mortality Table set back three years weighted 90% male and 10% female.
For beneficiaries: RP-2000 Combined Healthy Mortality Table set back three years weighted 10% male and 90% female.
For disabled members: RP-2000 Combined Healthy Mortality Table set forward one year weighted 90% male and 10% female.

Termination Rates Before Retirement:

Rate (%)		
Mortality		
Tier 1 & Tier 2		
Age	Male	Female
25	0.04	0.02
30	0.04	0.02
35	0.06	0.04
40	0.09	0.06
45	0.12	0.09
50	0.17	0.13
55	0.27	0.20
60	0.47	0.35
65	0.88	0.67

All pre-retirement deaths are assumed to be duty.

Termination Rates Before Retirement (continued):

Rate (%)				
Disability				
Age	Tier 1		Tier 2	
	Duty	Non-Duty	Duty	Non-Duty
20	0.02	0.00	0.14	0.00
25	0.14	0.01	0.29	0.01
30	0.26	0.01	0.50	0.01
35	0.39	0.03	0.72	0.03
40	0.60	0.12	0.98	0.12
45	0.88	0.25	1.22	0.25
50	2.80	0.20	1.48	0.20
55	8.20	0.00	1.78	0.00
60	0.00	0.00	0.00	0.00

Rate (%)												
Withdrawal (Refund of Contributions)												
Age	0-1 Yrs		1-2 Yrs		2-3 Yrs		3-4 Yrs		4-10 Yrs		10+ Yrs	
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2
20	4.47	9.00	4.47	3.50	4.47	2.50	4.47	2.00	2.87	2.00	2.87	2.00
25	4.47	9.00	4.47	3.50	4.47	2.50	4.47	2.00	2.87	2.00	2.87	2.00
30	4.47	9.00	4.47	3.50	4.47	2.50	4.47	2.00	1.95	1.40	1.77	1.40
35	4.47	9.00	4.47	3.50	4.47	2.50	4.47	2.00	0.83	0.82	0.58	0.82
40	4.47	9.00	4.47	3.50	4.47	2.50	4.47	2.00	0.38	0.46	0.20	0.46
45	4.47	9.00	4.47	3.50	4.47	2.50	4.47	2.00	0.20	0.18	0.03	0.18
50	4.47	9.00	4.47	3.50	4.47	2.50	4.47	2.00	0.00	0.00	0.00	0.00
55	4.47	9.00	4.47	3.50	4.47	2.50	4.47	2.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Termination Rates Before Retirement (continued):

Rate (%)		
Vested Termination (Deferred Vested Benefit)		
Age	Tier 1	Tier 2
20	0.70	1.60
25	0.70	1.35
30	0.70	1.10
35	0.70	0.88
40	0.70	0.68
45	0.60	0.42
50	0.00	0.00
55	0.00	0.00
60	0.00	0.00

Retirement Rates:

Rate (%)		
Age	Tier 1	Tier 2
50	12.72	5.31
51	7.63	4.12
52	7.63	4.64
53	5.09	14.28
54	5.09	16.74
55	10.60	19.46
56	13.77	11.72
57	14.03	7.82
58	16.66	9.69
59	29.67	9.17
60	100.00	100.00

Drop Assumptions:

	Tier 1	Tier 2
First Year Eligible	100%	50%
Second Year Eligible	0%	25%
Third Year Eligible	0%	10%
Thereafter	0%	0%

Members are assumed to remain in DROP for 7 years.

Retirement Age and Benefit for Deferred Vested Members:	For current deferred vested members, the retirement assumption is age 50. It is assumed that no future deferred vested members will continue to work for a reciprocal employer. It is assumed that 50% of future deferred vested members will continue to work for a reciprocal employer. For those that continue to work for a reciprocal employer, a 4.30% compensation increase per annum is assumed.
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.
Inclusion of Deferred Vested Members:	All deferred vested members are included in the valuation.
Percent Married:	85%
Age of Spouse:	Wives are 4 years younger than their husbands.
Net Investment Return:	8.00%, net of administration and investment expenses.
Employee Contribution Crediting Rate:	8.00%, assumed in the valuation.
Consumer Price Index:	Increase of 4.00% per year; Retiree COLA increases due to CPI are limited to maximum at 4.00% per year for Tier 1 and 3.00% for Tier 2.

Salary Increases:

Annual Rate of Compensation Increase

Inflation: 3.50% per year;
plus 0.50% real across-the-board salary increase;
plus the following Merit and Promotion increases based on
completed years of service and age.

5 or less years of service:

Service	Annual Increase
0 - 1	8.00%
1 - 2	7.00
2 - 3	5.50
3 - 4	5.00
4 - 5	4.25

More than 5 years of service:

Age	Annual Increase
25-29	1.60%
30-34	1.20
35-39	1.00
40-44	0.60
45-49	0.50
50-54	0.30
55+	0.00

There is an additional 0.75% increase at the time of service retirement to reflect the average leave time cash outs for management employees.

To reflect the conversion of sick leave to increase final average salary at retirement for non-management Fire and Police members, we have increased the normal cost and actuarial accrued liability for all active members by 7.0% to anticipate the conversion.