**Los Angeles City Employees'
Retirement System**

ACTUARIAL EXPERIENCE STUDY

**Analysis of Actuarial Experience
During the Period
July 1, 2008 through June 30, 2011**

September 30, 2011

Board of Administration
Los Angeles City Employees' Retirement System
360 East Second Street, 8th Floor
Los Angeles, CA 90012

Re: Review of Actuarial Assumptions for the June 30, 2011 Actuarial Valuation

Dear Members of the Board:

We are pleased to submit this report of our review of the actuarial experience of the Los Angeles City Employees' Retirement System. This study utilizes the census data for the three-year period from July 1, 2008 through June 30, 2011 and includes the proposed actuarial assumptions, both demographic and economic, to be used in the June 30, 2011 and later actuarial valuations.

Please note that our recommended assumptions unique to the health program (e.g. healthcare inflation assumptions) are provided in a separate letter.

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

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

Sincerely,

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Senior Vice President and Actuary   Vice President and Associate Actuary

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I. INTRODUCTION, SUMMARY, AND RECOMMENDATIONS

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

If assumptions are changed, contribution requirements are adjusted to take into account a change in the projected experience in all future years. There is a great difference in both philosophy and cost impact between recognizing the actuarial deviations as they occur annually and changing the actuarial assumptions. Taking into account one year's gains or losses without making a change in the assumptions means that that year's experience was temporary and that, over the long run, experience will return to what was originally assumed. Changing assumptions reflects a basic change in thinking about the future, and it has a much greater effect on the current contribution requirements than the gain or loss for a single year.

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

This study was undertaken in order to review the economic and 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, 2008 through June 30, 2011. The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 27, "Selection of Economic Assumptions for Measuring Pension Obligations" and ASOP No. 35, "Selection of Demographic and Other Non-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: inflation, investment return, real "across the board" salary increase, promotional and merit salary increases, retirement from active employment, pre-retirement mortality, healthy life mortality, disabled life mortality, termination, and disability incidence.

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

Inflation – Future increases in the Consumer Price Index (CPI) which drives investment returns and active member salary increases, as well as COLA increases to retired employees.
Recommendation: Reduce the rate from 3.75% to 3.50%.

Investment Return - The estimated average net rate of return on current and future assets of the System as of the valuation date. This rate is used to discount liabilities.
Recommendation: Reduce the rate from 8.00% to 7.75%. As the 7.75% recommendation would provide a relatively lower confidence level under the risk adjusted model used by Segal than was determined for this assumption three years ago, we are also making an alternative recommendation for a 7.50% assumption that provides a larger confidence level under that model. Because LACERS is in the process of conducting an asset liability study, the Board could adopt the 7.75% recommendation for the June 30, 2011 valuation and defer consideration of the alternative assumption of 7.50% until after the completion of the asset liability study.

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

- Inflationary salary increases.
- Real "across the board" salary increases.

- Promotional and merit increases.

Recommendation: Reduce the current inflationary salary increase assumption from 3.75% to 3.50% consistent with our recommended general inflation assumption and increase the real "across the board" salary increase from 0.50% to 0.75%. This means that the combined inflationary and real "across the board" salary increases will remain unchanged at 4.25%. In addition to the combined inflationary and real "across the board" salary increases of 4.25%, we recommend changes to the promotional and merit increases, to those developed in Section (III)(C). The net impact of these changes is to project somewhat lower salary increases.

Retirement Rates - The probability of retirement at each age at which participants are eligible to retire.

Recommendation: For active members, adjust the current retirement rates to those developed in Section (IV)(A). Overall, the recommended assumptions will anticipate later retirements for active members. For inactive vested members, maintain the assumed retirement age at 57. For the age of the spouse, change the assumption that females are 4 years younger than their spouses to 3 years.

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

Recommendation: For healthy pensioners, change from the RP-2000 Combined Healthy Mortality Tables, but with a one-year setback for males and females, to the RP-2000 Combined Healthy Mortality Tables, but with a two-year setback for males and a one-year setback for females (the female table remains unchanged). For disabled pensioners, change from the RP-2000 Combined Healthy Mortality Tables, but with a seven-year forward age adjustment for males and females, to the RP-2000 Combined Healthy Mortality Tables, but with a five-year forward age adjustment for males and a six-year forward age adjustment for females. For pre-retirement mortality, use the same mortality as for healthy pensioners. The recommended assumption will anticipate slightly longer life expectancy.

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

Recommendation: Adjust the current termination rates to those developed in Section (IV)(D). The recommended assumption will anticipate more terminations.

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

Recommendation: Adjust the current disability rates to those developed in Section (IV)(E). The recommended assumption will anticipate fewer disability retirements.

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

II. BACKGROUND AND METHODOLOGY

In this report, we analyzed both economic and demographic ("non-economic") assumptions. The primary economic assumptions reviewed are inflation, investment return, and salary increases. 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.

Economic Assumptions

Economic assumptions consist of:

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

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

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

The setting of these economic assumptions is described in Section III.

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 credence to the probability of termination developed for that age category, especially if it is out of line with the pattern shown for the other age groups. Similarly, if we are considering the death decrement, there may be a large number of exposures in, say, the age 20-24 category, but very few decrements (actual deaths); therefore, we would not be able to rely heavily on the probability developed for that category.

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

III. ECONOMIC ASSUMPTIONS

A. INFLATION

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

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

Historical Consumer Price Index – 1930 to 2010
(U.S. City Average - All Urban Consumers)

	25th Percentile	Median	75th Percentile
15-year moving averages	2.7%	3.5%	4.8%
30-year moving averages	3.3%	4.2%	5.0%

The average inflation rates have continued to decline gradually over the last several years due to the relatively low inflationary period over the past two decades. Also, the later of the 15-year averages during the period are lower as they do not include the high inflation years of the mid-1970s and early 1980s.

In the 2010 public fund survey published by the National Association of State Retirement Administrators, the median inflation assumption used by 125 large public retirement funds in their 2009 valuations has remained unchanged from the 3.50% used in the 2008 valuations.

LACERS' investment consultant, Wilshire Consulting, anticipates an annual inflation rate of 2.25%, while the average inflation assumption provided to us by Wilshire and by eight other investment advisory firms retained by Segal's California public sector clients was 2.61%. Note that in general, the investment consultants' time horizon for this assumption is shorter than the time horizon we use for the actuarial valuation.

To find a forecast of inflation based on a longer time horizon, we referred to the 2010 report on the financial status of the Social Security program. The projected average increase in the Consumer Price Index (CPI) over the next 75 years under the intermediate cost assumptions used in that

report was 2.8%. We also compared the yields on the thirty-year inflation indexed U.S. Treasury bonds to comparable traditional U.S. Treasury bonds. As of April 2011, the difference in yields is about 2.75%, which provides a measure of market expectations of inflation.

Based on all of the above information, we recommend that the current 3.75% annual inflation assumption be lowered to 3.50% for the June 30, 2011 valuation.

B. INVESTMENT RETURN

The investment return assumption is comprised of two primary components, inflation and real rate of investment return, with adjustments for expenses and risk.

Real Rate of Investment Return

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

The next page shows the System's current target asset allocation and assumed real rate of return assumptions by asset class. The first column of real rate of return assumptions are determined by netting Wilshire's total return assumptions by their assumed 2.25% for inflation. The second column of returns represents the average of a broader sample of real rate of return assumptions. The sample includes the expected annual real rate of returns provided to us by Wilshire and by eight other investment advisory firms retained by Segal's California public clients. We believe these averages reflect a reasonable consensus forecast of long-term future real market returns.

LACERS Target Asset Allocation and

Assumed Real Rate of Return Assumptions by Asset Class and for the Portfolio

Asset Class	Percentage of Portfolio	Wilshire's Assumed Real Rate of Return*	Average Real Rate of Return from a Sample of Consultants to Segal's Public Clients**
Domestic Equity	37%	5.00%	6.44%
International Equity	20%	5.00%	6.96%
Core and High Yield Bonds	26%	1.78%	1.57%
Real Estate	7%	4.05%	5.11%
Alternative Investment	9%	7.45%	7.45%***
Cash and Cash Equivalents	1%	0.25%	0.68%
Total	100%	4.27%	5.22%

* Derived by netting Wilshire's arithmetic annual rate of return assumptions by their assumed 2.25% inflation rate.

** Including Los Angeles City Employees' Retirement System, Los Angeles Fire and Police Pension Plan, Los Angeles Department of Water and Power, and the County retirement systems of Alameda, Contra Costa, Imperial, Orange, San Bernardino and San Diego.

*** Wilshire's assumption is applied in lieu of the average because there is a larger disparity in returns for this asset class among the firms surveyed, and using Wilshire's assumption should more closely reflect the underlying investments made specifically for LACERS.

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

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

The following are some observations about the returns provided above:

1. The investment consultants to our California public clients have each provided us with their expected real rates of return for each asset class, over various future periods of time. However,

in general, the returns available from investment consultants are projected over time periods shorter than the duration of a retirement plan's liabilities.

2.   Using an average of expected real rate of returns allows the System's investment return assumption to include a broader range of capital market information and it should help reduce year-to-year volatility in the System's investment return assumption.

3.   Therefore, we recommend that the 5.22% average real rate of return be used to determine the System's investment return assumption. This is 0.72% lower than the corresponding real rate of return that was calculated three years ago. This decrease is primarily caused by the less optimistic assumptions provided by the investment consultants for certain asset classes.

System Expenses

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

The following table provides the available history of these expenses in relation to the market value of assets.

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

Year Ending June 30	Market Value of Assets at Beginning of Plan Year	Total Administrative and Investment Expenses*	Total %
2006	$8,331,756	$30,195	0.36%
2007	9,285,478	32,419	0.35%
2008	11,071,619	37,486	0.34%
2009	10,372,194	32,401	0.31%
2010	8,142,989	40,421	0.50%
Average			0.37%

*Net of securities lending expenses.

Based on this experience, we recommend that the System's future expense assumption be maintained at 0.40%.

Risk Adjustment

The real rate of return assumption for the portfolio is adjusted to reflect the potential risk of shortfalls in the return assumptions. The System's asset allocation also determines this portfolio risk, since risk levels are driven by the variability of returns for the various asset classes and the correlation of returns among those asset classes. This portfolio risk is incorporated into the real rate of return assumption through a risk adjustment.

The purpose of the risk adjustment (as measured by the corresponding confidence level) is to increase the likelihood of achieving the actuarial investment return assumption in the long term. The 5.22% expected real rate of return developed earlier in this report was based on expected mean or average arithmetic returns. This means there is a 50% chance of the actual return in each year being at least as great as the average (assuming a symmetrical distribution of future returns). The risk adjustment is intended to increase that probability. This is consistent with our experience that retirement plan fiduciaries would generally prefer that returns exceed the assumed rate more often than not.

Three years ago, the Board adopted an investment return assumption of 8.00%. In combination with the inflation, real return, and expense components from three years ago, that return implied a risk adjustment of 1.29% reflecting a confidence level of 66% that the actual return over 15 years would not fall below the assumed return, assuming that the distribution of returns over that period follows the normal statistical distribution.[1]

In our model, the confidence level associated with a particular risk adjustment represents the likelihood that the actual average return would equal or exceed the assumed value over a 15-year period. For example, if we set our real rate of return assumption using a risk adjustment that produces a confidence level of 60%, then we would expect a 60% chance (6 out of 10) that the average return over 15 years will be equal to or greater than the assumed value.

If we use the same 66% confidence level from three years ago to set this year's risk adjustment, based on the current long-term portfolio return standard deviation of 11.67% provided by Wilshire, the result is a risk adjustment of 1.29%. Together with the other investment return components, this

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[1] Based on an annual portfolio standard deviation of 11.71% provided by the System's prior investment consultant three years ago. Strictly speaking, future compound long-term investment returns will tend to follow a log-normal distribution. However, we believe the normal distribution assumption is reasonable for purposes of setting this type of risk adjustment.

produces a net investment return assumption of 7.03%, which is substantially lower than the current assumption of 8.00%.[2]

Because this is a substantial change in this long term assumption, and because the 66% confidence level is actually higher than most systems that have been evaluated under this model, we evaluated the effect on the confidence level of an alternative investment return assumption. In particular, a net investment return assumption of 7.75%, together with the other investment return components, would produce a risk adjustment of 0.57%, which corresponds to a confidence level of 57%.

As the 7.75% recommendation would provide a substantially lower confidence level under the risk adjusted model used by Segal in evaluating this assumption, we have also analyzed an alternative recommendation for a 7.50% assumption that provides a larger risk adjustment of 0.82% and a higher confidence level of 60%.

As we have discussed in prior years, the risk adjustment model and associated confidence level is most useful as a means of comparing how the Plan has positioned itself over periods of time. The table below shows LACERS' investment return assumptions, the risk adjustments, and the corresponding confidence levels compared to the values for prior studies.

Historical Investment Return Assumptions, Risk Adjustments and Confidence Levels Based on Assumptions Adopted by the Board

Triennial Experience Study Ending June 30	Investment Return	Risk Adjustment	Corresponding Confidence Level
2005	8.00%	1.14%	65%
2008	8.00%	1.29%	66%
2011 (recommended)	7.75%	0.57%	57%
2011 (alternative recommendation)	7.50%	0.82%	60%

To repeat, the risk adjustment model and associated confidence level is most useful as a means for comparing how the System has positioned itself relative to investment risk over periods of time[3], after adjusting for changes in the other components of the investment return assumption. The use of a lower confidence level of 57% or 60% should be considered in context with other factors, including:

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[2] Maintaining the current investment return assumption of 8.00% would have resulted in a risk adjustment of 0.32%, resulting in a 54% confidence level.

[3] In particular, it would not be appropriate to use this type of risk adjustment as a measure of determining an investment return rate that is "risk-free."

1. As noted above, the confidence level is more of a relative measure than an absolute measure, and so can be reevaluated and reset for future comparisons. Note that Segal's other California public retirement system clients have risk adjustments corresponding to confidence levels in the range of 55% to 65%.

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

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

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

Recommended Investment Return Assumption

The following table provides the calculated net investment return assumption that results from the previous discussion.

Calculation of Investment Return Assumption

Assumption Component	June 30, 2011 Recommendation	June 30, 2011 Alternative Recommendation	June 30, 2008 Recommendation
Inflation	3.50%	3.50%	3.75%
Plus Average Real Rate of Return	5.22%	5.22%	5.94%
Minus Expense Adjustment	(0.40)%	(0.40)%	(0.40)%
Minus Risk Adjustment	(0.57)%	(0.82)%	(1.29)%
Total	7.75%	7.50%	8.00%

Based this analysis, we recommend that the net investment return assumption be reduced from 8.00% to 7.75%. As the 7.75% recommendation would provide a substantially lower confidence level under the risk adjusted model used by Segal in evaluating this assumption, we are also making an alternative recommendation for a 7.50% assumption that provides a larger confidence level under that model. Because LACERS is in the process of conducting an asset liability study, the Board could adopt the 7.75% recommendation for the June 30, 2011 valuation and defer consideration of the alternative assumption of 7.50% until after the completion of the asset liability study.

Test of Risk Adjustment

The original development of the risk adjustment component of our investment earnings assumption model arose from our experience with many retirement boards over many years. We consistently observed that combining the boards' inflation assumption with the real return and expense components (i.e., using no risk adjustment) produced – and produces – a substantially higher assumed return than what the boards actually adopt, regardless of the consulting actuary or the methods involved in the process. This led to the development of a risk adjustment component for our model.

There is a range of risk adjustment methodologies that may be incorporated in the development of an earnings assumption. Ideally, the particular risk adjustment selected should reflect the "downside" risk tolerance of the boards making the decision. This is similar to volatility risk that boards consider when selecting an appropriate asset allocation.

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

One way to test the reasonableness of the risk adjustment incorporated in our recommendation is to compare our recommended risk adjusted investment return (i.e., 7.75%) against the expected net

investment return that would result from using the average of all the capital market assumptions -- including the lower inflation assumption -- of the investment consultants in our sample.

The following table shows that comparison. This table shows how the difference between our recommended return and that derived using the average of all the capital market assumptions of the investment consultants in our sample can be attributed to the relationship between the two different inflation assumptions and the risk adjustment.

Assumption Element	Risk Adjusted Method	Average of Investment Consultant Sample	Difference
Inflation	3.50%	2.61%	0.89%
Risk Adjustment	(0.57)%	0.00%	(0.57)%
Real Rate of Return	5.22%	5.22%	0.00%
Expenses	(0.40)%	(0.40)%	0.00%
Total	7.75%	7.43%	+0.32%

The 0.32% (32 basis points) difference between the two calculations represents about a 4% lower confidence level under the higher inflation, risk adjusted method, as compared to the lower inflation result without the risk adjustment. Note that for our alternative recommendation of 7.50%, the difference would be 0.07% (7 basis points), which would represent about a 1% lower confidence level.

Comparing with Other Public Retirement Systems

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

We note that an investment return assumption of 7.75% is within the most common range for this assumption among most California public sector retirement systems. That range, with few exceptions, is from 7.75% to 8.00%. In particular two of the largest California systems, CalPERS and LACERA, use a 7.75% earnings assumption. Note that compared to LACERS, CalPERS used a lower inflation rate of 3.00% while LACERA uses an inflation assumption of 3.50% which is the same as what we are recommending for the June 30, 2011 valuation. Therefore, absent any detailed comparison of the asset allocation and other assumptions used to develop the investment return, two retirement systems may have end up with different levels of risk (i.e., different confidence levels) even though they have the same investment return assumption.

The following table compares the System's recommended net investment return assumption against those of the nationwide public retirement systems that participated in the National Association of State Retirement Administrators (NASRA) 2010 Public Fund Survey:

Assumption	LACERS	NASRA 2010 Public Fund Survey		
		Low*	Median	High*
Net Investment Return	7.75%	7.25%	8.00%	8.50%

After eliminating very lowest and highest as outliers.

As you can see, the recommended return assumption of 7.75% is somewhere between the low and the median. The detailed survey results show 58 systems at 8.00%, 33 at 7.50% or 7.75%, and 31 at 8.25% or 8.50%. The survey also notes that several plans have reduced their investment return assumption during the last year, and others are considering doing so. Here again, the LACERS asset allocation may not be comparable to that used by these other systems.

In summary, we believe that both the risk adjustment model and other considerations indicate a lower earnings assumption. The recommended investment earnings assumption of 7.75% continues to provide for some risk margin within the risk adjustment model and is consistent with the System's current practice relative to other public systems.

C. SALARY INCREASE

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

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

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

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

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

We also referred to the annual report on the financial status of the Social Security program published in August 2010. In that report, real "across the board" pay increases are forecast to be 1.2% per year under immediate assumptions.

Like price inflation, the real pay increase assumption is generally considered a more "macroeconomic" assumption, that is not necessarily based on individual plan experience. However, we note that the most recent salary increase experience indicates that actual average salary increases were higher than the actual change in CPI for the 3-year period:

Valuation Date	Actual Average Increase[1]	Actual Change in CPI[2]
June 30, 2009	3.07%	3.53%
June 30, 2010	2.73%	(0.80)%
June 30, 2011	4.02%	1.20%
Average	3.27%	1.31%

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

[2] *Based on the change in the annual average CPI for the Los Angeles-Riverside-Orange County Area compared to the prior year.*

We recommend increasing the real "across the board" salary increase assumption from 0.50% to 0.75% for the June 30, 2011 valuation. This means that the combined inflation and "across the board" salary increase assumption remains unchanged at 4.25%.

3. Promotional and Merit Increases – As the name implies, these increases come from an employee's career advances. This form of pay increase differs from the previous two, since it is specific to the individual and the individual system. The assumption is typically structured as a function of an employee's age and/or service, and it is derived from plan-specific employee information as part of the triennial experience study. The promotional and merit increases are determined by measuring the actual salary increases by employees, net of inflationary and across the board components.

The following table compares the actual average promotional and merit increases by service over the three-year experience period from July 1, 2008 through June 30, 2011, with the current assumptions and our proposed assumptions. The actual average promotional and merit increases were determined by reducing the actual average total salary increases by 3.27%. The 3.27% was the average inflation plus real across the board increases over the three-year period, which is estimated as the actual increase in average salaries.

	Promotional and Merit Increases		
Years of Service	Actual Average Increase	Current Assumptions	Proposed Assumptions
0	5.72%	8.00%	7.00%
1	5.86%	6.75%	6.25%
2	4.89%	4.75%	4.75%
3	3.38%	3.75%	3.50%
4	1.76%	2.50%	2.25%
5+	5.07% to -0.08%	2.25% to 0.50%	2.25% to 0.50%

The current LACERS assumptions use years of service to predict the promotional and merit increases for members with less than five years of service, and age for members with five or more years of service. In the prior experience study covering the period from July 1, 2005 through June 30, 2008, our analysis of promotional and merit increases confirmed an age dependence in the triennial data for members with over five years of service. Note, however, that based on our recent experience for other public retirement systems similar to LACERS, promotional and merit increases are generally observed to be more closely correlated with service than with age, even for members with more than five years of service.

With that in mind, we have reviewed the recent salary increase experience for LACERS covering the period July 1, 2008 through June 30, 2011 but have decided to continue the current age-based structure of the promotional and merit increases for members with over five years of

service. The main reason for this is that the methodology we have used to estimate the actual average inflation plus real across the board increases (i.e., increases in average salaries of 3.27%) may be affected by reductions in the active workforce such as what was observed when the number of active members decreased from 30,236 as of June 30, 2008 to 25,449 as of June 30, 2011. Because this indicates that the data may not provide a reliable basis for setting a new service-based structure for this assumption, we recommend maintaining the current age-based structure for this study and adjusting the assumptions to reflect recent experience on that basis. We will closely monitor this assumption in the future to determine if a switch to a service-based assumption is supported by the available data.

For the subgroup of members with five or more years of service, we are recommending a promotional and merit increase assumption based on the following table.

Promotional and Merit Increases
Members with over Five Years of Service

Age	Actual Average Increases	Current Assumptions	Proposed Assumptions
20-24	5.07%	2.25%	2.25%
25-29	2.55%	2.00%	2.00%
30-34	0.82%	1.75%	1.25%
35-39	0.33%	1.50%	1.00%
40-44	0.20%	1.00%	0.75%
45-49	-0.03%	0.75%	0.50%
50-54	-0.07%	0.50%	0.40%
55-59	-0.02%	0.50%	0.40%
60-64	-0.08%	0.50%	0.40%
65-69	-0.03%	0.50%	0.40%

Charts 1A and 1B provide a graphical comparison of the actual promotional and merit increases, compared to current and proposed assumptions. Chart 1A shows this information for members with less than five years of service and Chart 1B for members with five or more years of service.

Chart 1A
Promotional and Merit Salary Increase Rates
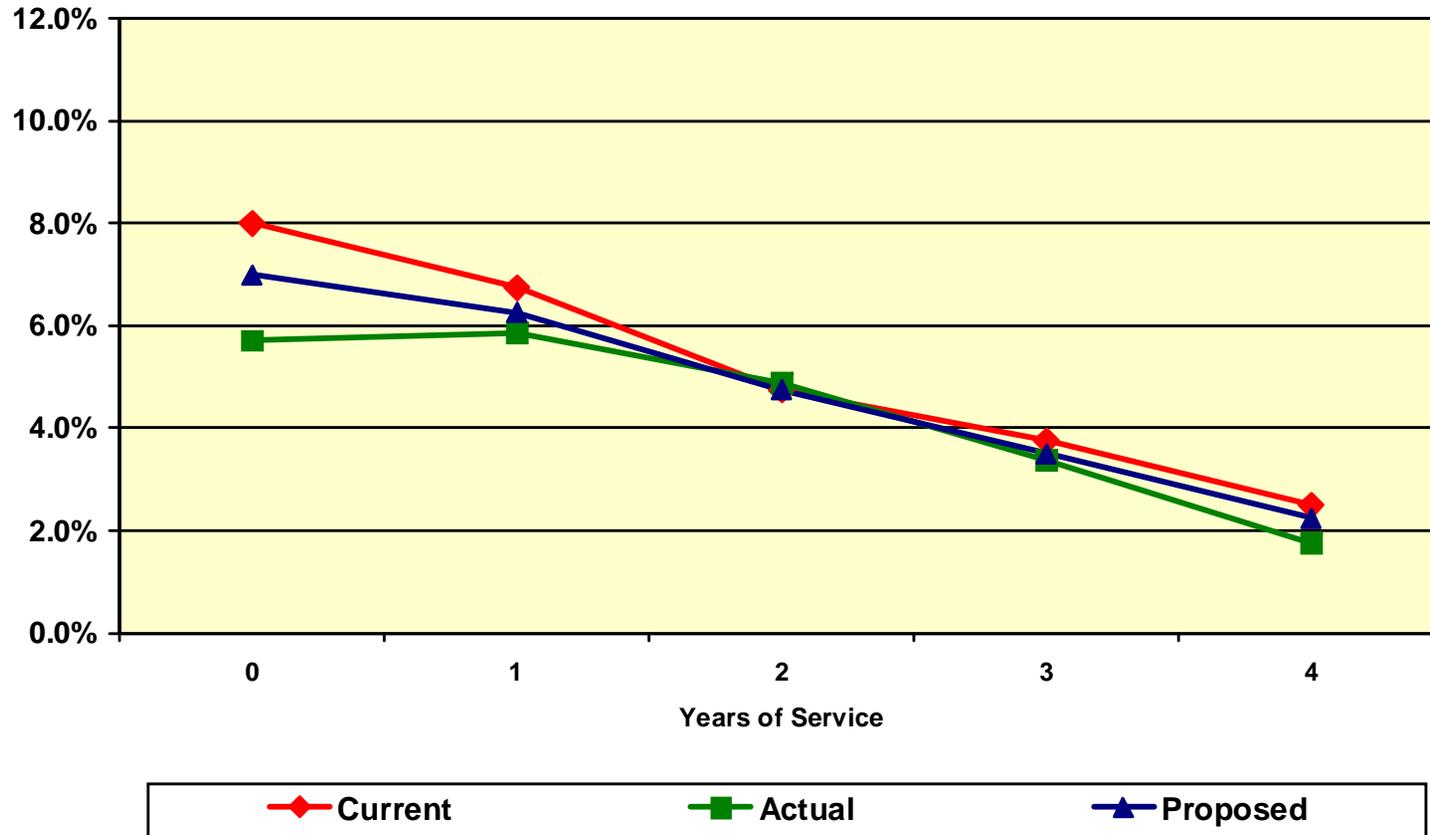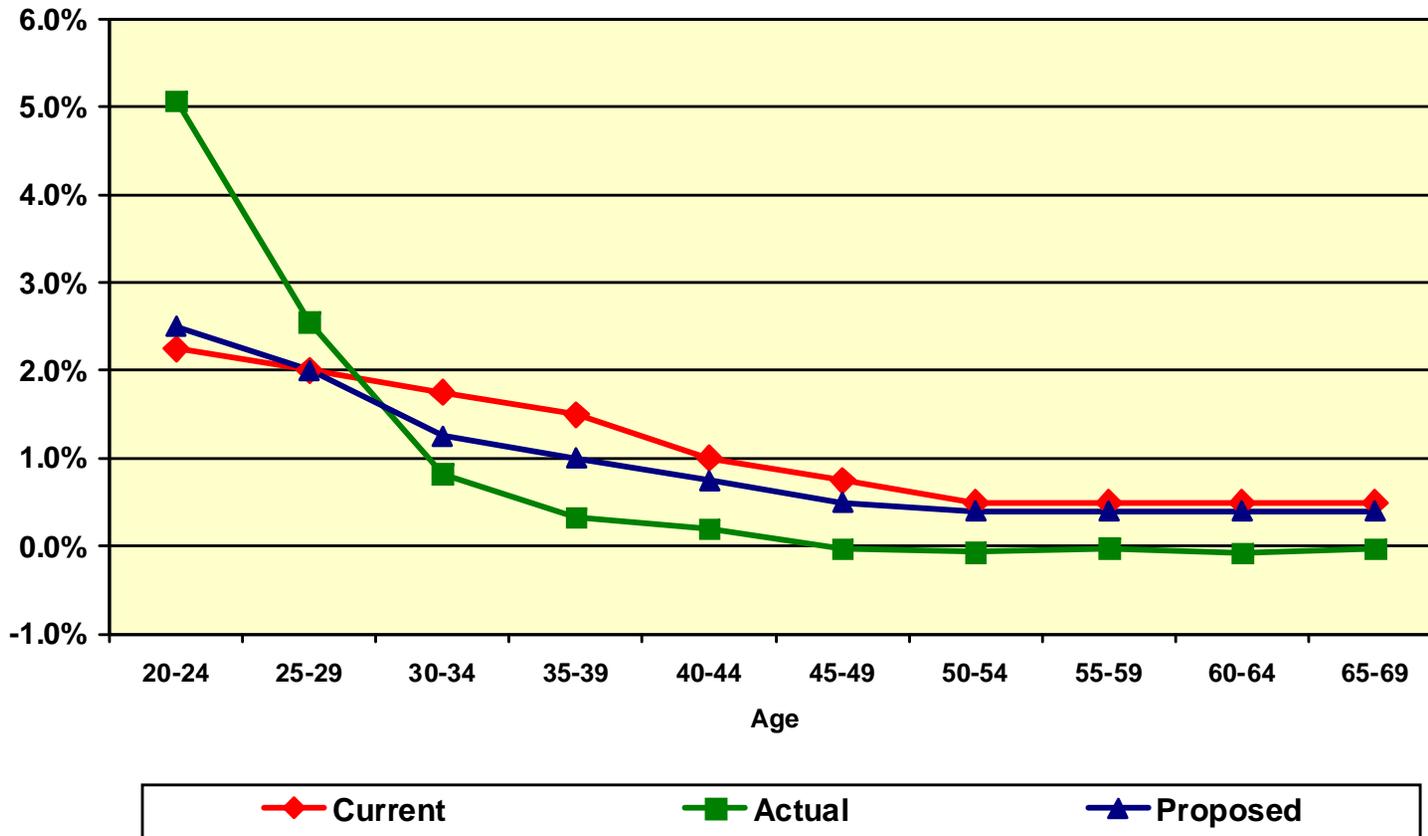**Less than Five Years of Service**

Chart 1B
Promotional and Merit Salary Increase Rates
Five or More Years of Service

Active Member Payroll

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

We recommend the active member payroll increase assumption to be used in the June 30, 2011 valuation to remain at 4.25% annually, consistent with the combined 3.50% inflation assumption and the 0.75% across the board salary increase assumption.

IV. DEMOGRAPHIC ASSUMPTIONS

A. RETIREMENT RATES

The age at which a member retires will affect both the amount of the benefits that will be paid to that member as well as the period over which funding must take place.

Note that in 2009 the City offered an Early Retirement Incentive Program (ERIP), which was elected by over 2,000 active members. Due to the large number of members who elected the ERIP and based on the assumption that the 2009 ERIP is an atypical event, we have excluded all FY 2009/2010 retirements from our analysis. Therefore, the following table shows the observed retirement rates based on the actual experience during FY 2008/2009 and FY 2010/2011 only, which includes 333 retirees who did not meet the age 55 with 30 years of service requirement and 195 retirees who retired on or after age 55 with 30 years of service. Also shown are the current assumed rates, plus the rates we propose to the Board:

Age	Actual Rate of Retirement		Current Rate of Retirement		Proposed Rate of Retirement	
	Non-55/30	55/30	Non-55/30	55/30	Non-55/30	55/30
45-49	3.45%	0.00%	0.00%	0.00%	0.00%	0.00%
50	2.94%	0.00%	10.00%	0.00%	8.00%	0.00%
51	0.00%	0.00%	5.00%	0.00%	4.00%	0.00%
52	1.20%	0.00%	5.00%	0.00%	4.00%	0.00%
53	0.68%	0.00%	5.00%	0.00%	4.00%	0.00%
54	11.17%	0.00%	15.00%	0.00%	15.00%	0.00%
55	3.54%	17.58%	10.00%	20.00%	8.00%	20.00%
56	2.58%	10.74%	10.00%	15.00%	8.00%	15.00%
57	2.47%	11.11%	10.00%	15.00%	8.00%	15.00%
58	3.23%	10.60%	10.00%	15.00%	8.00%	15.00%
59	3.76%	8.84%	10.00%	15.00%	8.00%	15.00%
60	3.30%	13.33%	10.00%	15.00%	8.00%	15.00%
61	5.33%	8.28%	10.00%	16.00%	8.00%	16.00%
62	3.97%	11.93%	10.00%	17.00%	8.00%	17.00%
63	5.36%	15.58%	10.00%	18.00%	8.00%	18.00%
64	4.83%	13.41%	10.00%	19.00%	8.00%	19.00%
65	9.21%	13.79%	15.00%	20.00%	13.00%	20.00%
66	6.74%	10.91%	15.00%	20.00%	13.00%	20.00%
67	6.96%	7.94%	15.00%	20.00%	13.00%	20.00%
68	7.94%	14.29%	15.00%	20.00%	13.00%	20.00%
69	12.62%	4.17%	15.00%	20.00%	13.00%	20.00%
70	5.11%	16.48%	100.00%	100.00%	100.00%	100.00%

In developing our proposed retirement rates, we reviewed the actual retirement experience from the prior experience study along with our formal analysis of the experience from FY 2008/2009 and 2010/2011 (as described above). In addition, because retirement behavior for the years surrounding FY 2009/2010 could have been affected by the 2009 ERIP, we have applied relatively higher weight to the current retirement rates (which were based on the experience from 2005-2008 and prior years) and relatively lower weight to the actual experience during FY 2008/2009 and FY 2010/2011 combined.

Chart 2 compares actual experience with the current and proposed rates of retirement, for members with less than 30 years of service or less than age 55. Chart 3 compares actual experience with the current and proposed rates of retirement for members with at least 30 years of service and at least age 55. Note that for the "55 and 30" members, there was relatively little experience during the two years studied, so we are not recommending any changes to those assumptions.

In prior valuations, inactive vested members were assumed to retire at age 57. The average age at retirement over the current three-year experience study period was 58.4, while the average age for the prior three-year experience study period was 56.5. We recommend maintaining the assumed retirement age for inactive vested participants at age 57.

Based on data available from current inactive vested participants, there is a much lower incidence of members who went to work for a reciprocal system when compared to that observed at our other California public retirement systems. Therefore, we are recommending to maintain the assumption of 10% reciprocity for the June 30, 2011 valuation. We will continue to monitor this assumption in future valuations. For reciprocals, we recommend reducing the compensation increase assumption from 4.75% to 4.65% per annum, consistent with the recommended salary increase assumptions for active members discussed earlier.

In prior retirement plan valuations, it was assumed that 76% of all active male members and 50% of all active female members would be married or have a domestic partner eligible for the 50% automatic retirement continuance benefit when they retired. According to the experience of members who retired during the last three years, about 75% of all male members and 53% of all female members were married at retirement. We recommend maintaining the current marriage/domestic partner assumptions.

Observed experience for members who retired during the last three years indicates that female spouses were about 3.5 years younger than their male-member spouses, and male spouses were about 2.0 years older than their female-member spouses, on average. On this basis, we recommend changing from the current assumption that female spouses are four years younger than their male spouses to three years. Spouses are assumed to be of the opposite sex to the member.

Chart 2
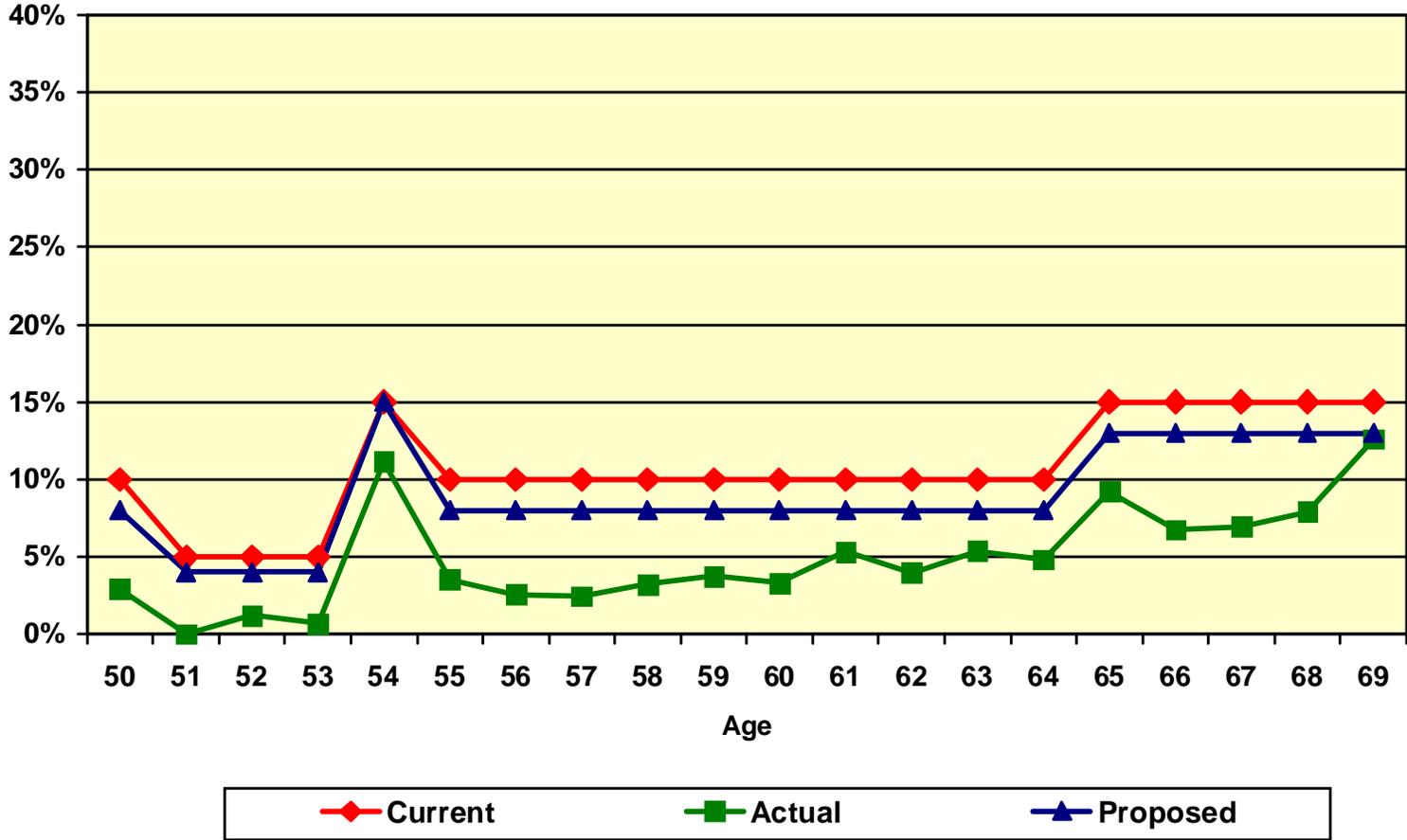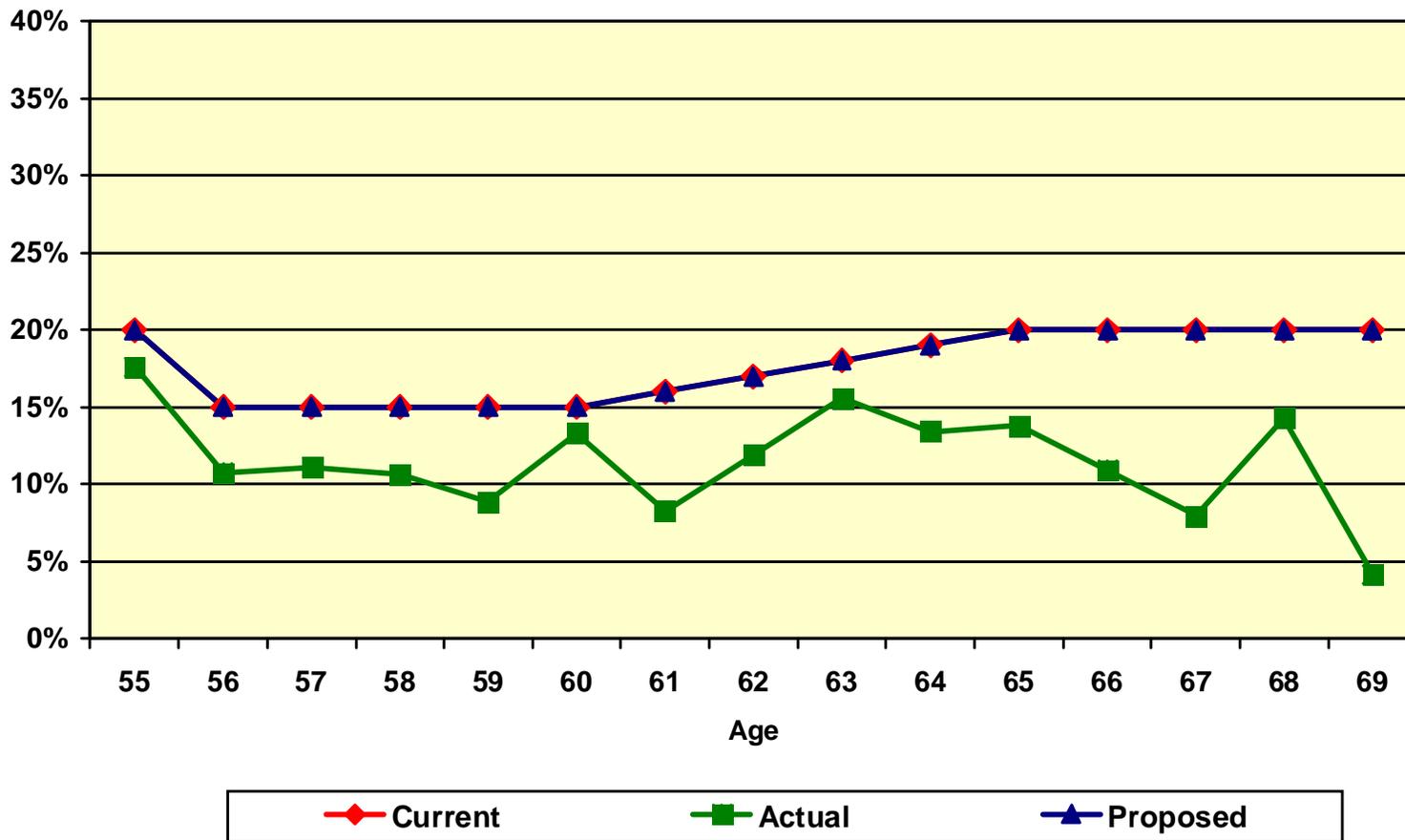**Retirement Rates**
"Non-55/30"

Chart 3
Retirement Rates
"55/30"

B. MORTALITY RATES - HEALTHY

The "healthy" mortality rates project what proportion of members will die before retirement as well as the life expectancy of a member who retires for service (i.e., who did not retire on a disability pension). The tables currently being used for post-service retirement mortality rates are the RP-2000 Combined Healthy Mortality Tables for Males and Females, each with a one year setback.

We are recommending a change to the RP-2000 Combined Healthy Mortality Tables for Males and Females, with a two year setback for males and a one year setback for females (i.e., no change for females). We recommend these tables for both retirees and beneficiaries.

Post-service Retirement Mortality

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

Year Ending June 30,	Healthy Pensioners		
	Actual Deaths	Expected Deaths - Current Assumptions	Expected Deaths - Proposed Assumptions
2009	408	397	366
2010	412	404	373
2011	369	431	398
Total	1,189	1,232	1,137
Actual / Expected		97%	105%

The experience from the last 3 years including retirees and beneficiaries is as follows:

3-Year Period Ending June 30, 2011	Healthy Pensioners and Beneficiaries		
	Actual Deaths	Expected Deaths - Current Assumptions	Expected Deaths - Proposed Assumptions
Total	1,725	1,756	1,658
Actual / Expected		98%	104%

Actuarial Standards of Practice strongly encourage that mortality assumptions reflect the expectation of continued mortality improvement in the future. To achieve this, we prefer to include a margin of at least 10% (i.e., an actual/expected ratio of at least 110%) in our proposed mortality

assumptions. Our recommendation is based on our review of the post-retirement mortality experience for healthy retired members over the prior 6-year period (i.e., from the current and the past experience study periods), so as to see how mortality has improved over a longer period. The actual and expected deaths over the 6-year period are as follows:

| 6-Year Period Ending June 30, 2011 | Healthy Pensioners | | |
	Actual Deaths	Expected Deaths - Current Assumptions	Expected Deaths - Proposed Assumptions
Total	2,410	2,351	2,169
Actual / Expected		103%	111%

As noted above, in order to reflect the expectation of continued mortality improvement in the future, we prefer to include a margin of at least 10% (i.e., an actual/expected ratio of at least 110%) in our proposed mortality assumptions. This preferred margin leads to our recommendation of a one-year improvement in the mortality assumption for males. This results in our recommendation of the RP-2000 Combined Healthy Mortality Tables for Males set back two years for male members and beneficiaries and the RP-2000 Combined Healthy Mortality Tables for Females set back one year for all female members and beneficiaries (no change for females).

Chart 4 summarizes the above information.

Chart 5 shows the life expectancies under both the current and proposed tables.

Pre-Retirement Mortality

The number of deaths among active members is not large enough to provide credible statistics to develop a unique table. Therefore, we propose pre-retirement mortality follow the tables used for post-service retirement mortality.

Post-service Retirement Mortality for Determining Actuarial Equivalences

For purposes of determining actuarial equivalences, such as for determining optional forms of benefits, the System is currently using the following mortality tables:

Service Retirement

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

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

Disability Retirement

For Members: RP-2000 Combined Healthy Mortality Table set forward seven years, weighted 60% male and 40% female

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

Based on a mix of about 59.7% male and 40.3% female for the active population as of June 30, 2011, and on the post-retirement mortality tables we are recommending for service retirement and disability retirement (see Section C), we are recommending the following mortality tables be adopted for determining actuarial equivalences:

Service Retirement

For Members: RP-2000 Combined Healthy Mortality Table set back two years for males and set back one year for females, weighted 60% male and 40% female

For Beneficiaries: RP-2000 Combined Healthy Mortality Table set back two years for males and set back one year for females, weighted 40% male and 60% female

Disability Retirement

For Members: RP-2000 Combined Healthy Mortality Table set forward five years for males and set forward six years for females, weighted 60% male and 40% female

For Beneficiaries: RP-2000 Combined Healthy Mortality Table set back two years for males and set back one year for females, weighted 40% male and 60% female

Chart 4
Post-Retirement Deaths
Healthy/Non-disabled Pensioners

Year ended June 30,	Expected - Current	Actual	Expected - Proposed
2009	397	408	366
2010	404	412	373
2011	431	369	398
Total	1,232	1,189	1,137

Chart 5
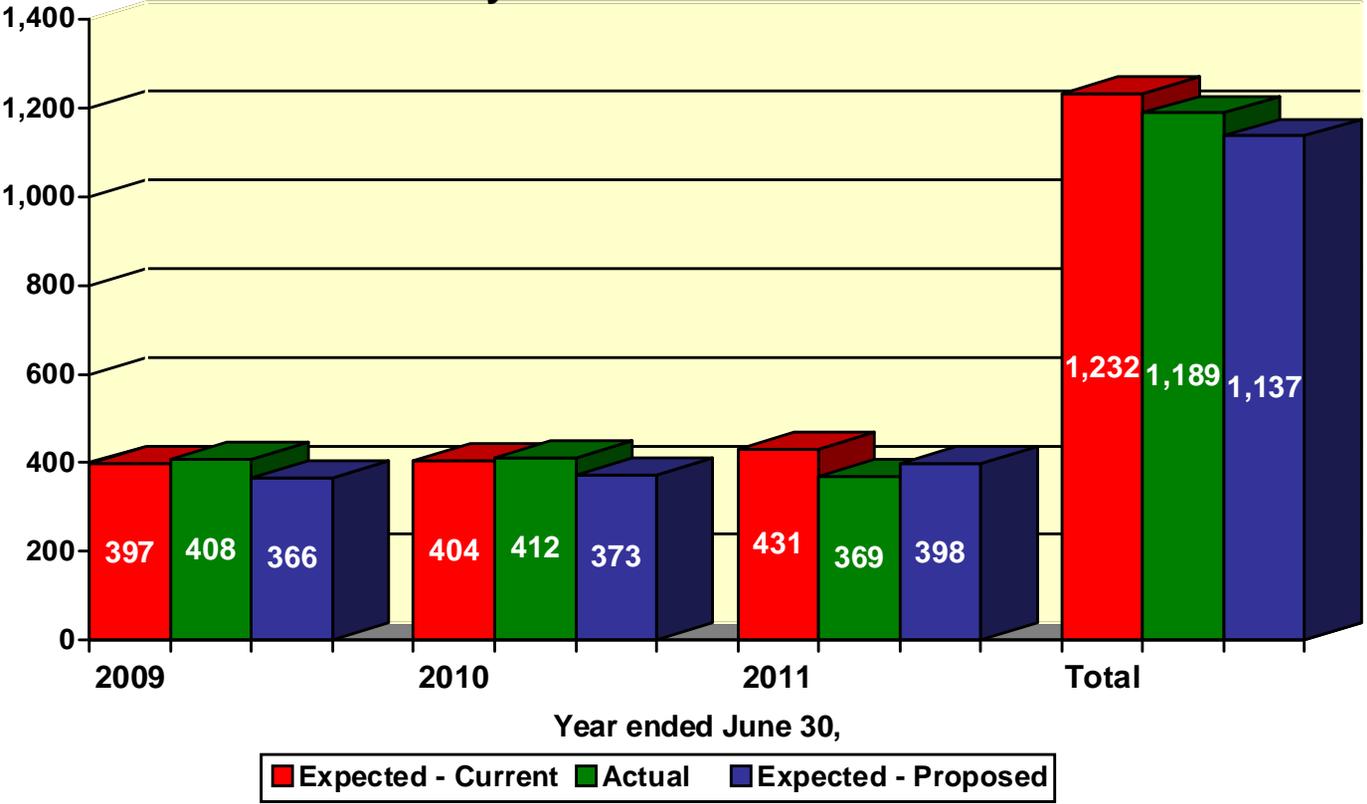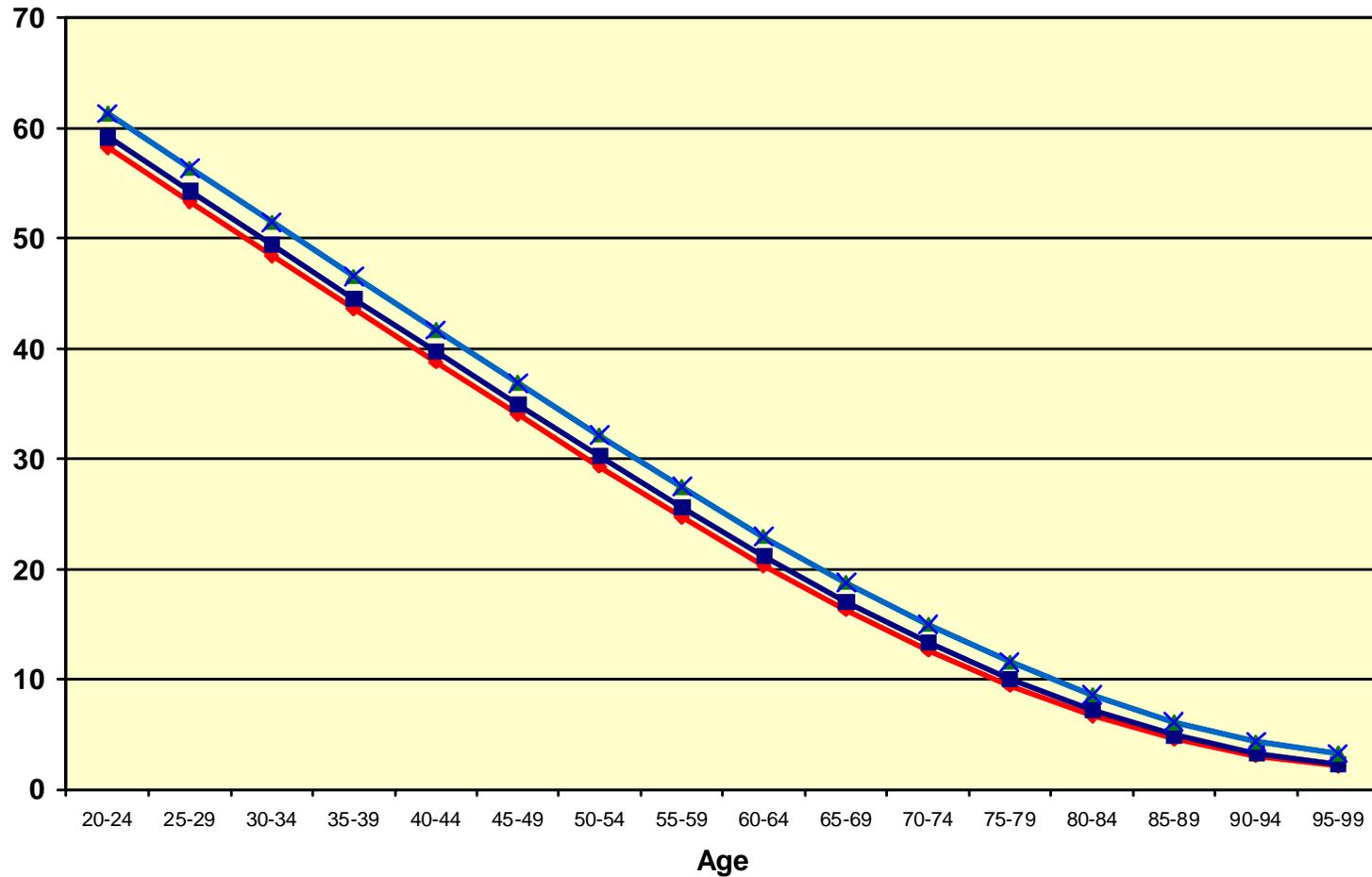## Life Expectancies (Healthy Pensioners)

C. MORTALITY RATES - DISABLED

Since death rates for disabled members can be higher than for healthy members, a different mortality assumption is often used. The tables currently being used are the RP-2000 Combined Healthy Mortality Tables for Males and Females, each set forward seven years.

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

| Year Ending June 30, | Actual Deaths | Disabled Pensioners | |
		Expected Deaths - Current Assumptions	Expected Deaths - Proposed Assumptions
2009	26	29	24
2010	23	30	25
2011	<u>34</u>	<u>33</u>	<u>28</u>
Total	83	92	77
Actual / Expected		90%	108%

Experience shows that there were fewer deaths than predicted by the current tables. Based on this experience, we are recommending a change to the RP-2000 Combined Healthy Mortality Tables for Males and Females, set forward five years for males and set forward six years for females. Note that the proposed disability tables will provide slightly less than our preferred margin of 10%, based on the experience over the latest three-year period. However, we notice that the proposed disability tables provide about a 12% margin when compared to the experience of the prior experience study period combined with the current three-year period. We will continue to monitor this assumption in the future.

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

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

Chart 6
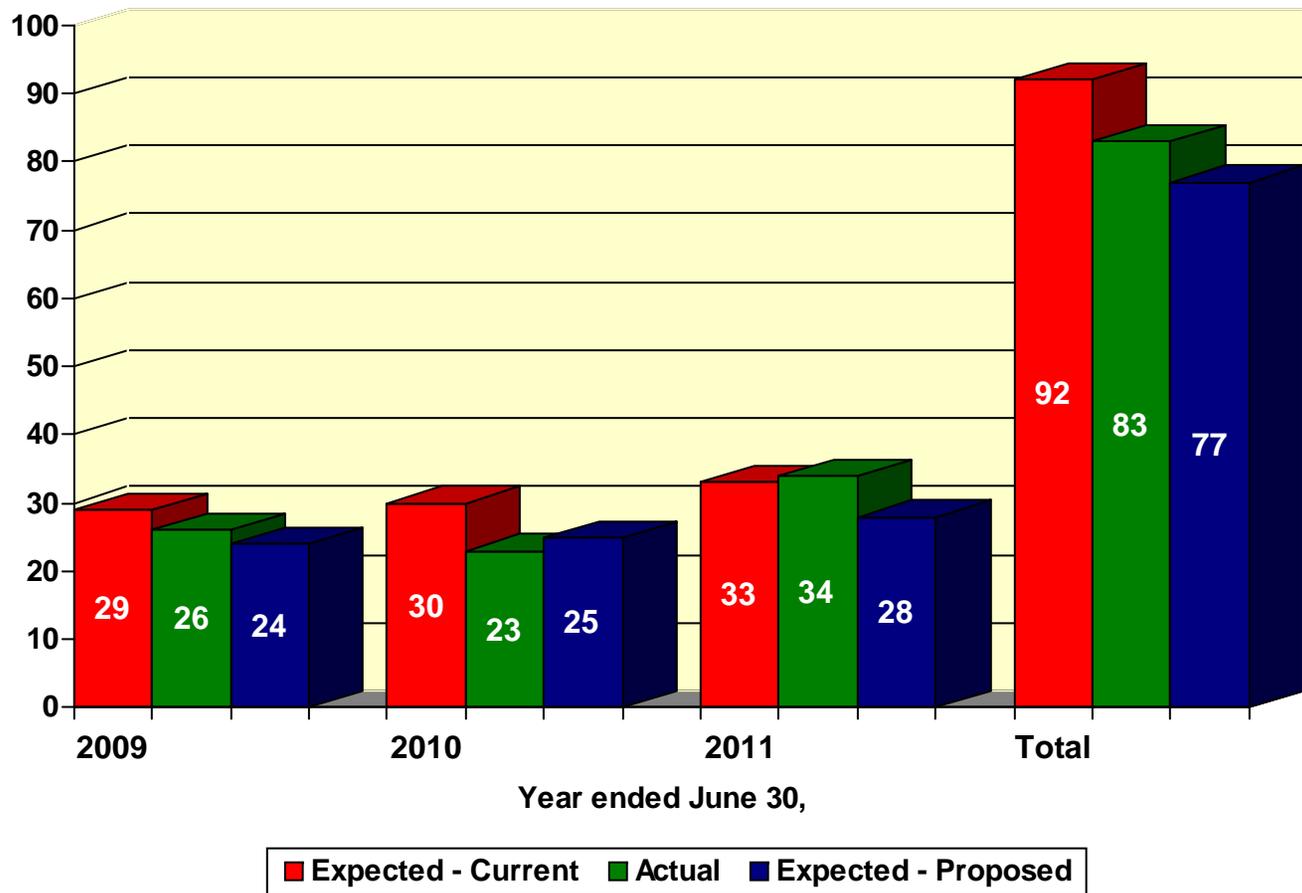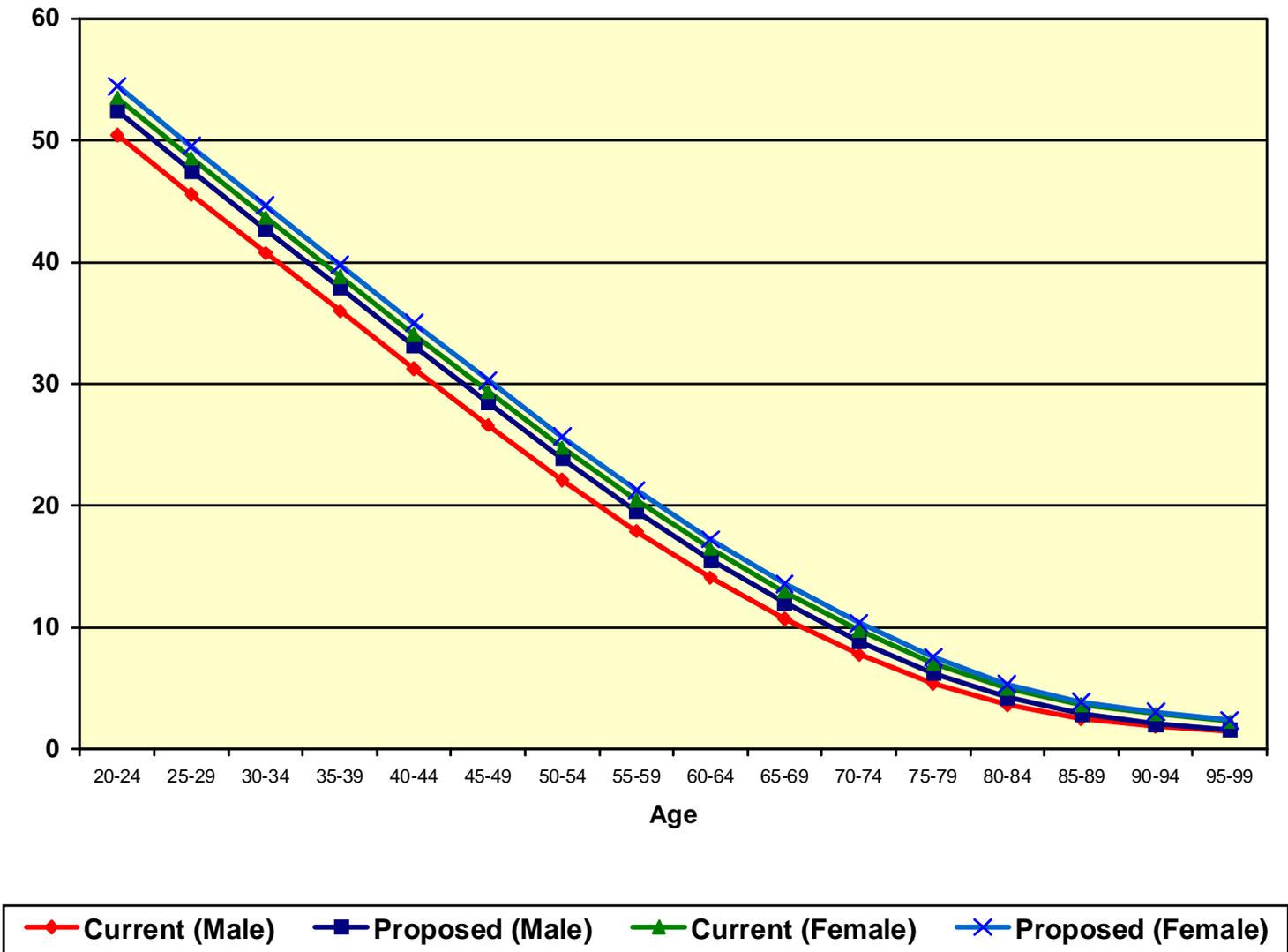## Post - Retirement Deaths
Disabled Members

Chart 7
Life Expectancies (Disabled Pensioners)

D. TERMINATION RATES

Termination rates include all terminations for reasons other than death, disability, or retirement. Under the current assumptions, all members who terminate with less the five years of service are assumed to receive a refund of contributions. For members who terminate with over five years of service, the member is assumed to choose between a refund of contributions or a deferred vested benefit, whichever option is more valuable.

We note that there were significantly more terminations during FY 2009/2010 than during the other two years of the experience study period (i.e., FY 2008/2009 and FY 2010/2011). It is our understanding that there were some layoffs by the City during this period. For this reason, we have excluded the results for FY 2009/2010 in developing our proposed termination rates, since the layoffs are not anticipated to be an ongoing event. The termination experience over Fiscal Years 2008/2009 and 2010/2011 between those members with under five years of service and those with five or more years of service is shown below:

Rates of Termination
(Under Five Years of Service)

Years of Service	Actual Rate	Current Assumption	Proposed Assumption
0	12.78%	9.75%	11.25%
1	8.08%	8.00%	8.00%
2	8.35%	6.25%	7.25%
3	7.12%	5.50%	6.25%
4	6.23%	4.75%	5.50%

Rates of Termination
(Five or More Years of Service)

Age	Actual Rate	Current Assumption	Proposed Assumption
20 – 24	13.36%	4.75%	5.50%
25 – 29	10.01%	4.75%	5.50%
30 – 34	5.56%	4.75%	5.25%
35 – 39	4.06%	3.50%	3.75%
40 – 44	3.32%	2.40%	2.75%
45 – 49	2.26%	1.75%	2.00%
50 – 54	1.96%	1.50%	1.75%
55 – 59	3.18%	1.25%	1.75%
60 – 64	3.47%	1.25%	1.75%
65 – 69	4.34%	0.00%	0.00%

Chart 8 compares actual to expected terminations of the past three years for both the current and proposed assumptions.

Chart 9 shows the current and proposed termination rates for members with less than five years of service.

Chart 10 shows the current and proposed termination rates for members with five or more years of service.

Based upon the recent experience, the proposed termination rates have been increased at most services and ages.

We continue to assume that members who terminate with over five years of service will choose between a refund of contributions or a deferred vested benefit, whichever is more valuable. We also continue to assume that all termination rates are zero for all members eligible to retire, that is, members eligible to retire at termination will retire rather than defer their benefit.

Chart 8
Actual Number of Terminations Compared to Expected
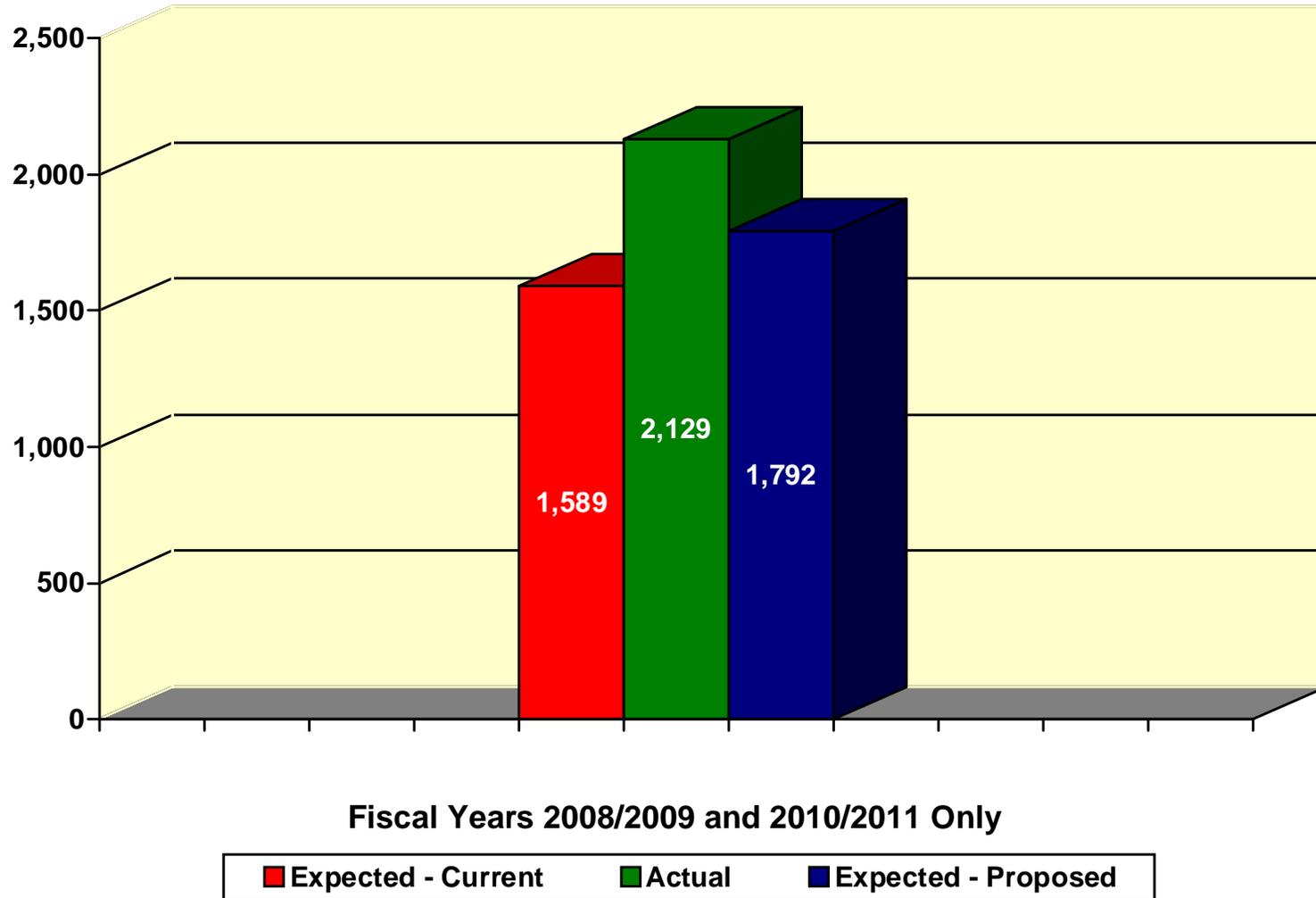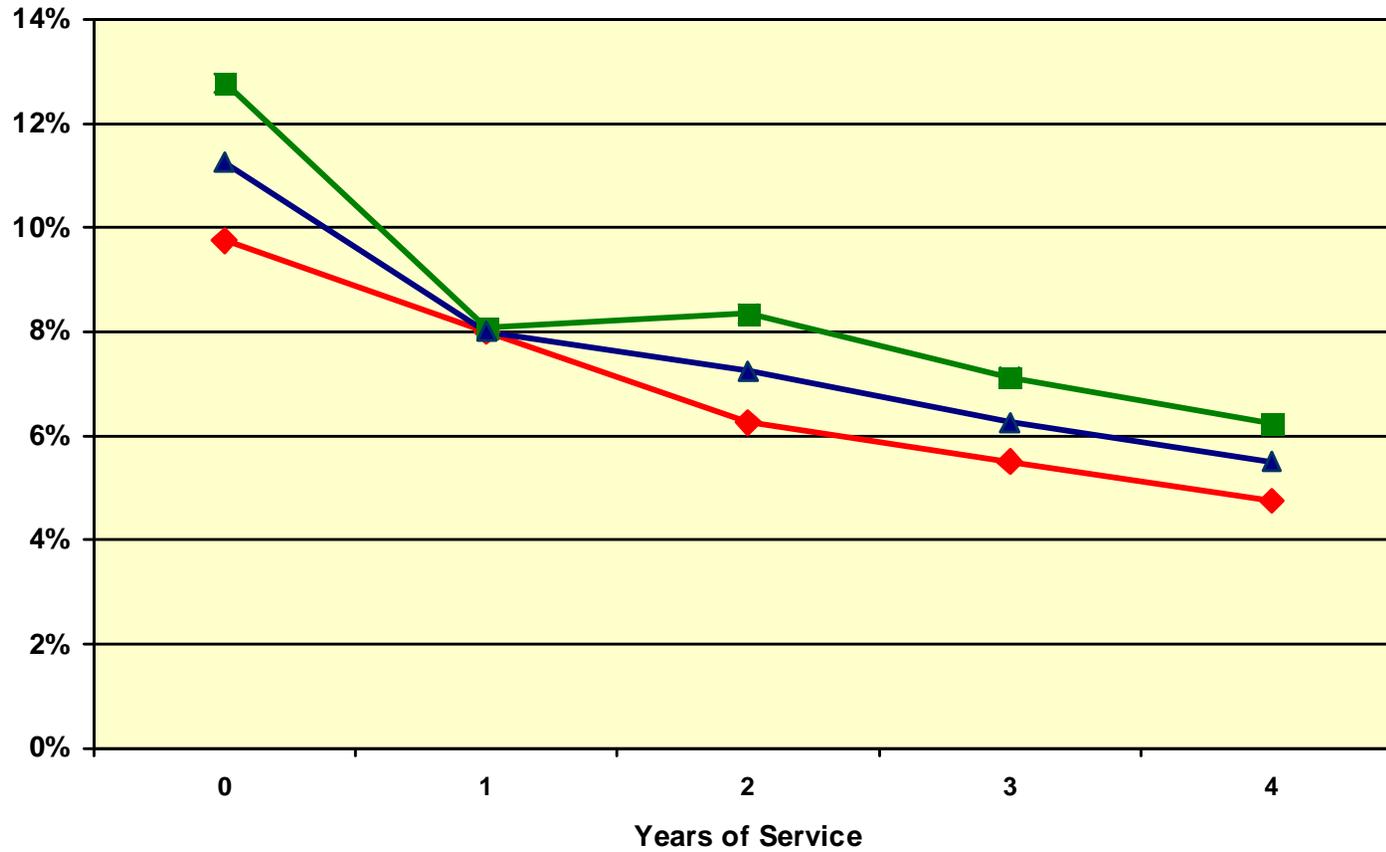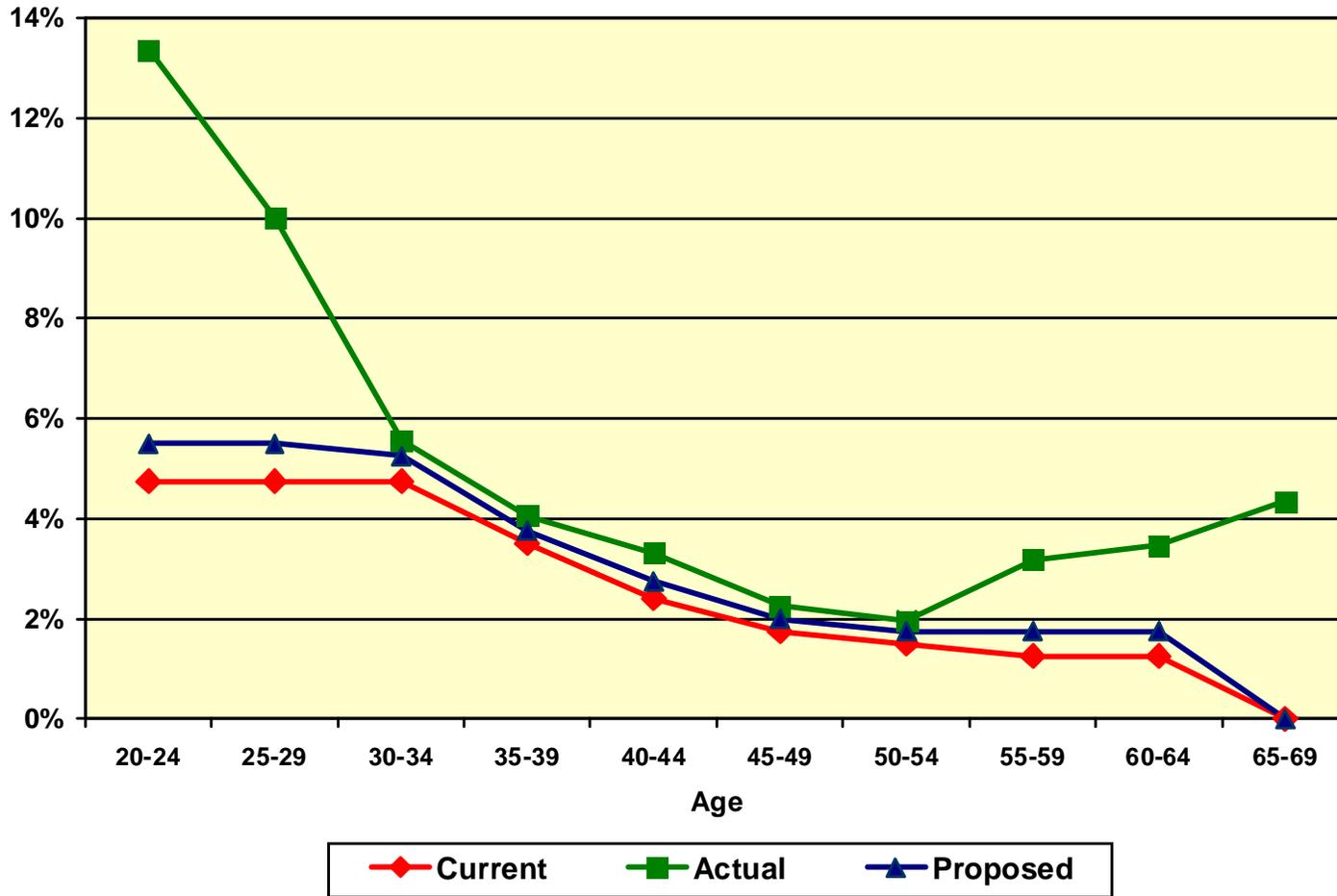

Fiscal Years 2008/2009 and 2010/2011 Only

■ Expected - Current   ■ Actual   ■ Expected - Proposed

Chart 9
Termination Rates
(Under Five Years of Service)

Chart 10
Termination Rates
(5 or More Years of Service)

E. DISABILITY INCIDENCE RATES

When a member becomes disabled, he or she is generally entitled to a monthly benefit equal to 1/3 of their final average monthly compensation. The following summarizes the actual incidence of disabilities over the past three years compared to the current and proposed assumptions:

Rates Disability Incidence

Age	Actual Rate	Current Assumption	Proposed Assumption
20 – 24	0.00%	0.00%	0.00%
25 – 29	0.00%	0.01%	0.01%
30 – 34	0.03%	0.05%	0.04%
35 – 39	0.02%	0.08%	0.06%
40 – 44	0.03%	0.19%	0.11%
45 – 49	0.08%	0.24%	0.17%
50 – 54	0.16%	0.28%	0.20%
55 – 59	0.09%	0.22%	0.20%
60 – 64	0.29%	0.22%	0.20%
65 – 69	0.23%	0.22%	0.20%

Chart 11 compares the actual number of disabilities over the past three years to that expected under both the current and proposed assumptions. The proposed disability rates were adjusted to reflect the past three years experience.

Chart 12 shows actual disablement rates, compared to the assumed and proposed rates for all members.

Chart 11
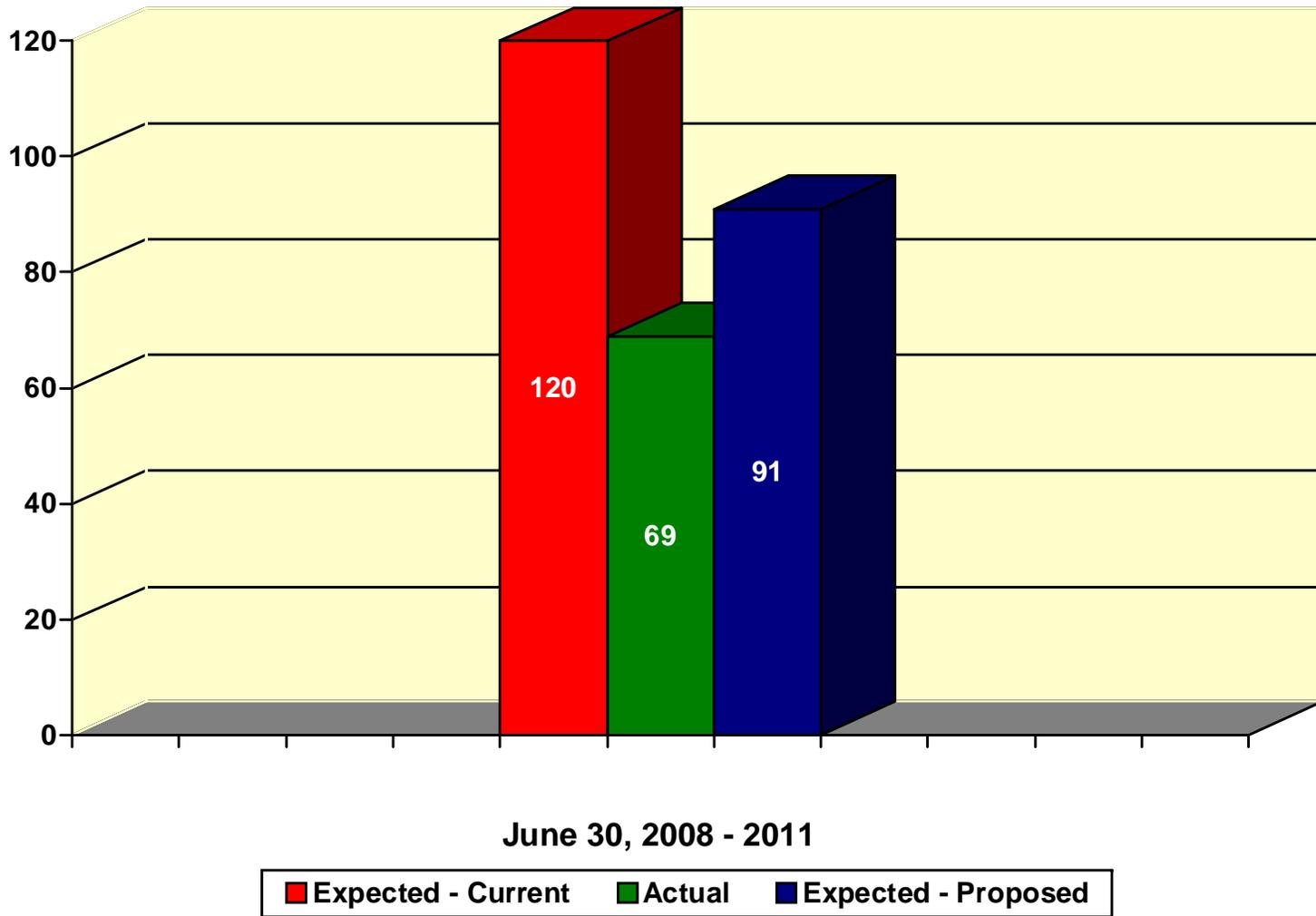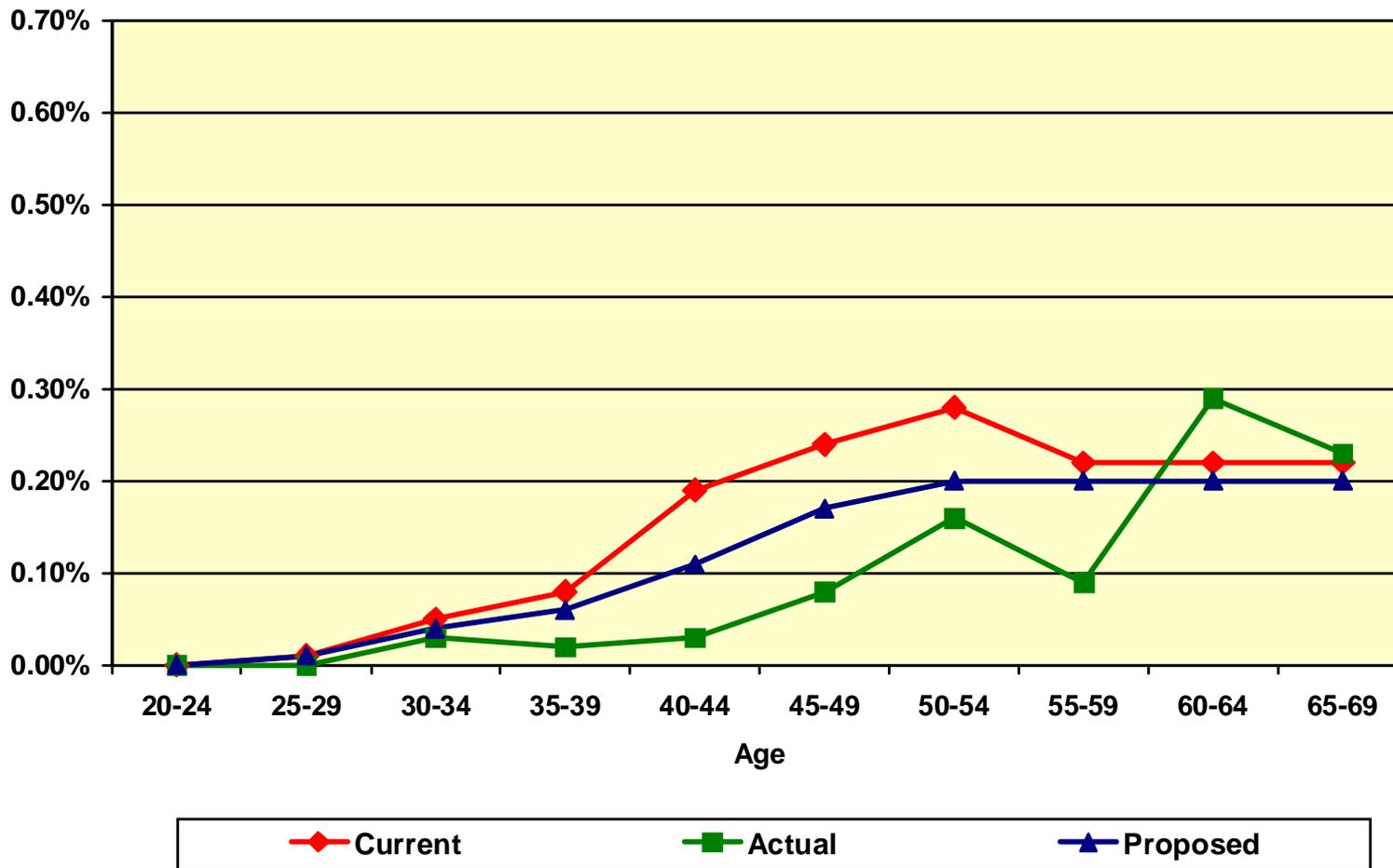## Actual Number of Disabilities Compared to Expected

120 **69** **91**

June 30, 2008 - 2011

■ **Expected - Current** ■ **Actual** ■ **Expected - Proposed**

Chart 12
Disablement Rates

APPENDIX A

CURRENT ACTUARIAL ASSUMPTIONS

Post-Retirement Mortality Rates:

Healthy: RP-2000 Combined Healthy Mortality Table, set back 1 year.
Disabled: RP-2000 Combined Healthy Mortality Table, set forward 7 years.

Termination Rates Before Retirement:

Pre-Retirement Mortality: RP-2000 Combined Healthy Mortality Table, set back 1 year.

	Rate (%)	
Age	**Disability**	**Termination***
25	0.01	4.75
30	0.03	4.75
35	0.07	4.00
40	0.15	2.84
45	0.22	2.01
50	0.26	1.60
55	0.24	1.35
60	0.22	1.25

* Termination rates are zero for members eligible to retire.

Rates of Termination for members with less than 5 years of service are as follows:

	Rate (%)
Service	**Termination (Based on Service)**
0	9.75
1	8.00
2	6.25
3	5.50
4	4.75

CURRENT ACTUARIAL ASSUMPTIONS
(continued)

Retirement Rates:

	Retirement Probability	
Age	**Non-55/30**	**55/30**
50	10%	0%
51	5	0
52	5	0
53	5	0
54	15	0
55	10	20
56	10	15
57	10	15
58	10	15
59	10	15
60	10	15
61	10	16
62	10	17
63	10	18
64	10	19
65	15	20
66	15	20
67	15	20
68	15	20
69	15	20
70	100	100

Retirement Age and Benefit for Inactive Vested Members: Assume pension benefit will be paid at the later of age 57 or the current attained age. For reciprocals, we assume 4.75% compensation increases per annum.

Exclusion of Inactive Vesteds: All inactive participants are included in the valuation.

Definition of Active Members: First day of biweekly payroll following employment for new department employees or immediately following transfer from other city department.

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

Percent Married/Domestic Partner: 76% of male members; 50% of female members.

Age of Spouse: Females are 4 years younger than their spouses.

Future Benefit Accruals: 1.0 year of service per year.

Other Reciprocal Service: 10% of future inactive vested members will work at a reciprocal system.

CURRENT ACTUARIAL ASSUMPTIONS

(continued)

Consumer Price Index: Increase of 3.75% per year; benefit increases due to CPI subject to 3.0% maximum.

Employee Contribution and Matching Account Crediting Rate: Based on average of 5-year Treasury Note Rate

Net Investment Return: 8.00%

Salary Increases: According to the following schedules:

For members with under 5 years of service,

Service	Percentage Increase*
0	8.00%
1	6.75%
2	4.75%
3	3.75%
4	2.50%

For members with 5 years of service or more,

Age	Percentage Increase*
20 – 24	2.25%
25 – 29	2.00%
30 – 34	1.75%
35 – 39	1.50%
40 – 44	1.00%
45 – 49	0.75%
50 – 54	0.50%
55 – 69	0.50%

* Before including a 3.75% inflation increase and a 0.50% across the board increase.

APPENDIX B

PROPOSED ACTUARIAL ASSUMPTIONS

Post-Retirement Mortality Rates:

Healthy: RP-2000 Combined Healthy Mortality Table, set back 2 years for males and set back 1 year for females.

Disabled: RP-2000 Combined Healthy Mortality Table, set forward 5 years for males and set forward 6 years for females.

Termination Rates Before Retirement:

Pre-Retirement Mortality: RP-2000 Combined Healthy Mortality Table, set back 2 years for males and set back 1 year for females.

	Rate (%)	
Age	**Disability**	**Termination***
25	0.01	5.50
30	0.03	5.35
35	0.05	4.35
40	0.09	3.15
45	0.15	2.30
50	0.19	1.85
55	0.20	1.75
60	0.20	1.75

* Termination rates are zero for members eligible to retire.

Rates of Termination for members with less than 5 years of service are as follows:

	Rate (%)
Service	**Termination (Based on Service)**
0	11.25
1	8.00
2	7.25
3	6.25
4	5.50

Retirement Rates:

	Retirement Probability	
Age	Non-55/30	55/30
50	8%	0%
51	4	0
52	4	0
53	4	0
54	15	0
55	8	20
56	8	15
57	8	15
58	8	15
59	8	15
60	8	15
61	8	16
62	8	17
63	8	18
64	8	19
65	13	20
66	13	20
67	13	20
68	13	20
69	13	20
70	100	100

Retirement Age and Benefit for Inactive Vested Members: Assume pension benefit will be paid at the later of age 57 or the current attained age. For reciprocals, we assume 4.65% compensation increases per annum.

Exclusion of Inactive Vesteds: All inactive participants are included in the valuation.

Definition of Active Members: First day of biweekly payroll following employment for new department employees or immediately following transfer from other city department.

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

Percent Married/Domestic Partner: 76% of male members; 50% of female members.

Age of Spouse: Females are 3 years younger than their spouses.

Future Benefit Accruals: 1.0 year of service per year.

Other Reciprocal Service: 10% of future inactive vested members will work at a reciprocal system.

PROPOSED ACTUARIAL ASSUMPTIONS

(continued)

Consumer Price Index: Increase of 3.50% per year; benefit increases due to CPI subject to 3.0% maximum.

Employee Contribution and Matching Account Crediting Rate: Based on average of 5-year Treasury Note Rate

Net Investment Return: 7.75%

Salary Increases: According to the following schedules:

For members with under 5 years of service,

Service	Percentage Increase*
0	7.00%
1	6.25%
2	4.75%
3	3.50%
4	2.25%

For members with 5 years of service or more,

Age	Percentage Increase*
20 – 24	2.25%
25 – 29	2.00%
30 – 34	1.25%
35 – 39	1.00%
40 – 44	0.75%
45 – 49	0.50%
50 – 54	0.40%
55 – 69	0.40%

* Before including a 3.50% inflation increase and a 0.75% across the board increase.

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