

**Los Angeles City Employees'  
Retirement System**  
**ACTUARIAL EXPERIENCE STUDY**  
**Analysis of Actuarial Experience**  
**During the Period**  
**July 1, 2011 through June 30, 2014**



**Segal Consulting**

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**OCTOBER 2014**



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October 8, 2014

Board of Administration  
Los Angeles City Employees' Retirement System  
202 W. 1<sup>st</sup> Street, Suite 500  
Los Angeles, CA 90012-4401

**Re Review of Actuarial Assumptions for the June 30, 2014 Actuarial Valuation**

Dear Board Members:

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, 2011 through June 30, 2014 and includes the proposed actuarial assumptions, both demographic and economic, to be used in the June 30, 2014 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,

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

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

A handwritten signature in black ink, appearing to read "Andy Yeung".

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Andy Yeung, ASA, MAAA, EA, FCA  
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 projected experience, 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 in effect assumes that 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 fulfilling benefit commitments to participants already retired and to those near retirement. The actuarial assumptions used do not determine the "actual cost" of the plan. The actual cost is determined solely by the benefits and administrative expenses paid out, offset by investment income received. However, it is desirable to estimate as closely as possible what the actual cost will be so as to permit an orderly method for setting aside contributions today to provide benefits in the future, and to maintain equity among generations of participants and taxpayers.

This study was undertaken in order to compare the actual experience during one three-year period with that expected under the current assumptions. 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, individual salary increases, retirement from active employment, pre-retirement mortality, healthy life mortality, disabled life mortality, and termination.

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 3.50% to 3.25%.*

**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:** *Segal would recommend an investment return assumption of 7.50% for funding purposes. Segal has also provided two options for maintaining consistency in the investment return assumption for both funding and financial reporting purposes.*

**Option A: 7.75% investment return assumption with explicit loading for administrative expenses**

*Under this option, the investment return assumption is developed on a net of investment expenses but not net of administrative expenses basis. This approach is more consistent with the new practice required by GASB for financial reporting, and also provides for the funding of administrative expenses in a more transparent manner. On that basis, Segal's recommendation would be to modify the investment return assumption from 7.75% net of administrative expenses to 7.75% gross of such expenses, and add an explicit administrative expense loading of 0.9% of payroll. (This is referred to as "Option A" in this report.) This option would result in an increase in the margin for adverse deviation under the risk-adjusted model used by Segal to evaluate this assumption, such that the confidence level associated with the recommended 7.75% assumption is comparable to that of the confidence levels associated with the investment return assumptions in the historical experience studies prior to the economic downturn starting in 2007/2008.*

**Option B: 7.50% investment return assumption without explicit loading for administrative expenses**

*Under this option, the investment return assumption would continue to be developed net of both investment and administrative expenses (which is consistent with the current practice for funding). On that basis, Segal's recommendation would be to reduce the investment return assumption used for*

*funding from 7.75% to 7.50%. (This is referred to as “Option B” in this report.) Similar to the rationale used in developing the 7.75% alternative under Option A, the 7.50% alternative under Option B would provide a margin for adverse deviation comparable to that associated with the investment return assumptions in the historical experience studies prior to the economic downturn starting in 2007/2008.*

**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.
- Merit and promotional increases.

*Recommendation: Reduce the current inflationary salary increase assumption from 3.50% to 3.25% consistent with our recommended general inflation assumption and maintain the real “across the board” salary increase at 0.75%. This means that the combined inflationary and real “across the board” salary increases will be reduced from 4.25% to 4.00%. In addition to the combined inflationary and real “across the board” salary increases of 4.00%, we recommend changes to the merit and promotional increases, to those developed in Section (III)(C). These changes include a change in the structure of the merit and promotional increases from an assumption based on service for the first five years of employment and then based on age for the remaining years of employment, to an entirely service-based assumption. 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 in Tier 1, adjust the current retirement rates to those developed in Section (IV)(A). Overall, the recommended assumptions will anticipate later retirements for active members. For active members in Tier 2, maintain the current retirement rates used in the original Tier 2 cost study before the City adopted that Tier until actual retirement experience is available to adjust those assumptions. For active and inactive members, increase the current assumption that male retirees are three years older than their female spouses to a four-year age difference, and lower the current assumption that female retirees are three years younger than their male spouses to a two-year age difference. For inactive vested members, increase the assumed retirement age from 57 to 58. For future inactive vested members, reduce the percentage assumed to work at a reciprocal system from 10% to 5%.*

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

*Recommendation: For healthy pensioners and all beneficiaries, change from the RP-2000 Combined Healthy Mortality Tables with a two-year setback for males and a one-year setback for females, to the RP-2000 Combined Healthy Mortality Tables projected with Scale BB to 2020, set back one year for males and with no setback for females. For disabled pensioners, change from the RP-2000 Combined Healthy Mortality Tables with a five-year forward age adjustment for males and a six-year forward age adjustment for females, to the RP-2000 Combined Healthy Mortality Tables projected with Scale BB to 2020, set forward seven years for males and set forward eight years 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 or service category 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: There are no changes recommended for the disability rates, as discussed in Section (IV)(E).*

Section II provides some background on basic principles and the methodology used for the experience study. A detailed discussion of the experience and reasons for the proposed changes 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 “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 merit and promotional increases. Payments to amortize any unfunded actuarial accrued liability (UAAL) are assumed to increase each year by the price 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 credibility to the probability of termination developed for that age category, especially if it is out of line with the pattern shown for the other age groups. Similarly, if we are considering the death decrement, there may be a large number of exposures in, say, the age 20-24 category, but very few decrements (actual deaths); therefore, we would not be able to rely heavily on the probability developed for that category.

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

### III. 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 2013  
(U.S. City Average - All Urban Consumers)**

	<u>25<sup>th</sup> Percentile</u>	<u>Median</u>	<u>75<sup>th</sup> Percentile</u>
15-year moving averages	2.6%	3.4%	4.7%
30-year moving averages	3.2%	4.2%	4.9%

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 2013 public fund survey published by the National Association of State Retirement Administrators, the median inflation assumption used by 126 large public retirement funds in their 2012 valuations has decreased to 3.00% from the 3.25% used in the 2011 valuations. In California, CalPERS and LACERA have recently reduced their inflation assumptions to 2.75% and 3.00%, respectively.

LACERS’ investment consultant, Wilshire Consulting, anticipates an annual inflation rate of 2.35%, 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 2.53%. Note that, in general, investment consultants use a time horizon for this assumption that 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 2013 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 2.80%. We also compared the yields on the thirty-year inflation indexed U.S. Treasury bonds to comparable

traditional U.S. Treasury bonds. As of June 2014, the difference in yields is about 2.28%, which provides a measure of market expectations of inflation.

**Based on all of the above information, we recommend that the current 3.50% annual inflation assumption be lowered to 3.25% for the June 30, 2014 valuation.**

#### *Crediting Rate for Employee Contributions*

We note that the interest crediting rate for employee contributions is based on the average rates of a five-year U.S. Treasury Note. Currently, an assumption of 3.50% is used to approximate that crediting rate, and the 3.50% crediting rate assumption is tied to the current inflation assumption.

**In conjunction with our recommendation to lower the current 3.50% annual inflation assumption to 3.25% for the June 30, 2014 valuation, as discussed above, we also recommend that the interest crediting rate assumption for employee contributions be lowered from 3.50% to 3.25% for the 2014 valuation.**

#### *Retiree Cost-of-Living Increases*

In our last experience study, consistent with the 3.50% annual inflation assumption adopted by the Board for that valuation, the Board maintained the 3.00% retiree cost-of-living adjustment for Tier 1 (and subsequently a 2.00% retiree cost-of-living adjustment for Tier 2, after its adoption effective July 1, 2013).

**We are recommending that the current retiree cost-of-living assumptions (i.e., 3.00% per year for Tier 1 and 2.00% per year for Tier 2) be continued in the June 30, 2014 valuation.**

Note that in developing the COLA assumption, we also considered the results of a stochastic approach that would attempt to account for the possible impact of low inflation that could occur before COLA banks (applicable to Tier 1 only) are able to be established for the member. Although the results of this type of analysis might justify the use of a lower COLA assumption, we are not recommending that at this time. The reasons for this conclusion include the following:

- The results of the stochastic modeling are significantly dependent on assuming that lower levels of inflation will persist in the early years of the projections. If this is not assumed, then the stochastic modeling will produce results similar to our proposed COLA assumption.

- Using a lower long-term COLA assumption based on a stochastic analysis would mean that an actuarial loss would occur even when the inflation assumption of 3.25% is met in a year. We question the reasonableness of this result.

We do not see the stochastic possibility of COLAs averaging less than those predicted by the assumed rate of inflation as a reliable source of cost savings that should be anticipated in our COLA assumption. Therefore, we continue to recommend setting the COLA assumption based on the long-term annual inflation assumption, as we have in prior years.

## **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 following is 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 reducing Wilshire's total return assumptions by their assumed 2.35% inflation rate. The second column of returns represents the average of a sample of real rate of return expectations. 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 retirement system clients. We believe these averages reflect a reasonable consensus forecast of long-term future real market returns.<sup>1</sup>

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<sup>1</sup> Note that, just as for the inflation assumption, in general, the time horizon used by the investment consultants in determining the real rate of return assumption is shorter than the time horizon encompassed by the actuarial valuation.

**LACERS Target Asset Allocation and  
Assumed Arithmetic Real Rate of Return Assumptions by Asset Class and for the Portfolio**

Asset Class	Percentage of Portfolio	Wilshire's Assumed Real Rates of Return <sup>(1)</sup>	Average Real Rate of Return from a Sample of Consultants to Segal's Public Clients <sup>(2)</sup>
U.S. Large Cap Equity	20.40%	5.71%	5.94%
U.S. Small Cap Equity	3.60%	5.71%	6.64%
Developed International Equity	21.75%	6.17%	6.98%
Emerging Market Equity	7.25%	6.17%	8.48%
Core Bonds	16.53%	1.47%	0.71%
High Yield Bonds	2.47%	1.47%	2.89%
Private Real Estate	5.00%	3.41%	4.69%
Cash	1.00%	(1.04)%	(0.46)%
Credit Opportunities	5.00%	3.07%	3.07% <sup>(3)</sup>
Public Real Assets	5.00%	3.41%	3.41% <sup>(3)</sup>
Private Equity	<u>12.00%</u>	<u>10.51%</u>	<u>10.51%</u> <sup>(3)</sup>
Total	100.00%	5.18%	5.59%

<sup>(1)</sup> Derived by reducing Wilshire's arithmetic annual rate of return assumptions by their assumed 2.35% inflation rate.

<sup>(2)</sup> Including Los Angeles City Employees' Retirement System, the Los Angeles Fire and Police Pension Plan, and the County retirement systems of Alameda, Contra Costa, Kern, Mendocino, Orange, and Sonoma, and the East Bay Municipal Utility District Retirement System. These returns are gross of any applicable investment expenses.

<sup>(3)</sup> Wilshire's assumptions are applied in lieu of the average because there is a larger disparity in returns for these asset classes 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 prior Actuarial Standard of Practice (ASOP) 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."

In the revised ASOP issued in September 2013 (which applies to actuarial work product with a measurement date on or after September 30, 2014), Section 3.8.3.d contains the relevant guidance:

“Investment Manager Performance—Anticipating superior (or inferior) investment manager performance may be unduly optimistic (or pessimistic). The actuary should not assume that superior or inferior returns will be achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy unless the actuary believes, based on relevant supporting data, that such superior or inferior returns represent a reasonable expectation over the measurement period.”

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 a sample average of expected real rate of returns allows the System’s investment return assumption to reflect a broader range of capital market information and it should help reduce year-to-year volatility in the System’s investment return assumption.
3. Three years ago, the total weighted average real rate of return for LACERS from a sample of consultants to Segal’s public clients was 5.22%. This result was based on LACERS’ prior target asset allocation, which was subsequently revised in the first quarter of 2012. Absent any changes to the prior target asset allocation, the 5.22% average real rate of return would have increased slightly to 5.26% solely based on updated real rate of return expectations from the sample investment consultants as of the date of this report. This means that the remaining increase from 5.26% to 5.59% (which is an increase of 0.33%) is due to the change in LACERS’ asset allocation, approved in the first quarter of 2012.
4. We recommend that the 5.59% portfolio real rate of return be used to determine the System’s investment return assumption. To review, this is 0.37% higher than the real rate of return of 5.22% that was used three years ago to prepare the recommended investment return assumption for the June 30, 2011 valuation. This increase is primarily caused by the change in LACERS’ target asset allocation since the last study.

### ***System Expenses***

For funding purposes, the real rate of return assumption for the portfolio needs to be adjusted for investment expenses expected to be paid from investment income. As further discussed later in this report, current practice for LACERS also adjusts for expected administrative expenses.

Based on information provided by the System, we have shown in the following table the expenses in relation to the market value of assets for the five years ending June 30, 2013.

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

<b>Year Ending June 30</b>	<b>Market Value of Assets at Beginning of Plan Year</b>	<b>Administrative Expenses</b>	<b>Investment Expenses*</b>	<b>Administrative %</b>	<b>Investment %</b>	<b>Total %</b>
2009	\$10,372,194	\$15,398	\$17,003	0.15%	0.16%	0.31%
2010	8,142,989	17,063	23,358	0.21%	0.29%	0.50%
2011	9,001,365	16,018	26,067	0.18%	0.29%	0.47%
2012	10,693,604	15,926	20,673	0.15%	0.19%	0.34%
2013	10,595,701	16,549	21,036	<u>0.16%</u>	<u>0.20%</u>	<u>0.36%</u>
Average				0.17%	0.23%	0.40%
<b>Recommendation</b>				<b>0.17%</b>	<b>0.23%</b>	<b>0.40%</b>

\* Net of securities lending expenses.

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

*Note related to investment expenses paid to active managers – As cited above in Section 3.8.3.d. of the 2014 revision to ASOP No. 27, the effect of an active investment management strategy should be considered “net of investment expenses”. For LACERS, approximately \$18.7 million of the \$21.0 million in investment expenses paid in fiscal year 2012/2013 was for expenses paid to active managers. In September 2013, Wilshire conducted a prospective review of active versus passive investment management. While Wilshire pointed out the potential of alpha returns from active management, they also indicated that such amounts are uncertain and alpha may even become negative. In any event, we do not believe that not anticipating such alpha would have a significant impact on the recommended investment return assumption developed using the above expense assumption. This is because any alpha that may be identified could be made available to increase the confidence level of achieving the recommended investment return assumption. For example, an alpha of 0.25% would increase the*

confidence level by about 3% (see discussions that follow on definitions of risk adjustment and confidence level).

***Adjustment to Exclude Administrative Expenses in Developing Investment Return Assumption for use in GASB Financial Reporting***

In 2012, GASB adopted Statements 67 and 68 that replace Statements 25 and 27 for financial reporting purposes. GASB Statements 67 and 68 are effective for plan year ending June 30, 2014 for the Retirement System and fiscal year ending June 30, 2015 for the employer.<sup>2</sup>

According to GASB, the investment return assumption for use in financial reporting purposes should be based on the long-term expected rate of return on a retirement system's investments and should be net of investment expenses but not of administrative expenses (i.e., without reduction for administrative expenses). As can be observed from the above development of the expense assumption, if the Board wishes to develop a single investment return assumption for both funding and financial reporting purposes, then it would be necessary to exclude the roughly 0.17% administrative expense component from the above development and to develop a separate treatment of administrative expenses.

The issues associated with eliminating the consideration of administrative expenses when developing the investment return assumption used for funding, and the alternatives that may be available to the Board in developing the investment return assumption for use in GASB financial reporting purposes are provided at the end of this Section. While we will present an alternative that develops an investment return for funding that is gross of administrative expenses, the preliminary discussion that follows has first been completed on a net of administrative expenses basis, to allow an "apples to apples" comparison with the current assumption.

***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.

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<sup>2</sup> The new Statements (67 and 68) will require more rapid recognition for investment gains or losses and much shorter amortization for actuarial gains or losses. Because of the more rapid recognition of those changes, retirement systems that have generally utilized the previous Statements (25 and 27) as a guideline to establish the employer's contribution amounts for both funding and financial reporting purposes would now have to prepare two sets of cost results, one for contributions and one for financial reporting under the new Statements.

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.<sup>3</sup> The 5.59% 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 7.75%. In combination with the inflation, real return, and expense components from three years ago, that return implied a risk adjustment of 0.57% reflecting a confidence level of 57% 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.<sup>4</sup> (It should be noted in that same study, Segal provided an alternative recommendation of 7.50% that had an implied risk adjustment of 0.82% reflecting a confidence level of 60%. We provided that alternative recommendation because the higher confidence level associated with that assumption was more consistent with the confidence levels associated with the investment return assumptions in the historical experience studies prior to the economic downturn starting in 2007/2008.)

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. The 15-year time horizon represents an approximation of the “duration” of the fund’s liabilities, where the duration of a liability represents the sensitivity of that liability to interest rate variations.

If we use the same 57% confidence level from three years ago to set this year’s risk adjustment, based on the current long-term portfolio standard deviation of 12.67% provided by Wilshire, the result is a risk adjustment of 0.61%. Together with the other investment return components, this produces a net investment return assumption of 7.83%, which is slightly higher than the current assumption of 7.75%.

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<sup>3</sup> This type of risk adjustment is sometimes referred to as “margin for adverse deviation.”

<sup>4</sup> Based on an annual portfolio standard deviation of 11.67% provided by Wilshire 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.

As discussed above, this result has mainly been achieved by a change in LACERS’ target asset allocation, as there is an increase in the portfolio real rate of return from 5.26% under the asset allocation used in the last study to 5.59% under the current asset allocation. We recommend that the Board consider whether that higher expected return should be viewed as providing additional confidence that the portfolio real rate of return associated with the prior portfolio (i.e., 5.26%) could be achieved more often than not. Based on this rationale and in order to provide an investment return assumption that has an associated confidence level that is more in line with those used by LACERS to set that assumption before the economic downturn starting in 2007/2008, we evaluated the effect on the confidence level of an alternative investment return assumption. In particular, a net investment return assumption of 7.50%, together with the other investment return components, would produce a risk adjustment of 0.94%, which corresponds to a confidence level of 61%.

The table below shows LACERS’ investment return assumptions, the risk adjustments, and corresponding confidence levels for the current and prior studies.

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

<b>Triennial Experience Study Ending June 30</b>	<b>Investment Return</b>	<b>Risk Adjustment</b>	<b>Corresponding Confidence Level</b>
2005	8.00%	1.14%	65%
2008	8.00%	1.29%	66%
2011 (adopted)	7.75%	0.57%	57%
2011 (alternative recommendation)	7.50%	0.82%	60%
2014 (alternative #1)	7.75%	0.69%	58%
2014 (alternative #2)	7.50%	0.94%	61%

As we have discussed in prior years, 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.<sup>5</sup> The use of a confidence level of 58% or 61% should be considered in context with other factors, including:

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.

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<sup>5</sup> 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.”

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. One measure of reasonableness is discussed in the following section that presents a comparison with assumptions adopted by similarly situated public sector retirement systems.
5. While a confidence level of 58% (that is associated with a 7.75% investment return assumption) is at the higher end of the range of about 50% to 60% that corresponds to the risk adjustments used by most of Segal’s other California public retirement systems, it is still lower than the confidence levels associated with the investment return assumption adopted in the 2005 and 2008 experience studies.

Most public retirement systems that have recently reviewed their investment return assumptions have considered adopting more conservative investment return assumptions for their valuations, mainly to maintain the likelihood that future actual market return will meet or exceed the investment return assumption.

#### ***Preliminary Investment Return Assumption***

Taking into account the factors above, we have developed two alternative investment return assumptions for LACERS’ consideration, both net of investment and administrative expenses. The first alternative is to maintain the current 7.75% investment return assumption; the second alternative is to reduce the current 7.75% investment return assumption to 7.50%. As noted above, the 7.75% return implies a risk adjustment of 0.69%, reflecting a confidence level of 58% that the actual average return over 15 years would not fall below the assumed return. On the other hand, the 7.50% return implies a risk adjustment of 0.94%, reflecting a confidence level of 61% that the actual average return over 15 years would not fall below the assumed return.

The following table provides the components of the preliminary investment return assumption developed in the previous discussion. For comparison purposes, we have included similar values from the last study.

<u>Assumption Component</u>	<u>June 30, 2014 Preliminary Values</u>		<u>June 30, 2011</u>
	<u>Alternative #1</u>	<u>Alternative #2</u>	<u>Adopted Values</u>
Inflation	3.25%	3.25%	3.50%
Plus Average Real Rate of Return	5.59%	5.59%	5.22%
Minus Expense Adjustment	(0.40)%	(0.40)%	(0.40)%
Minus Risk Adjustment	<u>(0.69)%</u>	<u>(0.94)%</u>	<u>(0.57)%</u>
Total	7.75%	7.50%	7.75%
Confidence Level	58%	61%	57%

**Based on this analysis, our preliminary recommendation is that the net investment return assumption be reduced to 7.50%. Our final recommendations follow later in this section after a discussion regarding a change in how expected administrative expenses are handled.**

#### *Comparison 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 a 7.50% investment return assumption is emerging as the most common assumption among those California public sector retirement systems that have studied this assumption recently. In particular, two of the largest California systems, CalPERS and LACERA, recently adopted a 7.50% earnings assumption. The two other City of Los Angeles pension plans (Los Angeles Fire and Police Pensions and Los Angeles Department of Water and Power) have also adopted a 7.50% earnings assumption for use in their 2014 valuations. Note that CalPERS uses a lower inflation assumption of 2.75% while LACERA uses an inflation assumption of 3.00%. However, three county employees retirement systems (Orange, Fresno, and Contra Costa) have recently adopted a 7.25% earnings assumption; furthermore, two of these county systems use a 3.25% inflation assumption while one system uses a 3.00% inflation assumption.

The following table compares the System's preliminary recommended net investment return assumption against those of the nationwide public retirement systems that participated in the National Association of State Retirement Administrators (NASRA) 2013 Public Fund Survey:

<u>Assumption</u>	<u>LACERS</u>	<u>NASRA 2013 Public Fund Survey</u>		
		<u>Low</u>	<u>Median</u>	<u>High</u>
Net Investment Return	7.50%	6.50%	7.90%	8.50%

The detailed survey results show that of the systems that have an investment return assumption in the range of 7.50% to 7.90%, almost half of these systems have used an assumption of 7.50%. The survey also notes that several plans have reduced their investment return assumption during the last year, and others are considering doing so. State systems outside of California tend to change their economic assumptions slowly and so may lag behind emerging practices in this area.

The preliminary recommended assumption of 7.50% provides for a slightly larger margin for adverse deviation within the risk adjustment model, as compared to three years ago.

***Developing an Investment Return Assumption for use in Accounting and Financial Reporting under GASB Statements 67 and 68***

The Governmental Accounting Standards Board (GASB) has adopted Statements 67 and 68 that replace Statements 25 and 27 for financial reporting purposes. Below we discuss the issues and policy alternatives available to LACERS in developing its investment return assumption that will allow the System to maintain consistency in its liability measurements for funding and financial reporting purposes.

Background

GASB Statement 67 governs the System’s financial reporting and is effective for the plan year ending June 30, 2014, while GASB Statement 68 governs the employers’ financial reporting and is effective for fiscal year ending June 30, 2015. The new statements specify requirements for measuring both the pension liability and the annual pension expense incurred by the employers. The new GASB requirements are only for financial reporting and do not affect how the System determines funding requirements for its employers. Nonetheless, it is important to understand how the new financial reporting results will compare with the funding requirement results. That comparison will differ dramatically depending on whether one is considering the two pension liability measures or the annual pension expense/contribution measures:

- When measuring pension liability, GASB will use the same actuarial cost method (Entry Age method) and the same type of discount rate (expected return on assets) as LACERS uses for funding. This means that the GASB “Total Pension Liability” measure for financial reporting will be determined on the same basis as LACERS’ “Actuarial Accrued Liability” measure for funding. This

is a generally favorable feature of the new GASB rules that should largely preclude the need to explain why LACERS has two different measures of pension liability. We note that the same is true for the “Normal Cost” component of the annual plan cost for both funding and financial reporting.

- When measuring annual pension expense, GASB will require more rapid recognition of investment gains or losses and much shorter amortization of changes in the pension liability (whether due to actuarial gains or losses, actuarial assumption changes or plan amendments). Because of GASB’s more rapid recognition of those changes, retirement systems that have generally used the same “annual required contribution” amount for both funding (contributions) and financial reporting (pension expense) will now have to prepare and disclose two different annual cost results, one for contributions and one for financial reporting under the new GASB Statements.

This situation will facilitate the explanation of why the funding and financial reporting results are different: the liabilities and Normal Costs are generally the same, and the differences in annual costs are due to differences in how changes in liability are recognized. However, there is one other feature in the details of how the liabilities are currently measured that will make even the liability and Normal Cost measures different unless action is taken by LACERS.

#### Treatment of Expected Administrative Expenses when Measuring Liabilities

As noted above, according to GASB, the discount rate used for financial reporting purposes should be based on the long-term expected rate of return on a retirement system’s investments, just as it is for funding. However, GASB requires that this assumption should be net of investment expenses but not net of administrative expenses (i.e., without reduction for administrative expenses). Currently, LACERS’ investment return assumption used for the annual funding valuation is developed net of both investment and administrative expenses.

While LACERS could continue to develop its funding investment return assumption net of both investment and administrative expenses, that would mean that the System would then have two slightly different investment return assumptions, one for funding and one for financial reporting. To avoid this apparent discrepancy, and to maintain the consistency of liability measures described above, we believe that it would be preferable to use the same investment return assumption for both funding and financial reporting purposes. The direct way to achieve this would be to develop the investment return assumption for funding purposes on a basis that is gross of administrative expenses and net of only investment expenses.

To review, using the same assumption for both purposes would be easier for LACERS' stakeholders to understand and should result in being able to report LACERS' Actuarial Accrued Liability (AAL) for funding purposes as the Total Pension Liability (TPL) for financial reporting purposes.

The table below is from page 12 of this report. It contains the information used to develop the expense assumption that was used in our preliminary recommendation for the investment return assumption.

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

<b>Year Ending June 30</b>	<b>Market Value of Assets at Beginning of Plan Year</b>	<b>Administrative Expenses</b>	<b>Investment Expenses*</b>	<b>Administrative %</b>	<b>Investment %</b>	<b>Total %</b>
2009	\$10,372,194	\$15,398	\$17,003	0.15%	0.16%	0.31%
2010	8,142,989	17,063	23,358	0.21%	0.29%	0.50%
2011	9,001,365	16,018	26,067	0.18%	0.29%	0.47%
2012	10,693,604	15,926	20,673	0.15%	0.19%	0.34%
2013	10,595,701	<u>16,549</u>	21,036	<u>0.16%</u>	<u>0.20%</u>	<u>0.36%</u>
Average		\$16,191		0.17%	0.23%	0.40%
<b>Recommendation</b>				<b>0.17%</b>	<b>0.23%</b>	<b>0.40%</b>

\* Net of securities lending expenses.

Development of Investment Return Assumption for Funding on a Gross of Administrative Expenses Basis so the Same Assumption Can Also Be Used for Financial Disclosure (“Option A”)

If the Board wishes to develop a single investment return assumption for both funding and financial reporting purposes, then it would be necessary to exclude the administrative expense component of 0.17% from the preliminary 7.50% investment return recommended earlier in the body of this report. One way to do this would be to increase the investment return assumption by 0.17% resulting in an irregular assumption of 7.67%. This result would be inconsistent with the established practice of setting economic assumptions in ¼% increments.

One approach would be to leave the investment return assumption at 7.50%, and instead increase the “risk adjustment” component of the assumption by 0.17%. This would result in a further increase in the margin for adverse deviation or “confidence level” associated with this assumption from 61% to 63%. Alternatively, the Board may consider another approach where the investment return assumption would be brought back up to 7.75%, but now gross of administrative expenses. This would still result in a

confidence level of 60% (which is comparable to the 61% confidence level associated with the preliminary 7.50% investment return assumption net of both investment and administrative expenses).

Note that under this approach, maintaining the investment return assumption at 7.75% would be accompanied by an explicit loading for administrative expenses, as summarized in the table below.

**Calculation of Net Investment Return Assumption – Option A**

Assumption Component	June 30, 2014 Preliminary Values if used only for Funding (Net of Administrative Expenses)	June 30, 2014 Recommended Values for both Funding and Financial Reporting (Gross of Administrative Expenses)
Inflation	3.25%	3.25%
Plus Portfolio Real Rate of Return	5.59%	5.59%
Minus Expense Adjustment	(0.40)%	(0.23)%
Minus Risk Adjustment	<u>(0.94)%</u>	<u>(0.86)%</u>
Total	7.50%	7.75%
Confidence Level	61%	60%
Increase in Combined Employer and Employee Contributions Due to Change in Investment Return Assumption Only <sup>6</sup> (Cost as % of Payroll)	2.3%	0.0%
Increase in Employer and Employee Contributions Due to Explicit Load for Administrative Expenses (Cost as % of Payroll)	Not Applicable	0.9%

There is a complication associated with eliminating the administrative expenses in developing the investment return assumption used for funding that relates to the allocation of administrative expenses between the employers and employees:

1. Even though GASB requires the exclusion of the administrative expenses from the investment return assumption, such expense would continue to accrue for a retirement system. For private sector retirement plans, where the investment return is developed using an approach similar to that required by GASB (i.e., without deducting administrative expenses), contribution requirements are increased explicitly by the anticipated annual administrative expense.

<sup>6</sup> This does not measure the contribution rate impact from the changes in the other economic assumptions (e.g., the decrease in the inflation assumption from 3.50% to 3.25%) and the non-economic assumptions (e.g., the improvement in life expectancy).

2. Under LACERS' current approach of subtracting the administrative expense in the development of the investment return assumption, such annual administrative expense is funded implicitly by effectively deducting it from future expected investment returns. Since an investment return assumption net of investment and administrative expenses has been used historically to establish not only the employer's contributions but also the employee's contributions for Tier 2<sup>7</sup>, these administrative expenses have been funded implicitly by both the employer and the employees<sup>8</sup>.
3. A switch from the method described in (2) to the method described in (1) may require a new discussion on how to allocate administrative expenses between employers and employees, including possibly establishing a new method to allocate the anticipated annual administrative expense between them. Under current practice, the 7.75% investment return assumption (with the 0.17% implicit administrative expense assumption) was used in developing the employee contribution rate in the June 30, 2013 valuation only for the active members in Tier 2. For the Tier 1 members, the implicit funding of the administrative expenses in the Normal Cost is funded solely by the employer. The rest of the implicit expense funding is in the (Unfunded) Actuarial Accrued Liability, which is also funded by the employers.
4. Because the employee rates as a whole are in essence set without specific reference to the investment return assumption under an implicit funding approach for the administrative expenses, we believe it would be reasonable for the Board to consider allocating all the administrative expenses under an explicit funding approach to the employer.
5. As the Board is aware, the contribution rates for Tier 2 members are actuarially based and they are subject to redetermination effective July 1, 2017.

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<sup>7</sup> For members in Tier 1, there is a "flat" rate that is paid by the employees that is not actuarially determined, but that "flat" rate is scheduled to decrease after June 30, 2026 or when the ERIP Obligation (defined in ERIP Ordinance 180926) is fully paid, whichever comes first. For members in Tier 2, there is also a "flat" rate of 10% paid by the employees until June 30, 2017. However, the rate to be paid effective July 1, 2017 would be actuarially determined based on the level of normal cost and unfunded actuarial accrued liability sharing mandated in the Administrative Code.

<sup>8</sup> Strictly speaking, administrative expenses are not funded implicitly by the members in Tier 1. That is because Tier 1 members pay a "flat" rate as described in the preceding footnote.

**If the Board wishes to develop a single investment return assumption for both funding and financial reporting purposes, by changing the funding of administrative expenses from the method described in (2) above with an implicit allocation of administrative expenses to the method described in (1) above with an explicit allocation of administrative expenses, then we would recommend an assumption of 7.75% net only of investment expenses.**

**In addition, we would recommend that a separate, explicit administrative expense load assumption be developed that is approximately equivalent to \$16.5 million annually, or 0.9% of payroll.**

The more significant issues mentioned in (3), (4) and (5) above concern whether or not the costs associated with the administrative expenses should continue to be allocated to both the employers and the employees. If the Board decides to allocate all of the administrative expenses to the employer only, then (as noted above) the cost to the employer of using an explicit expense assumption would be about \$16.5 million annually, which is about 0.9% of projected fiscal year 2013/2014 annual payroll for all active (Tier 1 and Tier 2) members<sup>9</sup>.

There were not yet any members in Tier 2 as of June 30, 2013 for whom the 7.75% investment return assumption (with the 0.17% implicit administrative expense assumption) was used in developing their June 30, 2013 employee contribution rate in that valuation. For Tier 1, the implicit funding of administrative expenses in the Normal Cost is funded solely by the employer. The rest of the implicit expense funding is in the (unfunded) actuarial accrued liability, which is funded solely by the employer. Based on our preliminary review of the June 30, 2014 valuation data, it appears that roughly 98% of the active member payroll is attributable to Tier 1 members. For that reason, it would not be unreasonable for the Board to allocate the entire explicit loading for administrative expenses of about \$16.5 million or 0.9% of projected fiscal year 2013/2014 annual payroll for all active (Tier 1 and Tier 2) members to the employer.

Development of Investment Return Assumption on a Net of Administrative Expenses Basis but use that Same Assumption for Financial Disclosure Development (“Option B”)

There is another possible alternative approach which would be to leave the investment return assumption at 7.50% for funding and then to use that same 7.50% for financial disclosure purposes under GASB. In effect, this means that even though the same rate is used, it would be considered net of administrative expenses for funding but gross of administrative expenses for financial disclosures. This would result in

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<sup>9</sup> Based on the census data and actuarial assumptions used to perform the June 30, 2013 valuation.

an increase in the margin for adverse deviation or “confidence level” associated with the use of the recommended 7.50% assumption from 61% when it is used for funding purposes to 63% when it is used for financial disclosure purposes.

The following table summarizes the components of the investment return assumption as recommended for funding (net of administrative expenses) and as proposed for financial disclosure purposes (gross of administrative expenses):

<b>Calculation of Net Investment Return Assumption – Option B</b>		
<u>Assumption Component</u>	<u>June 30, 2014 Recommended Values if used only for Funding (Net of Administrative Expenses)</u>	<u>June 30, 2014 Recommended Values for Financial Reporting (Gross of Administrative Expenses)</u>
Inflation	3.25%	3.25%
Plus Portfolio Real Rate of Return	5.59%	5.59%
Minus Expense Adjustment	(0.40)%	(0.23)%
Minus Risk Adjustment	<u>(0.94)%</u>	<u>(1.11)%</u>
Total	7.50%	7.50%
Confidence Level	61%	63%

**If the Board wishes to use the same rate of investment return for both funding and financial reporting but else wishes to continue the implicit allocation of administrative expenses, then we would recommend an assumption of 7.50%, net of administrative expenses for funding and gross of administrative expenses for financial reporting.**

## 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 lower UAAL contribution rates. 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. 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 a reduction in the inflation rate from 3.50% to 3.25%. 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 the ability of an organization or an economy to produce goods and services in a more efficient manner. As that occurs, at least 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 above inflation have averaged about 0.4% - 0.7% annually during the last ten to twenty years.

We also referred to the annual report on the financial status of the Social Security program published in May 2013. In that report, real “across the board” pay increases are forecast to be 1.1% per year under intermediate assumptions.

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 for LACERS the most recent salary increase experience indicates that actual average salary increases were higher than the actual change in CPI for the latest 3-year period:

<u>Valuation Date</u>	<u>Actual Average Increase<sup>(1)</sup></u>	<u>Actual Change in CPI<sup>(2)</sup></u>
June 30, 2012	1.35%	2.67%
June 30, 2013	3.50%	2.04%
June 30, 2014	<u>4.74%</u>	<u>1.08%</u>
Average	3.20%	1.93%

(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 maintaining the real “across the board” salary increase assumption at 0.75%. This means that the combined inflation and “across the board” salary increase assumption will decrease from 4.25% to 4.00%.**

3. Merit and Promotional 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 merit and promotional increases are determined by measuring the actual salary increases by employees, net of inflationary and across the board components.

The current LACERS assumptions use years of service to predict the merit and promotional increases for members with less than five years of service, and age for members with five or more years of service. Note, however, that based on our recent experience for other public retirement systems similar to LACERS, merit and promotional 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, 2011 through June 30, 2014 and we have observed a correlation between the actual merit and promotional increases and years of service. Therefore, we have developed our recommended merit and promotional increase assumptions based solely on years of service.

The following table compares the actual average merit and promotional increases by service over the three-year experience period from July 1, 2011 through June 30, 2014, with the current assumptions and our proposed assumptions. The actual average merit and promotional increases were determined by reducing the actual average total salary increases by 3.20% (the 3.20% was the average inflation

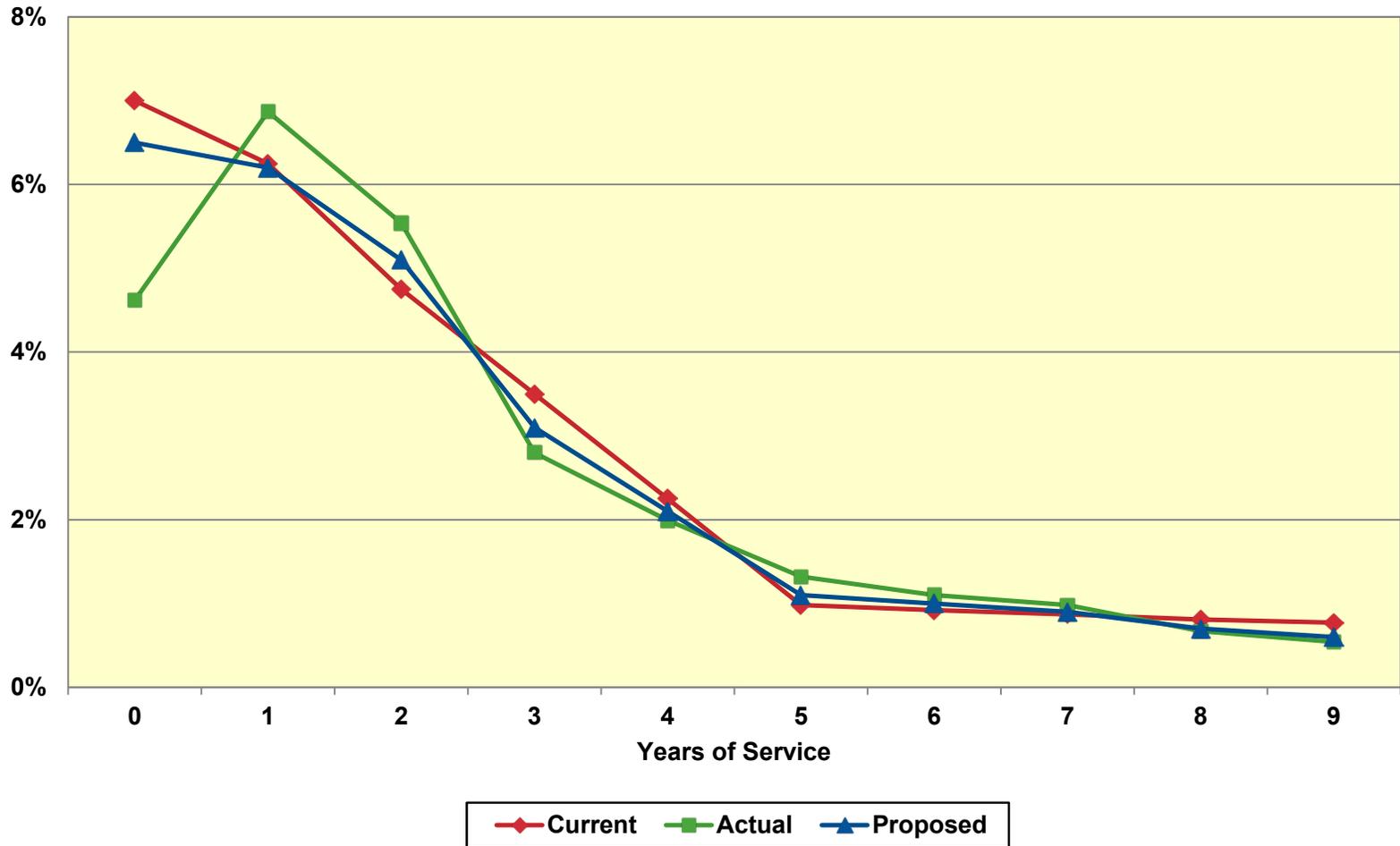
plus real across the board increases over the three-year period discussed above). Note that the current assumptions shown below for service over 5 years have been converted from an age-based assumption to a service-based assumption by averaging each of the current age-based assumptions for all of the members in that particular service category.

<b>Merit and Promotional Increases</b>			
<b><u>Service</u></b>	<b><u>Actual Average Increases</u></b>	<b><u>Current Assumptions</u></b>	<b><u>Proposed Assumptions</u></b>
0	4.62%	7.00%	6.50%
1	6.87%	6.25%	6.20%
2	5.54%	4.75%	5.10%
3	2.80%	3.50%	3.10%
4	1.99%	2.25%	2.10%
5	1.32%	0.98%	1.10%
6	1.10%	0.92%	1.00%
7	0.98%	0.87%	0.90%
8	0.67%	0.81%	0.70%
9	0.54%	0.77%	0.60%
10+	0.26%	0.55%	0.40%

**The recommended merit and promotional increases range from 6.50% to 0.40%.**

Chart 1 provides a graphical comparison of the actual merit and promotional increases, compared to current and proposed assumptions.

**Chart 1**  
**Merit and Promotional**  
**Salary Increase Rates**



### *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 merit and promotional increases are not an influence, because this average pay is not specific to an individual.

**For the June 30, 2014 valuation, we recommend that the active member payroll increase assumption be reduced from 4.25% to 4.00% annually, consistent with the combined 3.25% 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.

The following table shows the observed retirement rates based on the actual experience during Fiscal Years 2011/2012, 2012/2013 and 2013/2014, for Tier 1 only. Also shown are the current assumed rates, plus the rates we propose to the Board. No adjustments have been made to the Tier 2 rates because no data is available for this tier.

Based on the observed experience, the proposed retirement rates for Tier 1 have been decreased from the current rates to reflect later retirements.

Age	Tier 1					
	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
50	1.08%	0.00%	8.00%	0.00%	6.00%	0.00%
51	1.80%	0.00%	4.00%	0.00%	3.00%	0.00%
52	3.18%	0.00%	4.00%	0.00%	3.00%	0.00%
53	2.45%	0.00%	4.00%	0.00%	3.00%	0.00%
54	17.59%	0.00%	15.00%	0.00%	16.00%	0.00%
55	5.44%	18.53%	8.00%	20.00%	6.00%	20.00%
56	2.92%	14.48%	8.00%	15.00%	6.00%	14.00%
57	4.56%	10.11%	8.00%	15.00%	6.00%	14.00%
58	3.15%	11.96%	8.00%	15.00%	6.00%	14.00%
59	2.57%	11.41%	8.00%	15.00%	6.00%	14.00%
60	4.71%	15.43%	8.00%	15.00%	6.00%	14.00%
61	5.54%	10.08%	8.00%	16.00%	6.00%	14.00%
62	6.04%	8.70%	8.00%	17.00%	7.00%	15.00%
63	7.36%	13.97%	8.00%	18.00%	7.00%	15.00%
64	6.19%	20.00%	8.00%	19.00%	7.00%	16.00%
65	8.35%	12.35%	13.00%	20.00%	12.00%	17.00%
66	11.61%	22.06%	13.00%	20.00%	12.00%	17.00%
67	10.51%	12.96%	13.00%	20.00%	12.00%	17.00%
68	8.08%	10.42%	13.00%	20.00%	12.00%	17.00%
69	10.95%	13.33%	13.00%	20.00%	12.00%	17.00%
70	8.67%	14.17%	100.00%	100.00%	100.00%	100.00%

Chart 2 compares actual experience with the current and proposed rates of retirement, for Tier 1 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 Tier 1 members with at least 30 years of service and at least age 55.

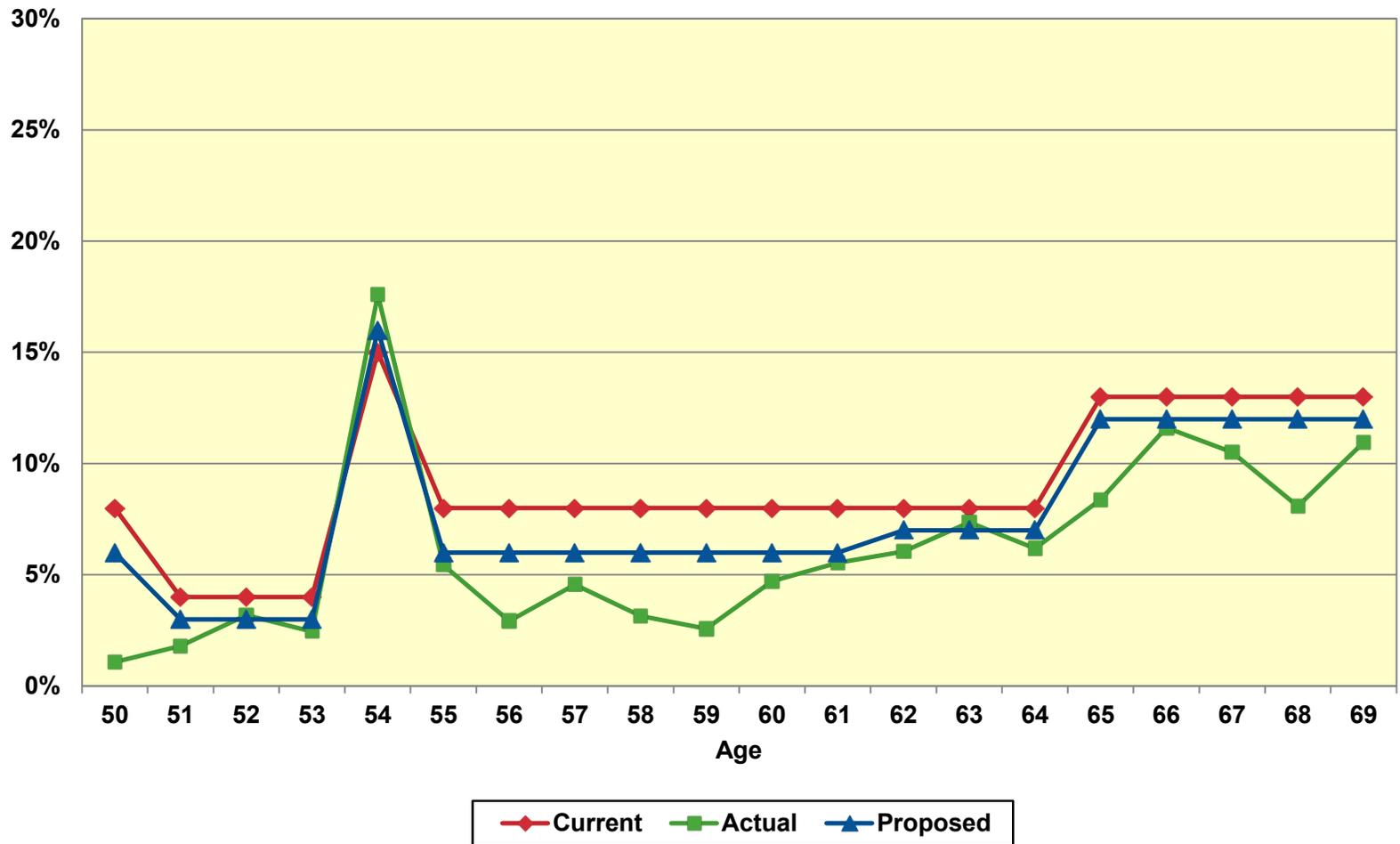
In prior valuations, inactive vested members were assumed to retire at age 57. The average age at retirement over the current three-year experience study period was 59.5, while the average age for the prior three-year experience study period was 58.4. We recommend increasing the assumed retirement age for inactive vested participants from 57 to 58.

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. We have observed that, at the end of the experience study period as of June 30, 2014, less than 5% of the inactive vested membership has worked for a reciprocal system. Therefore, we recommend decreasing the reciprocity assumption from 10% to 5% for the June 30, 2014 valuation. We will continue to monitor this assumption in future valuations. For reciprocal members, we recommend lowering the compensation increase assumption from 4.65% to 4.40% per annum, consistent with the recommended salary increase assumptions for active members discussed earlier.

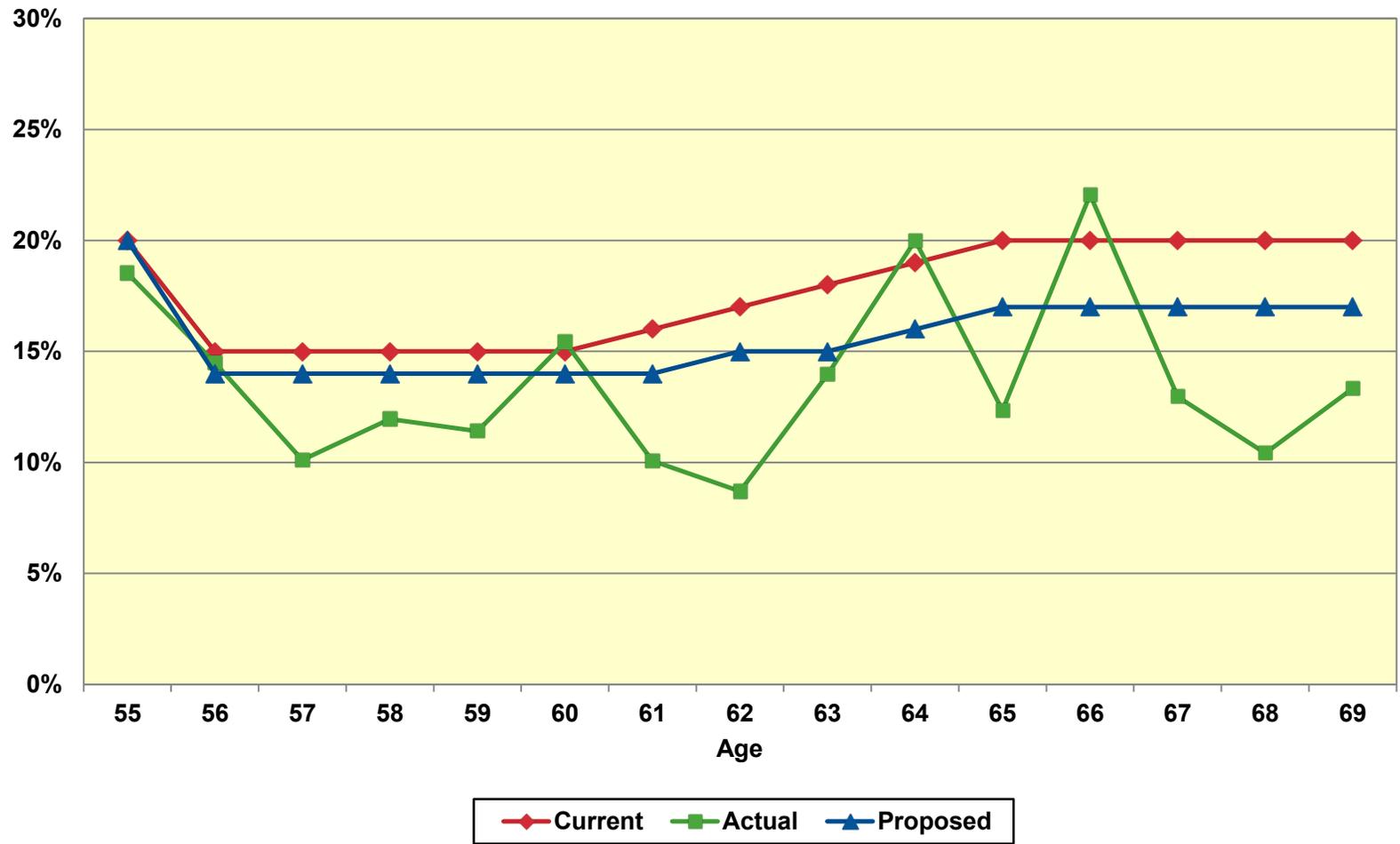
In prior retirement plan valuations, it was assumed that 76% of all active male members and 50% of all active female members would be married or have a domestic partner eligible for the 50% automatic retirement continuance benefit when they retired from Tier 1. According to the experience of members 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 for Tier 1.

Observed experience for members who retired during the last three years indicates that female spouses were about two years younger than their male-member spouses, and male spouses were about four years older than their female-member spouses, on average. On this basis, we recommend increasing the current assumption that male retirees are three years older than their female spouses to a four-year age difference, and lowering the current assumption that female retirees are three years younger than their male spouses to a two-year age difference. Spouses are assumed to be of the opposite sex to the member.

**Chart 2**  
**Retirement Rates - Tier 1**  
**"Non-55/30"**



**Chart 3**  
**Retirement Rates - Tier 1**  
**"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, set back two years for males and set back one year for females.

We are recommending a change to the RP-2000 Combined Healthy Mortality Tables projected with Scale BB to 2020, set back one year for males and with no setback for females. We recommend that these tables be used for both healthy retirees and all 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
2012	388	409	352
2013	375	421	361
2014	<u>435</u>	<u>434</u>	<u>374</u>
Total	1,198	1,264	1,087
Actual / Expected		95%	110%

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

3-Year Period Ending June 30, 2014	Healthy Pensioners and All Beneficiaries		
	Actual Deaths	Expected Deaths - Current Assumptions	Expected Deaths - Proposed Assumptions
Total	1,776	1,833	1,594
Actual / Expected		97%	111%

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, in part, 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:

<b>6-Year Period Ending June 30, 2014</b>	<b>Healthy Pensioners</b>		
	<b>Actual Deaths</b>	<b>Expected Deaths - Current Assumptions</b>	<b>Expected Deaths - Proposed Assumptions</b>
Total	2,387	2,401	2,065*
Actual / Expected		99%	116%

*\* Estimated, assuming the proposed assumptions in this study were to be applied to the census data in the current and prior studies.*

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 the RP-2000 Combined Healthy Mortality Tables for Males projected with Scale BB to 2020, set back one year for healthy male members and all male beneficiaries, and the RP-2000 Combined Healthy Mortality Tables for Females projected with Scale BB to 2020, with no setback for healthy female members and all female beneficiaries.

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 that pre-retirement mortality reflect the same 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 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

Based on a mix of about 59% male and 41% female for the active population as of June 30, 2014, 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:

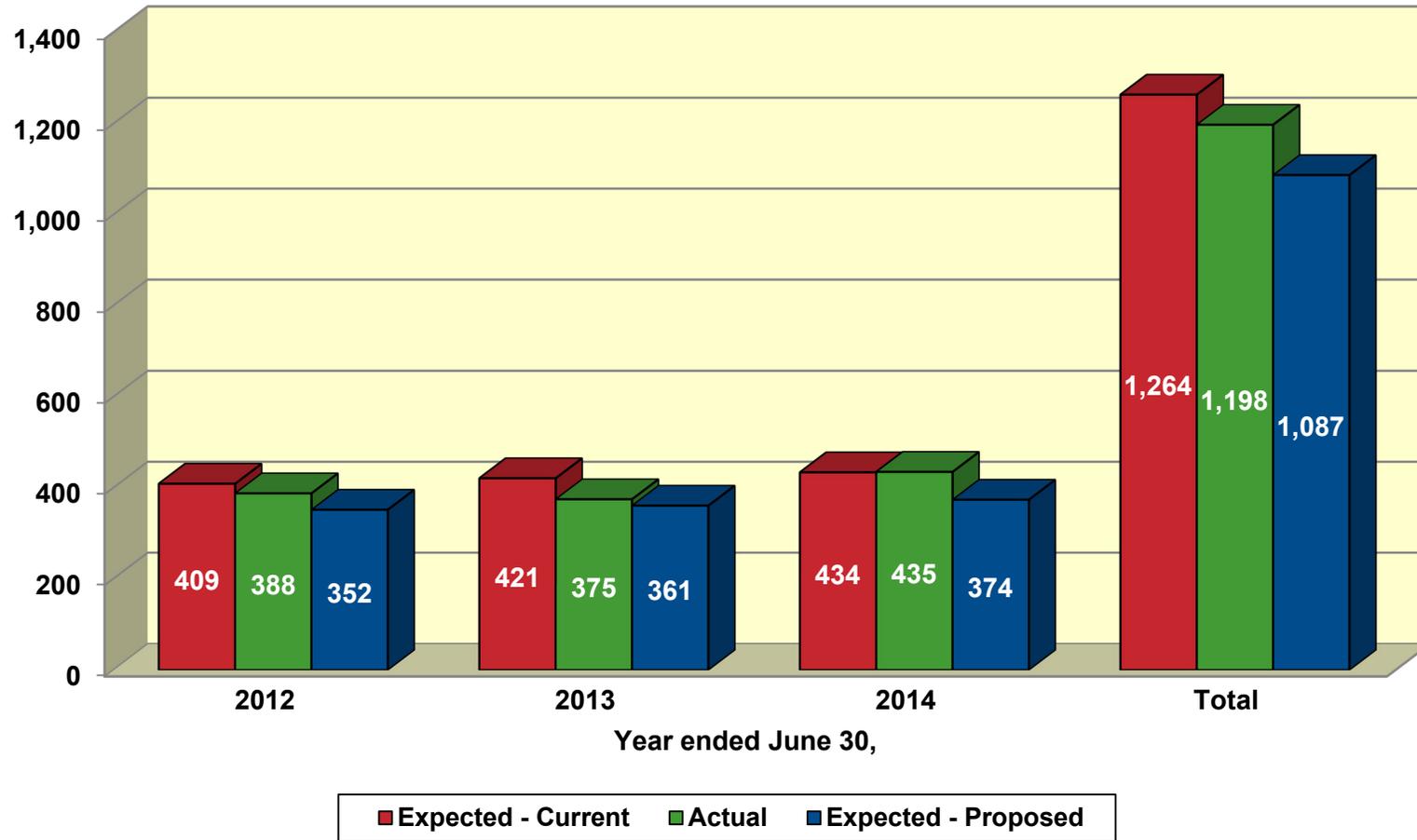
### **Service Retirement**

- For Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females, weighted 60% male and 40% female
- For Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females, weighted 40% male and 60% female

### **Disability Retirement**

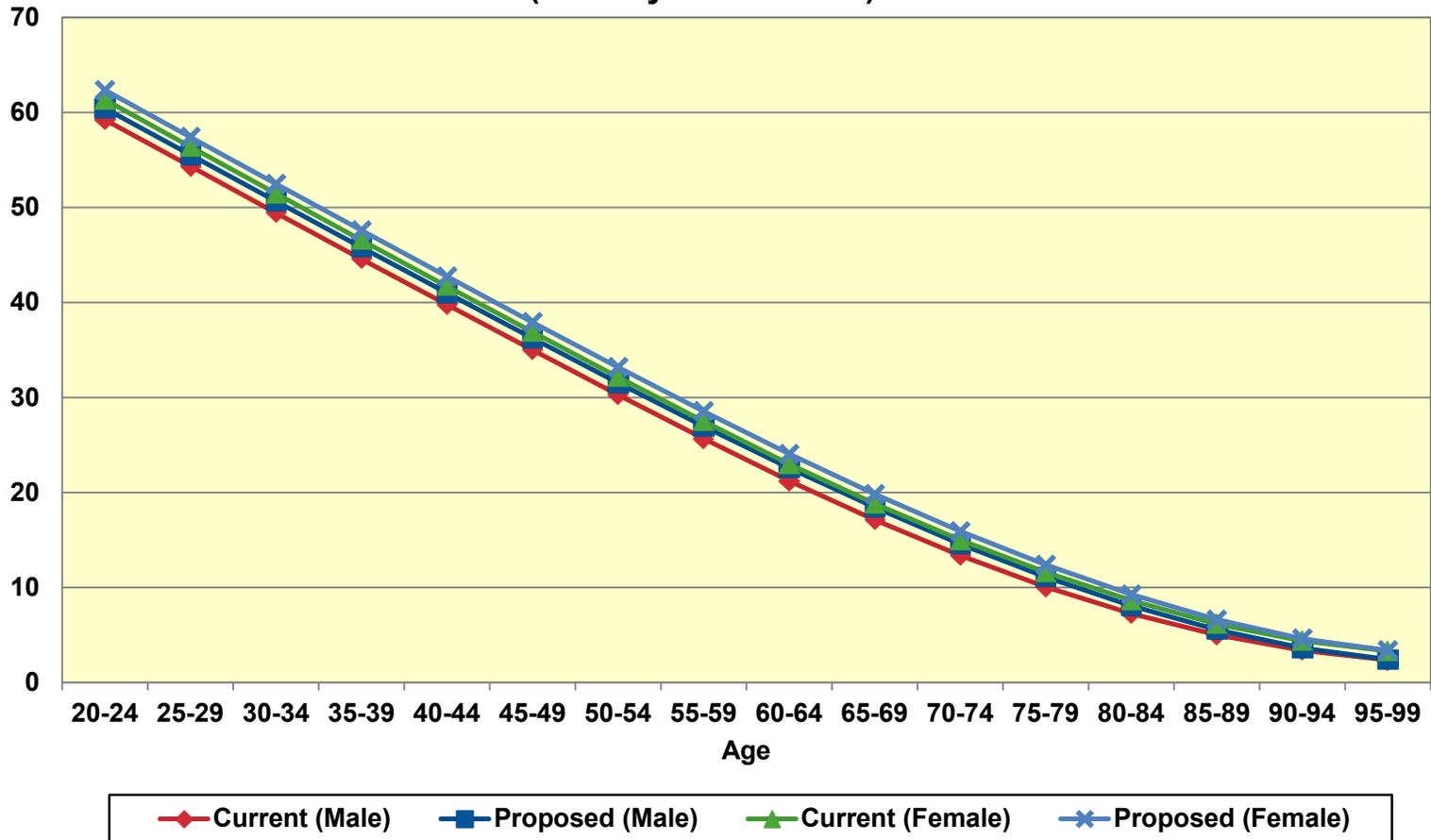
- For Members: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward eight years for females, weighted 60% male and 40% female
- For Beneficiaries: RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for both males and females, weighted 40% male and 60% female

**Chart 4**  
**Post-Retirement Deaths**  
**Healthy/Non-Disabled Pensioners**



**Chart 5**  
**Life Expectancies**  
**(Healthy Pensioners)**

Future Life Expectancies (Years)



### 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, set forward five years for males and set forward six years for females.

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:

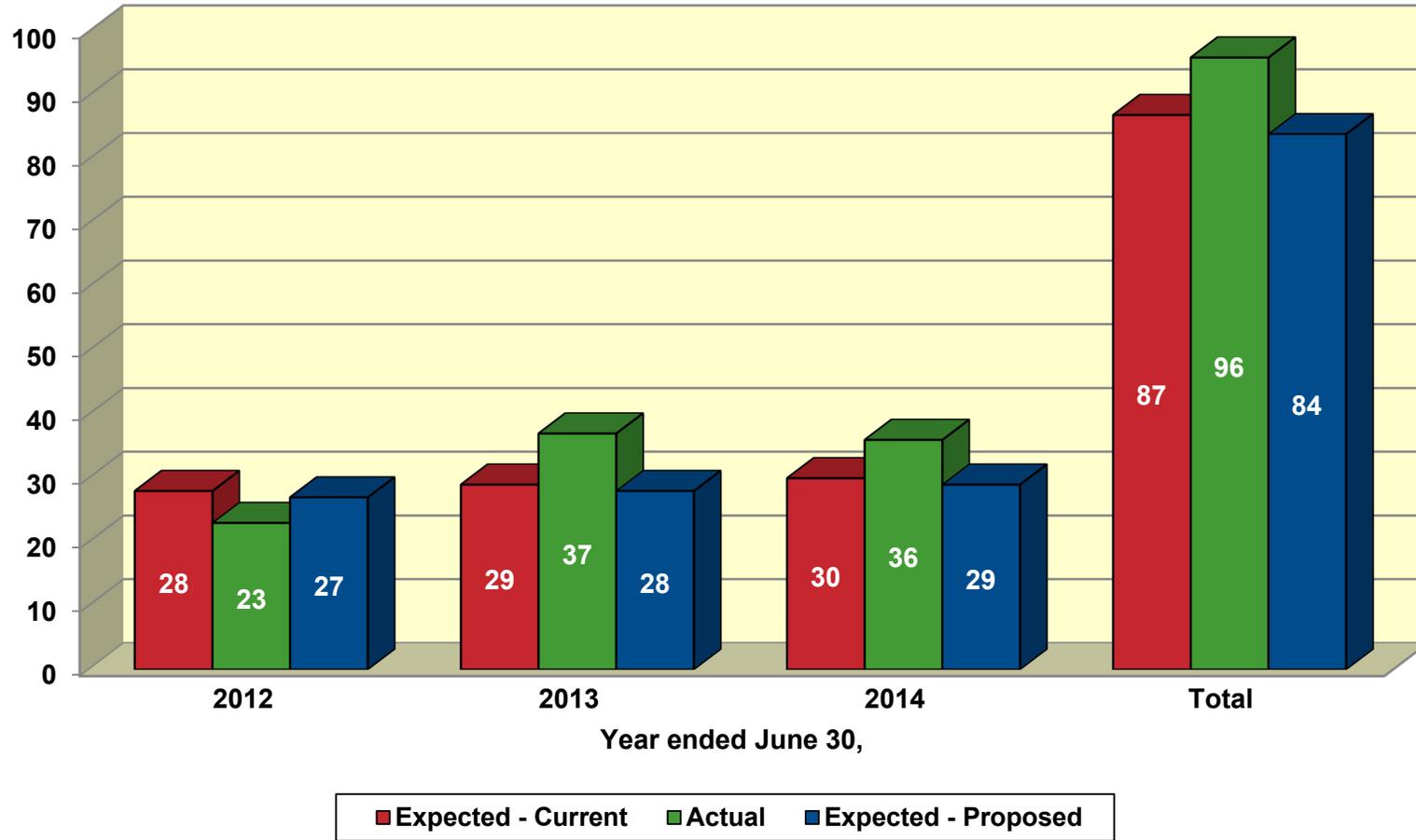
Year Ending June 30,	Disabled Pensioners		
	Actual Deaths	Expected Deaths - Current Assumptions	Expected Deaths - Proposed Assumptions
2012	23	28	27
2013	37	29	28
2014	<u>36</u>	<u>30</u>	<u>29</u>
Total	96	87	84
Actual / Expected		110%	114%

Experience shows that there were more deaths than predicted by the current tables. Based on this experience, and on our preferred practice of including a margin of at least 10% in our proposed mortality assumption, we are recommending a change to the RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward eight years for females. (Note that we also considered a six-year set forward for males and a seven-year set forward for females, however, this resulted in a margin well in excess of 10%.)

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

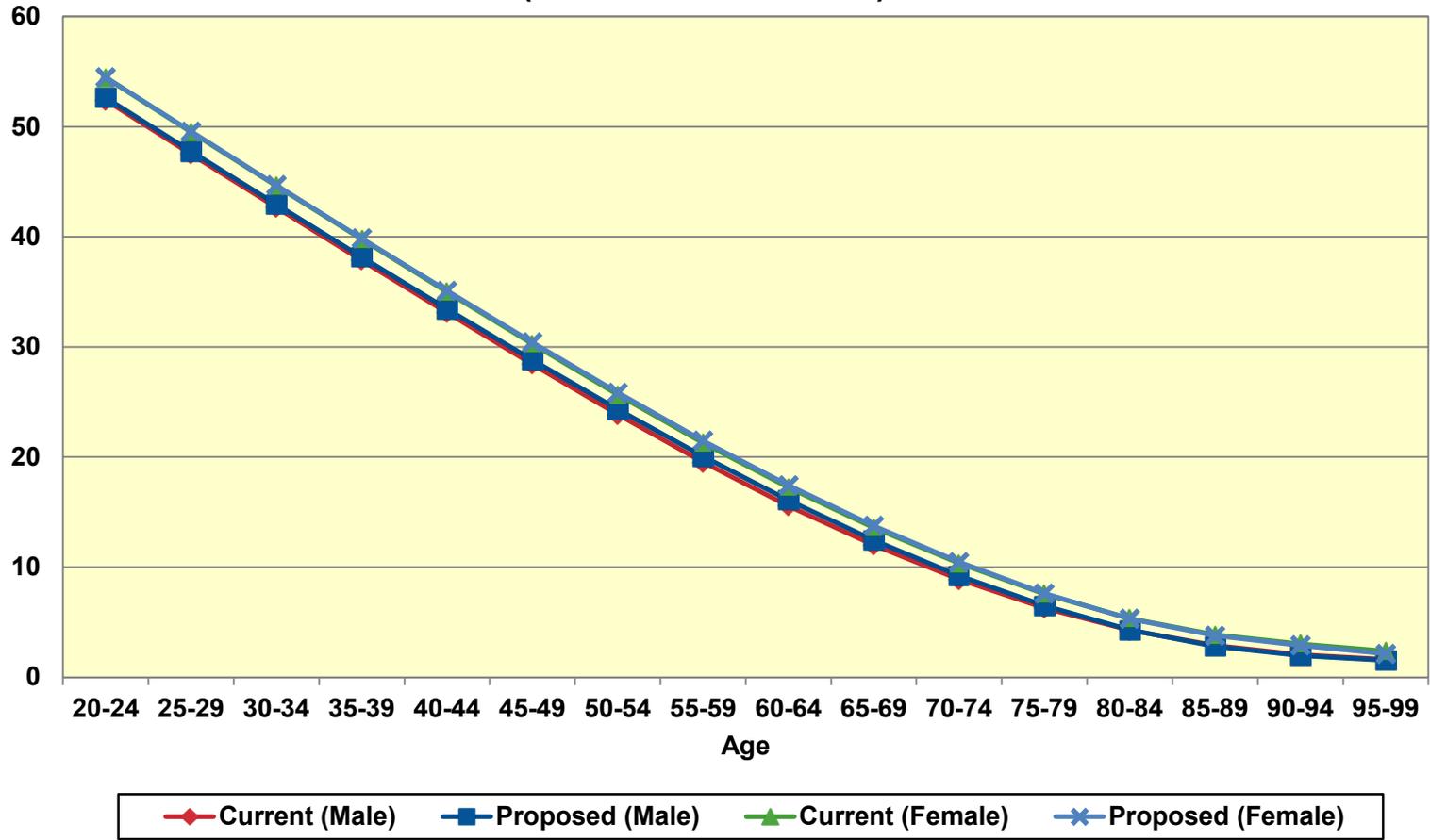
Chart 7 shows the life expectancies under both the current and proposed tables.

**Chart 6**  
**Post-Retirement Deaths**  
**Disabled Members**



**Chart 7**  
**Life Expectancies**  
**(Disabled Pensioners)**

Future Life Expectancies (Years)



#### 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.

The termination experience over Fiscal Years 2011/2012, 2012/2013, and 2013/2014 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)**

<b><u>Years of Service</u></b>	<b><u>Actual Rate</u></b>	<b><u>Current Assumption</u></b>	<b><u>Proposed Assumption</u></b>
0	15.35%	11.25%	13.25%
1	14.03%	8.00%	11.00%
2	10.56%	7.25%	8.75%
3	8.30%	6.25%	7.25%
4	5.70%	5.50%	5.75%

##### **Rates of Termination\*** **(Five or More Years of Service)**

<b><u>Age</u></b>	<b><u>Actual Rate</u></b>	<b><u>Current Assumption</u></b>	<b><u>Proposed Assumption</u></b>
20 – 24	9.90%	5.50%	5.75%
25 – 29	8.67%	5.50%	5.75%
30 – 34	5.60%	5.25%	5.75%
35 – 39	4.35%	3.75%	4.25%
40 – 44	3.16%	2.75%	3.00%
45 – 49	2.41%	2.00%	2.50%
50 – 54	2.50%	1.75%	2.50%
55 – 59	7.48%	1.75%	2.25%
60 – 64	8.50%	1.75%	2.25%

\* At central age in age range shown.

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.

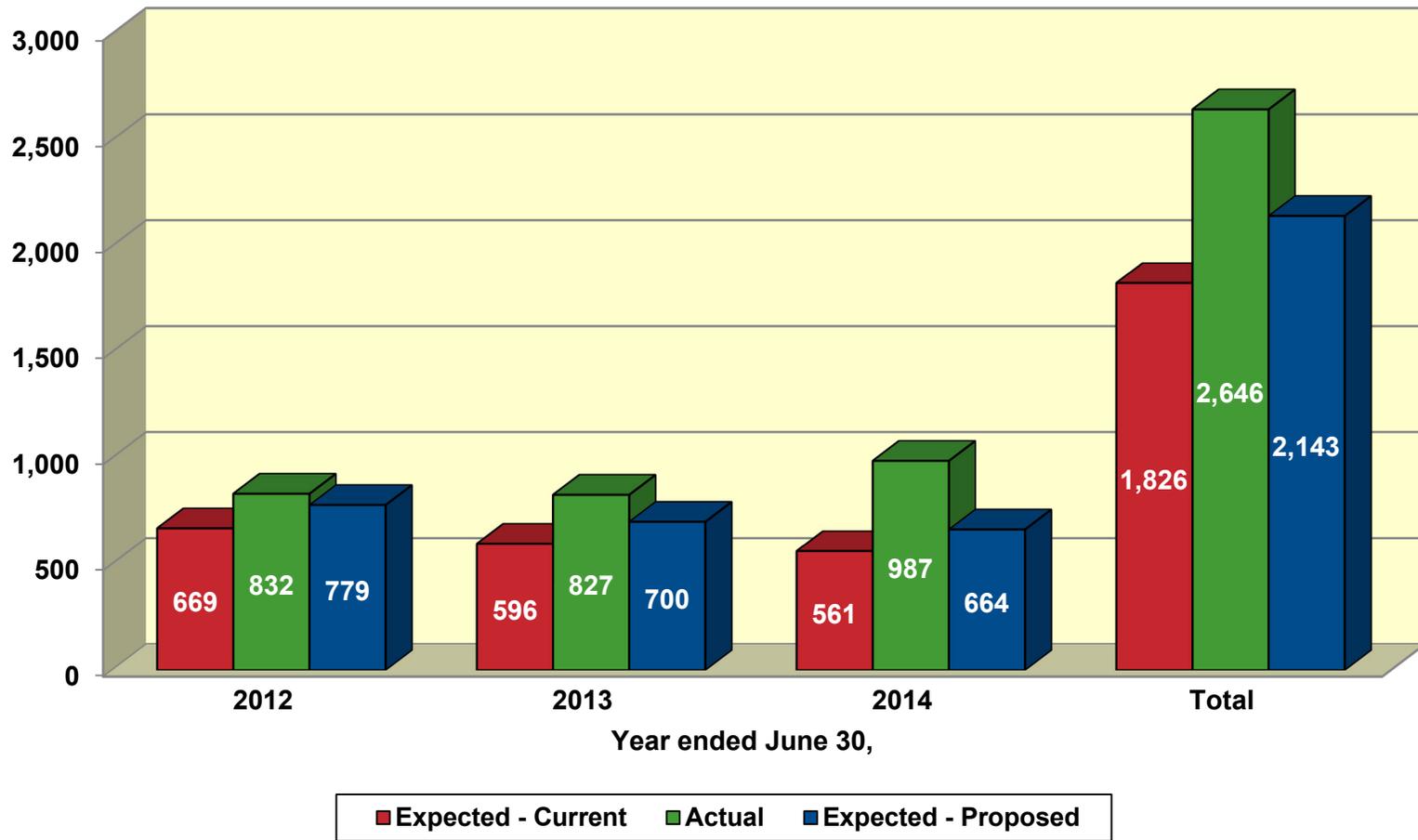
Chart 10 shows the current and proposed termination rates for members with five or more years of service.

Based upon the recent experience, the proposed termination rates have been increased at all service and age categories.

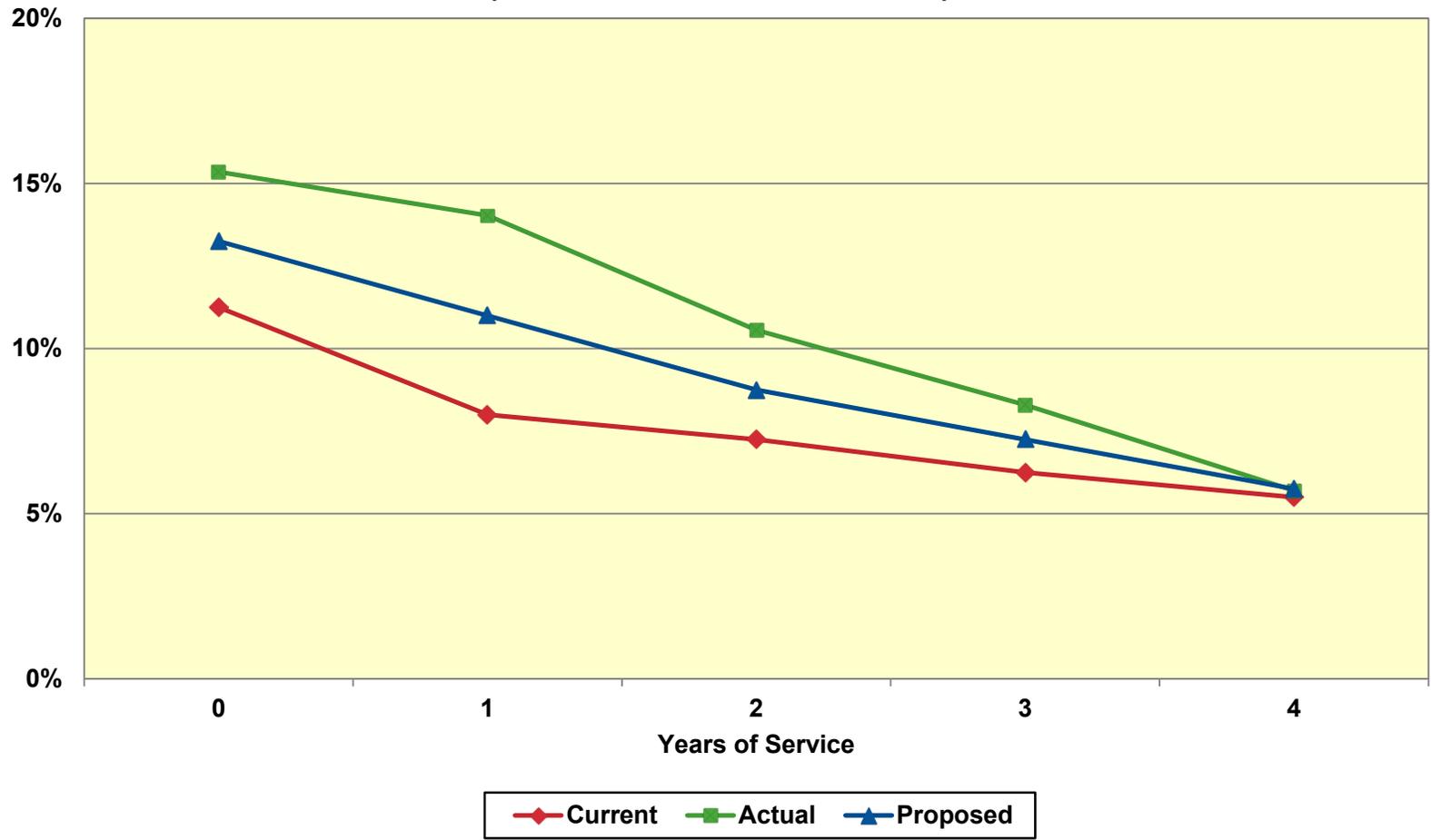
Note that we have also studied termination rates based on service for all rates rather than the current structure of age-based rates after five years of service (and service-based rates before then), and we have determined that either basis is reasonable. We propose that the current structure of age-based rates after five years of service be retained for the June 30, 2014 valuation, but we will continue to monitor this assumption in the future.

We continue to assume that members who terminate with over five years of service will choose between a refund of contributions and 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.

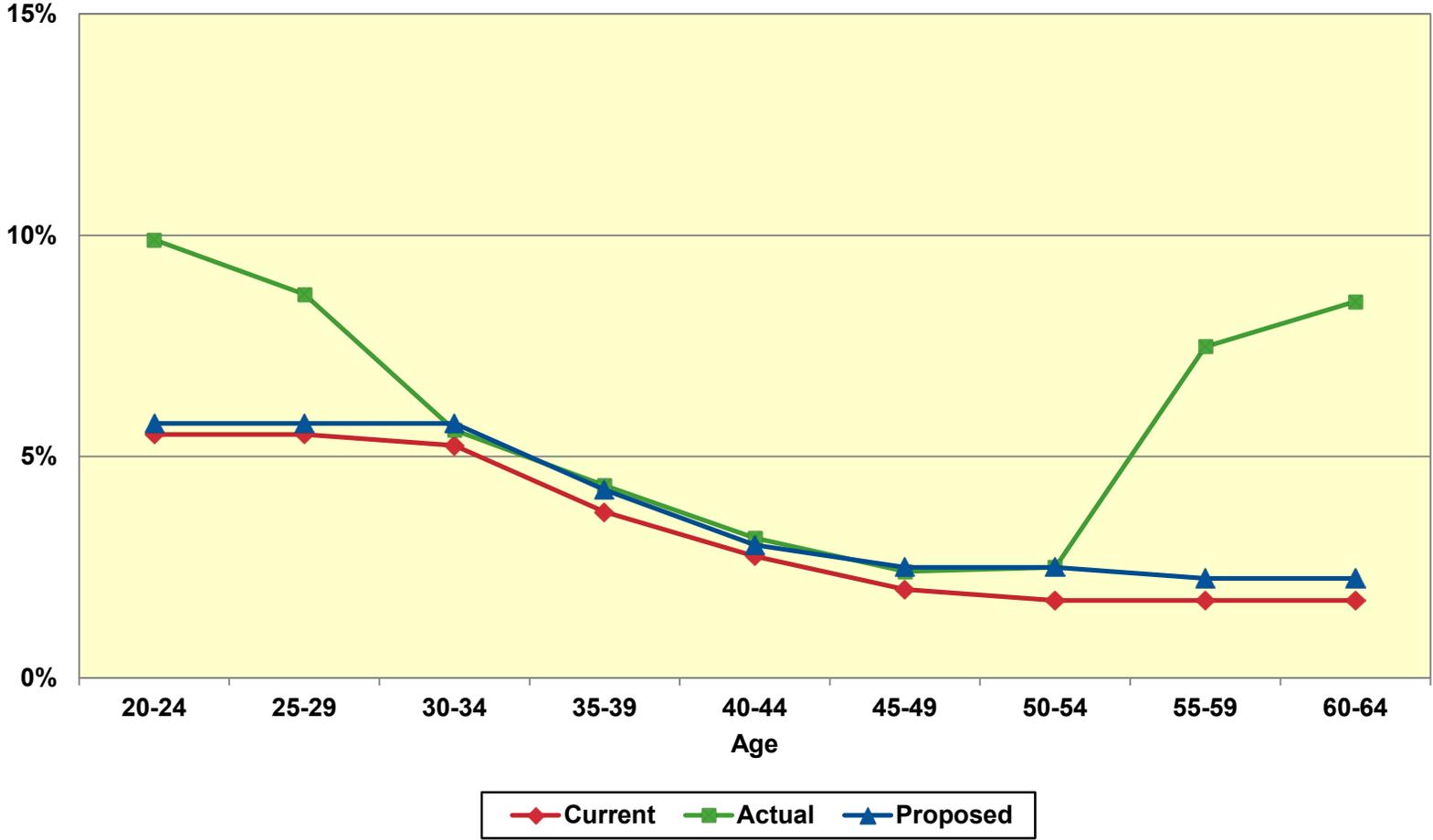
**Chart 8**  
**Actual Number of Terminations**  
**Compared to Expected**



**Chart 9**  
**Termination Rates**  
**(Under Five Years of Service)**



**Chart 10**  
**Termination Rates**  
**(Five 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 in Tier 1. The following summarizes the actual incidence of disabilities over the past three years compared to the current and proposed assumptions:

### Rates of Disability Incidence\*

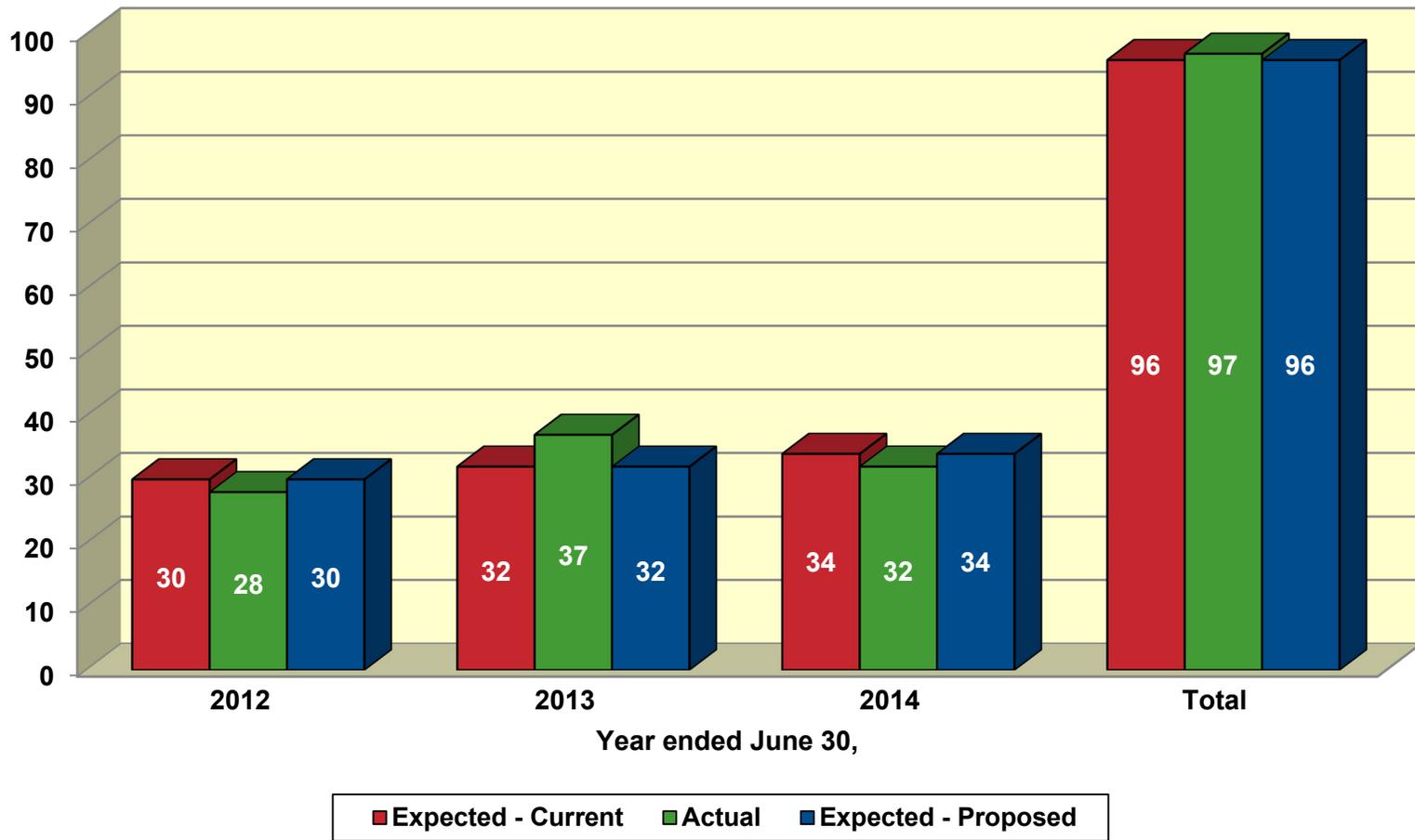
<u>Age</u>	<u>Actual Rate</u>	<u>Current Assumption</u>	<u>Proposed Assumption</u>
20 – 24	0.00%	0.00%	0.00%
25 – 29	0.00%	0.01%	0.01%
30 – 34	0.00%	0.04%	0.04%
35 – 39	0.06%	0.06%	0.06%
40 – 44	0.07%	0.11%	0.11%
45 – 49	0.19%	0.17%	0.17%
50 – 54	0.20%	0.20%	0.20%
55 – 59	0.14%	0.20%	0.20%
60 – 64	0.23%	0.20%	0.20%
65 – 69	0.50%	0.20%	0.20%

*\* At central age in age range shown.*

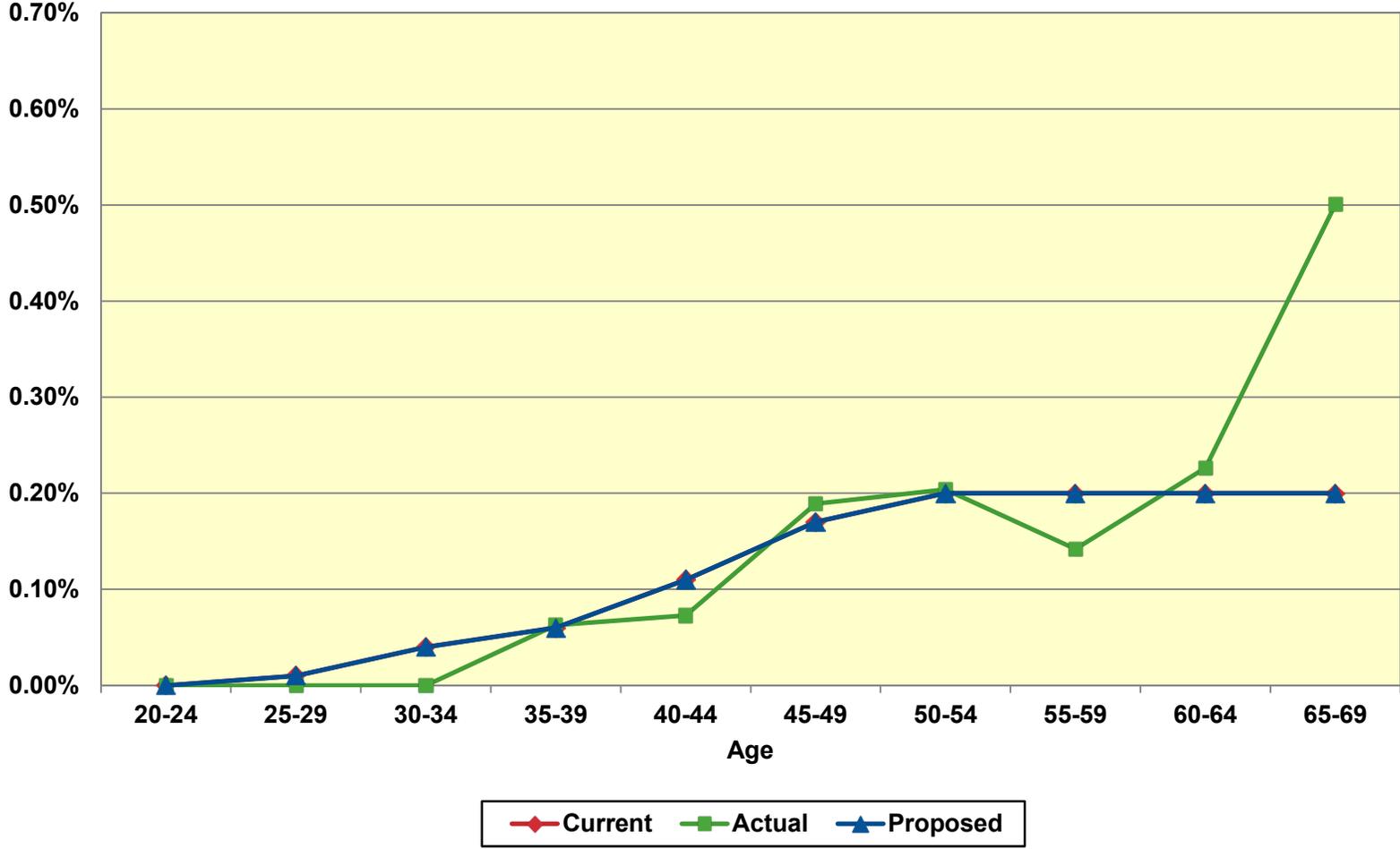
Chart 11 compares the actual number of disabilities over the past three years to that expected under both the current and proposed assumptions. The proposed disability rates are unchanged, since the observed experience over the past three years was close to the expected experience.

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**



**Chart 12**  
**Disablement Rates**



## APPENDIX A

### CURRENT ACTUARIAL ASSUMPTIONS

#### Post-Retirement Mortality Rates:

*Healthy Members and All Beneficiaries:* RP-2000 Combined Healthy Mortality Table, set back two years for males and set back one year for females.

*Disabled Members:* RP-2000 Combined Healthy Mortality Table, set forward five years for males and set forward six years for females.

#### Termination Rates Before Retirement:

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

Age	Rate (%)	
	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

\* Rates for members with five or more years of service. Termination rates are zero for members eligible to retire.

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

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

**CURRENT ACTUARIAL ASSUMPTIONS**  
(continued)

**Retirement Rates:**

Age	Retirement Probability			
	Tier 1		Tier 2	
	Non-55/30	55/30	Non-55/30	55/30
50	8.0%	0.0%	0.0%	0.0%
51	4.0	0.0	0.0	0.0
52	4.0	0.0	0.0	0.0
53	4.0	0.0	0.0	0.0
54	15.0	0.0	0.0	0.0
55	8.0	20.0	3.5	8.0
56	8.0	15.0	3.5	7.0
57	8.0	15.0	3.5	7.0
58	8.0	15.0	3.5	7.0
59	8.0	15.0	3.5	7.0
60	8.0	15.0	5.5	7.0
61	8.0	16.0	5.5	9.0
62	8.0	17.0	5.5	11.0
63	8.0	18.0	5.5	13.0
64	8.0	19.0	5.5	16.0
65	13.0	20.0	12.0	19.0
66	13.0	20.0	12.0	19.0
67	13.0	20.0	12.0	19.0
68	13.0	20.0	12.0	19.0
69	13.0	20.0	12.0	19.0
70	100.0	100.0	100.0	100.0

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

Pension benefit paid at the later of age 57 or the current attained age. For reciprocals, 4.65% compensation increases per annum.

**Exclusion of Inactive Vested:**

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:**

Female spouses are 3 years younger than their spouses.

**Service:**

Employment service is used for eligibility determination purposes. Benefit service is used for benefit calculation purposes.

**Future Benefit Accruals:**

1.0 year of service per year.

**CURRENT ACTUARIAL ASSUMPTIONS**  
(continued)

<b>Other Reciprocal Service:</b>	10% of future inactive vested members will work at a reciprocal system.
<b>Consumer Price Index:</b>	Increase of 3.50% per year; benefit increases due to CPI subject to 3.0% maximum.
<b>Employee Contribution and Matching Account Crediting Rate:</b>	Based on average of 5-year Treasury note rate. An assumption of 3.50% is used to approximate that crediting rate.
<b>Net Investment Return:</b>	7.75%
<b>Salary Increases:</b>	Inflation: 3.50%; plus an additional 0.75% “across the board” salary increases (other than inflation); plus the following merit and promotional increases:

*For members with under 5 years of service:*

<u>Service</u>	<u>Percentage Increase</u>
0	7.00%
1	6.25%
2	4.75%
3	3.50%
4	2.25%

*For members with 5 or more years of service:*

<u>Age</u>	<u>Percentage Increase*</u>
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%

*\* At central age in age range shown.*

## APPENDIX B

### PROPOSED ACTUARIAL ASSUMPTIONS

#### Post-Retirement Mortality Rates:

*Healthy Members and All Beneficiaries:* RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

*Disabled Members:* RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set forward seven years for males and set forward eight years for females.

#### Termination Rates Before Retirement:

*Pre-Retirement Mortality:* RP-2000 Combined Healthy Mortality Table projected with Scale BB to 2020, set back one year for males and with no setback for females.

Age	Rate (%)	
	Disability	Termination*
25	0.01	5.75
30	0.03	5.75
35	0.05	4.85
40	0.09	3.50
45	0.15	2.70
50	0.19	2.50
55	0.20	2.35
60	0.20	2.25

\* Rates for members with five or more years of service. Termination rates are zero for members eligible to retire.

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

Service	Rate (%)
	Termination (Based on Service)
0	13.25
1	11.00
2	8.75
3	7.25
4	5.75

**PROPOSED ACTUARIAL ASSUMPTIONS**  
(continued)

**Retirement Rates:**

<b>Age</b>	<b>Retirement Probability</b>			
	<b>Tier 1</b>		<b>Tier 2*</b>	
	<b>Non-55/30</b>	<b>55/30</b>	<b>Non-55/30</b>	<b>55/30</b>
50	6.0%	0.0%	0.0%	0.0%
51	3.0	0.0	0.0	0.0
52	3.0	0.0	0.0	0.0
53	3.0	0.0	0.0	0.0
54	16.0	0.0	0.0	0.0
55	6.0	20.0	3.5	8.0
56	6.0	14.0	3.5	7.0
57	6.0	14.0	3.5	7.0
58	6.0	14.0	3.5	7.0
59	6.0	14.0	3.5	7.0
60	6.0	14.0	5.5	7.0
61	6.0	14.0	5.5	9.0
62	7.0	15.0	5.5	11.0
63	7.0	15.0	5.5	13.0
64	7.0	16.0	5.5	16.0
65	12.0	17.0	12.0	19.0
66	12.0	17.0	12.0	19.0
67	12.0	17.0	12.0	19.0
68	12.0	17.0	12.0	19.0
69	12.0	17.0	12.0	19.0
70	100.0	100.0	100.0	100.0

\* In estimating retirement for Tier 2, we have retained the current Tier 1 structure of having two sets of retirement assumptions for members with and without 30 years of service. While there is no specific trigger upon reaching 30 years of service for Tier 2 (e.g., unreduced retirement or a maximum retirement allowance), members with 30 years of service are still considered more likely to retire than members with less service due to their higher benefit. Those with at least 30 years of service generally have a higher “replacement ratio” making them more able to retire and thus more likely to retire.

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

Pension benefit paid at the later of age 58 or the current attained age. For reciprocals, 4.40% compensation increases per annum.

**Exclusion of Inactive Vested:**

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:**

Male retirees are assumed to be 4 years older than their female spouses. Female retirees are assumed to be 2 years younger than their male spouses.

**PROPOSED ACTUARIAL ASSUMPTIONS**  
(continued)

<b>Service:</b>	Employment service is used for eligibility determination purposes. Benefit service is used for benefit calculation purposes.
<b>Future Benefit Accruals:</b>	1.0 year of service per year.
<b>Other Reciprocal Service:</b>	5% of future inactive vested members will work at a reciprocal system.
<b>Consumer Price Index:</b>	Increase of 3.25% per year; benefit increases due to CPI subject to 3.0% maximum.
<b>Employee Contribution and Matching Account Crediting Rate:</b>	Based on average of 5-year Treasury note rate. An assumption of 3.25% is used to approximate that crediting rate.

	Option A	Option B
<b>Net Investment Return:</b>	7.75%	7.50%
<b>Administrative Expenses:</b>	0.9% of payroll	N/A (implicit in net investment return)

**Salary Increases:** Inflation: 3.25%; plus additional 0.75% “across the board” salary increases (other than inflation); plus the following merit and promotional increases:

Service	Percentage Increase
0	6.50%
1	6.20%
2	5.10%
3	3.10%
4	2.10%
5	1.10%
6	1.00%
7	0.90%
8	0.70%
9	0.60%
10+	0.40%



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October 23, 2014

Mr. Tom Moutes  
General Manager  
Los Angeles City Employees' Retirement System  
202 West First Street, Suite 500  
Los Angeles, CA 90012-4401

**Re: The Los Angeles City Employees' Retirement System  
Adjustments to Reflect a Two-Year, a Three-Year, or a Modified Three-Year  
Phase-In of Incremental City Contribution Rates Resulting from Proposed New  
Actuarial Assumptions in 2014 Experience Study**

Dear Tom:

On October 14, 2014, as part of the Board's deliberations on the actuarial assumptions for use in the June 30, 2014 valuations, the Board also discussed the possibility of phasing in the cost impact of the proposed new actuarial assumptions (as recommended under Option B in the June 30, 2014 triennial experience study<sup>1</sup>) on the City's retirement and health plan contributions over either a two- or three-year period, beginning with the 2015-2016 fiscal year<sup>2</sup>. Subsequent to the October 14 Board meeting, LACERS' staff asked Segal Consulting to include the incremental costs for a "modified three-year" phase-in scenario, whereby none (0%) of the cost impact of the proposed new assumptions is phased-in during the first year, 50% is phased-in during the second year, and 100% is phased-in during the third year.

The recommended (i.e., pre-phase-in) contribution rates for Fiscal Year 2015-2016 will be developed in Segal Consulting's June 30, 2014 impending valuation reports<sup>3</sup>. This letter provides an estimate of the incremental "phased-in" contribution rates for Fiscal Year 2015-2016 and an analysis of the financial reporting and future contribution rate impact of a two-year, a three-year, or a modified three-year phase-in.

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<sup>1</sup> That is, a 7.50% investment return assumption without explicit loading for administrative expenses, along with the other actuarial assumptions recommended in the 2014 experience study report.

<sup>2</sup> Any changes in actuarial assumptions resulting from the 2014 experience study will first be reflected in the upcoming June 30, 2014 valuations (note that the contribution rates developed in the June 30, 2014 valuations will be effective for Fiscal Year 2015-2016). However, for illustrative purposes we have estimated the effect of these proposed assumption changes as if they applied in the June 30, 2013 valuations. These estimated costs are the basis for the results in this letter.

<sup>3</sup> Which are due to be issued in late November 2014.

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### INCREMENTAL PHASE-IN CONTRIBUTION RATES FOR 2015-2016

Table A below shows the estimated full impact of the proposed actuarial assumptions on the City's retirement and health plan contributions for Fiscal Year 2015-2016, assuming payment at the beginning of the year, on July 15, 2015, or at the end of each pay period. This is the portion of the increase over the contribution rates to be developed in the June 30, 2014 valuations that would be phased-in over either two or three years.

<b>Plan:</b>	<b>Estimated Full Impact of the Proposed New Actuarial Assumptions (percentage of payroll):</b>		
	<u>Beginning of Year</u>	<u>July 15</u>	<u>End of Pay Periods</u>
Retirement	2.68%	2.69%	2.76%
Health	<u>0.41%</u>	<u>0.41%</u>	<u>0.42%</u>
Total	3.09%	3.10%	3.18%

The incremental increases in the City contribution rates for the first year of the phase-in are simply one-half of the rates shown in Table A for a two-year phase-in, or one-third of the rates shown in Table A for a ("non-modified") three-year phase-in. (Note that there are no incremental increases for the first year of the phase-in under the modified three-year phase-in scenario.) These first-year phase-in rates are shown below in Tables B-1 (two-year phase-in) and B-2 (three-year phase-in) and would apply to contributions for Fiscal Year 2015-2016:

<b>Plan:</b>	<b>First-Year Phase-In of the Impact of the Proposed New Actuarial Assumptions (percentage of payroll):</b>		
	<u>Beginning of Year</u>	<u>July 15</u>	<u>End of Pay Periods</u>
Retirement	1.34%	1.35%	1.38%
Health	<u>0.21%</u>	<u>0.21%</u>	<u>0.21%</u>
Total	1.55%	1.56%	1.59%

<b>Plan:</b>	<b>First-Year Phase-In of the Impact of the Proposed New Actuarial Assumptions (percentage of payroll):</b>		
	<u>Beginning of Year</u>	<u>July 15</u>	<u>End of Pay Periods</u>
Retirement	0.89%	0.90%	0.92%
Health	<u>0.14%</u>	<u>0.14%</u>	<u>0.14%</u>
Total	1.03%	1.04%	1.06%

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Note that the actual rate impact for the remaining years of the phase-in would be slightly higher than simply adding another one-half (for the two-year phase-in), another one-third (for the three-year phase-in), or another 50% (for the modified three-year phase-in) of the full increases to the contribution rates for the preceding year. This is due to interest that would accrue on the portion of the total contribution rate increase that would not be made because of the phase-in.

The actual incremental increase in the City contribution rate due to the phase-in for the remaining years would be reflected in the new contribution rates determined at the time of each such future valuation. We have provided below in Tables C-1 (two-year phase-in), C-2 (three-year phase-in), and C-3 (modified three-year phase-in) an estimate of these incremental increases, with and without the phase-in, assuming payment by the employer on July 15<sup>th</sup>. These results illustrate the additional interest cost due to the phase-in.

**Table C-1: Contribution Increases Under Two-Year Phase-In;  
 Payment on July 15<sup>th</sup>**

<u>Fiscal Year</u>	<u>Pension Plan</u>		<u>Retiree Health Plan</u>		<u>Total</u>	
	<u>Without Phase-in</u>	<u>With Phase-in</u>	<u>Without Phase-in</u>	<u>With Phase-in</u>	<u>Without Phase-in</u>	<u>With Phase-in</u>
2015/16	2.69%	1.35%	0.41%	0.21%	3.10%	1.56%
2016/17	2.69%	2.81%	0.41%	0.43%	3.10%	3.24%

**Table C-2: Contribution Increases Under Three-Year Phase-In;  
 Payment on July 15<sup>th</sup>**

<u>Fiscal Year</u>	<u>Pension Plan</u>		<u>Retiree Health Plan</u>		<u>Total</u>	
	<u>Without Phase-in</u>	<u>With Phase-in</u>	<u>Without Phase-in</u>	<u>With Phase-in</u>	<u>Without Phase-in</u>	<u>With Phase-in</u>
2015/16	2.69%	0.90%	0.41%	0.14%	3.10%	1.04%
2016/17	2.69%	1.95%	0.41%	0.29%	3.10%	2.24%
2017/18	2.69%	2.92%	0.41%	0.44%	3.10%	3.36%

**Table C-3: Contribution Increases Under Modified Three-Year Phase-In;  
 Payment on July 15<sup>th</sup>**

<u>Fiscal Year</u>	<u>Pension Plan</u>		<u>Retiree Health Plan</u>		<u>Total</u>	
	<u>Without Phase-in</u>	<u>With Phase-in</u>	<u>Without Phase-in</u>	<u>With Phase-in</u>	<u>Without Phase-in</u>	<u>With Phase-in</u>
2015/16	2.69%	0.00%	0.41%	0.00%	3.10%	0.00%
2016/17	2.69%	1.57%	0.41%	0.25%	3.10%	1.82%
2017/18	2.69%	3.04%	0.41%	0.47%	3.10%	3.51%

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#### COMMENTARY ABOUT MODIFIED THREE-YEAR PHASE-IN

We would like to point out that the modified three-year phase-in scenario achieves the general goal of phasing in the full contribution rate impact of the proposed new actuarial assumptions prior to the effective date of the next triennial experience study<sup>4</sup>. However, we are not aware of any other retirement systems that have chosen to completely defer the entire contribution rate impact in the first year when new actuarial assumptions are used in the valuation.

Separately, we note that this is not an argument against using the modified three-year phase-in scenario; rather, we wanted to point out that, out of the three phase-in scenarios presented herein, the greatest level of interest charges for delayed recognition of the full costs of the proposed new assumptions would be experienced under the modified three-year phase-in scenario. (Out of the three phase-in scenarios presented herein, the least interest charges would be experienced under the two-year phase-in.)

In Table D below, we have provided the present value of the contribution shortfall as of July 15, 2015, under each of the phase-in scenarios. The amounts in Table D below represent the present value of the difference between (a) employer contributions assuming the full cost of the proposed new assumptions are paid each year, and (b) employer contributions assuming the phased-in costs are paid each year, where both have been discounted to a present value as of July 15, 2015.

**Table D: Present Value of Contribution Shortfall as of July 15, 2015**  
**(Dollars in Millions; Assumes Payments on July 15<sup>th</sup>)**

<u>Fiscal Year</u>	<u>Two-Year Phase-In</u>	<u>Three-Year Phase-In</u>	<u>Modified Three-Year Phase-In</u>
2015/16	\$28.5	\$38.2	\$57.2
2016/17	N/A	15.3	22.9
2017/18	N/A	N/A	N/A
Total	\$28.5	\$53.5	\$80.1

N/A = not applicable, as contribution shortfall is amortized and paid back over a 15-year period by the City.

As the contribution shortfall amounts provided above represent an actuarial loss, we have provided in Table E below the additional interest amounts that would accumulate over the 15-year amortization period currently used for actuarial losses.

<sup>4</sup> The next experience study is due to be performed for the three-year period ending June 30, 2017. Any changes from the 2017 experience study would first be reflected in the June 30, 2017 valuation, and the contribution rates developed in that valuation would be effective for Fiscal Year 2018-2019.

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**Table E: Additional Interest Attributable to Contribution Shortfall  
 (Dollars in Millions; Assumes Payments on July 15<sup>th</sup>)**

<b><u>Two-Year Phase-In</u></b>	<b><u>Three-Year Phase-In</u></b>	<b><u>Modified Three-Year Phase-In</u></b>
\$20.9	\$39.1	\$58.7

**IMPACT OF TWO-YEAR OR THREE-YEAR PHASE-IN ON FINANCIAL REPORTING  
 FOR RETIREE HEALTH PLAN ONLY**

The health plan contribution rates recommended in Segal's June 30, 2013 actuarial valuation report satisfy the parameters required for determining the Annual Required Contribution (ARC) under Governmental Accounting Standards Board (GASB) Statements No. 43 and 45 for the 2014-2015 fiscal year, including the requirement that the Equivalent Single Amortization Period (ESAP) for the System's Unfunded Actuarial Accrued Liability be amortized over an equivalent single period of no longer than 30 years<sup>5</sup>. Those requirements are met before any phase-in, and reflect the full contribution rate impact of the new actuarial assumptions.

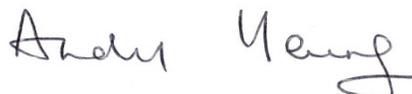
Applying the assumption changes to the June 30, 2013 valuation results in an ESAP that is shorter than 30 years after the phase-in. We have estimated that contributing the phase-in rates for 2015-2016 will not result in the City recording a liability (Net OPEB Obligation or "NOO"). However, the June 30, 2014 valuation will determine the actual ESAP and if any NOO is to be recorded.

If you have any questions, please let us know.

Sincerely,



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



Andy Yeung, ASA, MAAA, FCA, EA  
 Vice President and Associate Actuary

DNA/bqb

<sup>5</sup> It should be noted that a similar requirement used to apply under the old GASB Statements No. 25 and 27 for the Pension Plan. However, that requirement no longer applies under the new GASB Statements No. 67 and 68.