

**VENTURA COUNTY EMPLOYEES'  
RETIREMENT ASSOCIATION**

**Review of Economic Actuarial Assumptions  
for the June 30, 2007 Actuarial Valuation**



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June 26, 2007

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

**Re: Review of Economic Actuarial Assumptions  
for the June 30, 2007 Actuarial Valuation**

Dear Members of the Board:

We are pleased to submit this report of our review of the June 30, 2007 economic actuarial assumptions of the Ventura County Employees' Retirement Association. This report includes our recommendations and the analysis supporting their development.

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

Sincerely,

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

John Monroe, ASA, EA, MAAA  
Associate Actuary

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**TABLE OF CONTENTS**

Page

I. INTRODUCTION, SUMMARY, AND RECOMMENDATIONS .....1

II. BACKGROUND AND METHODOLOGY .....3

III. ECONOMIC ASSUMPTIONS .....4

## I. INTRODUCTION, SUMMARY, AND RECOMMENDATIONS

To project the cost and liabilities of the pension fund, assumptions are made about all future events that could affect the amount and timing of the benefits to be paid and the assets to be accumulated. Each year actual experience is compared against the 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. Adjusting contributions as gains or losses occur without making a change in the assumptions is appropriate if the deviation from projections is considered temporary and if, over the long run, experience is expected to return to what was originally assumed. Changing assumptions reflects a basic change in thinking about the future, and it has a much greater effect on the current contribution requirements than the gain or loss for a single year.

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

This study was undertaken in order to review the economic actuarial assumptions. The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 27, “Selection of Economic Assumptions for Measuring Pension Obligations.” This Standard of Practice puts forth guidelines for the selection of the economic actuarial assumptions utilized in a pension plan actuarial valuation.

Our recommendations for the economic actuarial assumptions for the June 30, 2007 Actuarial Valuation are as follows:

**Investment Return** - The estimated average future net rate of return on current and future assets of the Association as of the valuation date. This rate is used to discount liabilities.

**Recommendation:** *Maintain the current rate at 8.00% per annum.*

**Inflation** – Future increases in the cost-of-living index which drives investment returns and active member salary increases, as well as COLA increases to retired employees.

**Recommendation:** *Maintain the rate at 3.75% per annum.*

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

This assumption has three components:

- Inflationary salary increases.
- Real “Across the Board” salary increases.
- Promotional and merit increases.

**Recommendation:** *Maintain the inflationary salary increase assumption at 3.75% and maintain the real “across the board” salary increase assumption at 0.50%. The promotional and merit increase assumption was reviewed as part of the 2002-2005 actuarial experience study. It is 0.75% for those with five or more years of service and larger for those members with under five years of service.*

#### **Frequency of Review of Economic Actuarial Assumptions**

**Recommendation:** *Review the economic actuarial assumptions every three years in conjunction with the triennial experience study of non-economic assumptions.*

Section II provides some background on basic principles and the methodology used for the review of the economic actuarial assumptions. A detailed discussion of each of the economic assumptions and reasons behind the recommendations is found in Section III.

## II. BACKGROUND AND METHODOLOGY

For this study, we analyzed “economic” assumptions only. The primary economic assumptions reviewed are inflation, investment return, and salary increases.

### *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. Payments to the Unfunded Actuarial Accrued Liability (UAAL) are assumed to increase each year by the inflation rate (plus any “across the board” pay increases that are assumed).

*Investment Return* – Expected return on the Association’s investments after expenses. This assumption has a significant impact on contribution rates.

*Salary Increases* – In addition to inflationary increases, it is assumed that employees will receive raises from promotions and step increases. These are commonly referred to as merit and promotional increases. Salaries will also grow by any “across the board” real pay increases that are assumed as a result of labor’s share of productivity gains.

The setting of these assumptions is described in Section III.

### III. ECONOMIC ASSUMPTIONS

The investment return assumption is comprised of two components: (i) Inflation; and (ii) Real Rate of Return.

#### *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 and 30 year moving averages of historical inflation rates:

#### **Historical Consumer Price Index – 1931 to 2006**

(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	2.8%	3.7%	5.0%
30 year moving averages	3.3%	4.3%	5.0%

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

VCERA’s investment consultant, Ennis Knupp, anticipates an annual inflation rate of 2.40%. Note that, in general, the investment consultants’ time horizon for this assumption is shorter than the time horizon we use for the actuarial valuation.

In a 2006 public fund survey published by the National Association of State Retirement Administrators (NASRA), the median inflation assumption used by 112 large public retirement funds in their 2005 actuarial valuations was 3.50%.

**Based on all the above information, we recommend that the current 3.75% inflation assumption be maintained for the June 30, 200~~6~~<sup>7</sup> valuation.**

### ***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, as 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.

Following is the Association's target asset allocation as of April, 2007 and the assumed real rate of return assumptions by asset class. The first column of real rate of return assumptions are determined by reducing Ennis Knupp's total return assumptions by their assumed 2.4% annual inflation rate. The second column of returns represents the average of a sample of real rate of return assumptions. The sample includes the expected annual real rate of returns provided to us by Ennis Knupp as well as seven other investment advisory firms retained by Segal's public sector clients. We believe these assumptions reflect a reasonable consensus forecast of future market returns.

#### **VCERA Target Asset Allocation as of April, 2007 and Assumed Real Rate of Return Assumptions by Asset Class and for the Portfolio**

<b>Asset Class</b>	<b>Percentage of Portfolio</b>	<b>Ennis Knupp's Assumed Real Rate of Return<sup>(1)</sup></b>	<b>Average from a Sample of Consultants to Segal's Public Sector Clients' Real Rate of Return<sup>(2)</sup></b>
Large Cap Equity <sup>(3)</sup>	40%	6.20%	6.52%
Small Cap Equity	9%	6.20%	7.26%
International Equity <sup>(3)</sup>	16%	6.20%	6.95%
Fixed Income	28%	3.20%	2.73%
Real Estate	<u>7%</u>	<u>5.00%</u>	<u>4.77%</u>
Total	100%	5.28%	5.47%

(1) Derived by netting Ennis Knupp's rate of return assumptions by their assumed 2.4% inflation rate.

(2) Including the City of Los Angeles and the county retirement systems of Alameda, Contra Costa, San Diego, Orange, Sacramento, San Bernardino and Ventura counties.

(3) There is an allocation of 4% to global equity that is being split by allocating 2% to large cap equity and 2% to international equity.

These are based on projected arithmetic returns provided by the investment advisory firms.



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

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

The following are some observations about the returns provided above:

1. The investment consultants to our California public sector 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 durations of a retirement plan’s liabilities.
2. Using an average of expected real rate of returns allows the Association’s investment return assumption to include a broader range of capital market information and should help reduce year to year volatility in the Association’s investment return assumption.
3. We recommend that the 5.47% portfolio real rate of return be used to determine the Association’s investment return assumption. This is 0.03% lower than the return we calculated last year. This difference is due to changes in real rate of return assumptions provided to us by the eight investment advisory firms.

***Association Expenses***

The real rate of return assumption for the portfolio needs to be adjusted for administrative and investment expenses expected to be paid from investment income. The following table provides these expenses in relation to the actuarial value of assets for the five years ending June 30, 2006.

**Administrative and Investment Expenses as a Percentage of Actuarial Value of Assets**

Year Ending June 30	Administrative %	Investment %	Total %
2002	0.15%	0.23%	0.38%
2003	0.10%	0.21%	0.31%
2004	0.13%	0.27%	0.40%
2005	0.13%	0.27%	0.40%
2006	<u>0.12%</u>	<u>0.30%</u>	<u>0.42%</u>
Average	0.13%	0.25%	0.38%

The average expense percentage over this five year period is 0.38%. Based on this experience, we have applied a future expense assumption component of 0.40%.

### ***Risk Adjustment***

The real rate of return assumption for the portfolio needs to be adjusted to reflect the potential risk of shortfalls in the return assumptions. The Association's asset allocation also determines this portfolio risk, since risk levels also are expected to vary by asset class. This portfolio risk is incorporated into the real rate of return assumption through a risk adjustment.

Last year, the Board adopted an investment return assumption of 8.00%. That return implied a risk adjustment of 0.85%, reflecting a confidence level (discussed below) of 61%. This year, retaining the current 8.00% net investment return assumption in conjunction with the inflation, real return, and expense components recommended earlier in this report, would produce an implied risk adjustment of 0.82%. Using the annual portfolio standard deviation of 11.41% provided by Ennis Knupp that has been calculated using the asset allocation adopted by the Board, this would provide a confidence level of about 61% that the actual average return over 15 years would not fall below the assumed 8.00% return, provided that the distribution of returns over that period follows the Normal statistical distribution<sup>1</sup>. We have used this 61% confidence level to set this year's risk adjustment.

### ***Recommended Investment Return Assumption***

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

<u>Calculation of Net Investment Return Assumption</u>	
<u>Assumption Component</u>	<u>Value</u>
Inflation	3.75%
Plus Portfolio real rate of return	5.47%
Minus Expense Adjustment	(0.40%)
Minus Risk Adjustment	<u>(0.82%)</u>
Total	8.00%

**Based on this calculation, we recommend that the investment return assumption be maintained at 8.00%.**

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<sup>1</sup> The theory that long term investment returns follows a Normal distribution is debatable; however, we believe the Normal distribution assumption is not unreasonable for purposes of setting the risk adjustment.

### ***Salary Increase Assumption***

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

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

1. 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 may require an employer to maintain its employees' standards of living.

**As discussed earlier in this report, we are recommending an inflation rate of 3.75%. This inflation component will be used as part of the salary increase assumptions.**

2. Real "Across the Board" Pay Increases – These increases are sometimes 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 have averaged about 0.7% - 1.0% annually during the last 10 – 20 years.

**Considering these factors, we recommend maintaining the real "across the board" salary increase assumption at 0.50%.**

3. Promotional and Merit Increases – As the name implies, these increases come from an employee’s career advances. This form of pay increase differs from the previous two, since it is specific to the individual. The assumption is structured as a function of an employee’s service, and it is derived from employee-specific information as part of the triennial experience study.

**For the June 30, 2007 valuation, we will use the current promotional and merit increases (0.75% for members with five or more years of service and larger for members with under five years of service) that were recommended in our 2002-2005 actuarial experience study.**

4. All three of these forces are incorporated into a salary increase assumption which is applied in the actuarial valuation to project future benefits and future normal cost contribution collections. The recommended assumptions, unchanged from the 2006 valuation, are as follows:

<b>Total Salary Increase Assumptions</b>		
<b>(Inflation plus Real “Across the Board” plus Merit and Promotional Increases)</b>		
<b>Years of Service</b>	<b>Recommended General Members’ Salary Increase Assumptions</b>	<b>Recommended Safety Members’ Salary Increase Assumptions</b>
0	7.75%	11.25%
1	7.25%	10.00%
2	6.75%	9.00%
3	6.25%	7.50%
4	5.75%	6.25%
5+	5.00%	5.00%

***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.

**The active member payroll increase assumption to be used in the June 30, 2007 valuation will be 4.25% annually, consistent with the combined inflation plus real “across the board” salary increase assumptions.**

***Frequency of Review of Economic Actuarial Assumptions***

Currently the economic actuarial assumptions are reviewed on an annual basis. We are recommending that the economic actuarial assumptions be studied every three years at the time of the triennial experience study. This is based on the practice that some retirement systems follow and should provide for more stable employer and member contribution rates. If there are any major changes to the asset allocation or other factors that might significantly affect the economic assumptions, the Board could authorize a review at an earlier date, as appropriate.

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