Santa Barbara County Employees' Retirement System

2007 INVESTIGATION OF EXPERIENCE

For the period July 1, 2003 to June 30, 2007

Revised January 2008

by

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January 17, 2008

Board of Retirement
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Dear Members of the Board:

It is a pleasure to submit this final report of our investigation of the experience of the Santa Barbara County Employees' Retirement System from July 1, 2003 through June 30, 2007. Most of the material in this report was issued previously as a report dated October 16, 2007 incorporating action taken by the Board at its meeting on October 11, 2007 to approve and adopt several recommendations from an earlier draft report.

This third version of the report reflects additional action taken by the Board at it's meeting on December 19, 2007 when it approved and adopted additional assumptions discussed with Milliman regarding the deferred vested member retirement age, OPEB and Safety Plan 6 benefits. This restated report does not change our recommendations, or assumptions adopted by the Board and the related cost information; it is provided to document all assumption changes and recommendations in one document for reference purposes. It also includes additional information in the Executive Summary as requested by the Board. Other modifications since the previous report dated October 16, 2007 are stated below.

Sections 7 (and Exhibit 7-3) and 8 are modified to reflect the number of service-connected disabilities experienced by the System over the study period. Section 12 is modified for the recommended change in assumed retirement age for vested terminated members. Section 13 is added to discuss assumptions approved and adopted by the Board specific to Other Post-Employment Benefits (OPEB), and Section 14 is included to discuss service retirement rates for the new Safety Plan 6.

The results of this investigation are the basis for recommended changes in actuarial assumptions for the June 30, 2007 actuarial valuation. These changes will be used to analyze the funding status of the system, for determining the employer contribution rates, for disclosing employer liabilities on financial statements, and for analyzing the fiscal impact of proposed benefit changes.

The purpose of this report is to communicate the results of our review of the actuarial methods and the economic and demographic assumptions to be used in the completion of the upcoming valuation. Our recommendations represent changes from the prior methods or assumptions adopted by SBCERS, and are designed to better anticipate the emerging experience of the System.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by SBCERS' staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the experience study results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions, and supporting Recommendations of the American Academy of Actuaries.

We further certify that the assumptions developed in this report satisfy ASB Standards of Practice, in particular, No. 27 (Selection of Economic Assumptions for Measuring Pension Obligations) and No. 35 (Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations).

Milliman's work product was prepared exclusively for SBCERS for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning SBCERS' operations, and uses SBCERS' data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

We would like to acknowledge the help in the preparation of the data for this investigation given by the SBCERS staff.

We, Karen Steffen and Daniel Wade, are members of the American Academy of Actuaries and Fellows of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

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Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

TABLE OF CONTENTS

		Page
Section 1	**Executive Summary and Recommendations**	**1**
Section 2	**Introduction**	**14**
Section 3	**Actuarial Methods**	**20**
Section 4	**Economic Assumptions**	**24**
Exhibit 1	US City Average, All Urban Consumers (CPI-U) - December	28
Exhibit 2	Los Angeles-Riverside-Orange County, CA Consumer Price Index - Annual	29
Exhibit 3	National Average Wage Index	41
Exhibit 4-1	Analysis of Alternative Investment Return Assumptions	44
Exhibit 4-2	PCA's Capital Market Assumptions	47
Exhibit 4-3	Milliman's Capital Market Assumptions	48
Section 5	**Salary Increases Due to Promotion and Longevity (Merit Increases)**	**49**
Section 6	**Death from Active Status**	**52**
Section 7	**Service Retirement**	**53**
Section 8	**Disability Retirement**	**55**
Section 9	**Termination**	**57**
Section 10	**Probability of Refund**	**59**
Section 11	**Retiree Mortality for Valuation Purposes**	**60**
Section 12	**Miscellaneous Assumptions**	**64**
Section 13	**Assumptions for Post Employment Benefits Other than Pensions**	**66**
Section 14	**Service Retirement – Safety Plan 6**	**69**
Appendix A	**Proposed Actuarial Procedures and Assumptions**	**A-1**
Table A-1:	Summary of Valuation Assumptions as of June 30, 2006	8
Table A-2:	Mortality for Members Retired for Service	9
Table A-3:	Mortality for Members Retired for Disability	10
Table A-4:	Immediate Refund of Contributions Upon Termination of Employment	11
Table A-5:	Annual Increase in Salary - General	12
Table A-6:	Annual Increase in Salary - Safety	13
Table A-7:	Rate of Separation From Active Service For General Members All Plans - Male	14
Table A-8:	Rate of Separation From Active Service For General Members All Plans - Female	15
Table A-9:	Rate of Separation From Active Service For Safety Members Plan 4 - Male	16
Table A-10:	Rate of Separation From Active Service For Safety Members Plan 4 - Female	17
Table A-11:	Rate of Separation From Active Service For Safety Members Plan 6 - Male	18
Table A-12:	Rate of Separation From Active Service For Safety Members Plan 6 - Female	19
Appendix B	**Graph Exhibits for Sections 5-12**	**B-1**

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

Section 1

Executive Summary and Recommendations

Just as certain investment choices have an associated "investment risk," choices in actuarial assumptions have an associated "actuarial risk." Determining the adequacy of the current contribution rates is dependent on the assumptions we use to project the future benefit payments and then to discount the value of future benefits to determine the present values. Thus, it is important that the Board understand the sensitivity of the actuarial calculations to the underlying assumptions.

The actuarial valuation and assumptions do not necessarily determine the benefits that are provided to SBCERS members, but they are critical in assisting the system in adequately pre-funding for the benefits prior to retirement and in understanding the impact of granting any additional discretionary benefit increases.

Summary

This section describes the key findings of this investigation of experience. Initially, we recommended several significant changes to the demographic assumptions. We called these the "Proposed Assumptions". In total, the proposed demographic assumptions would result in an increase in the calculated County contribution rate. These changes, along with a change in the application of the withdrawal assumption, resulted in a substantial increase in the calculated contribution rates. We had also recommended that the Board consider changes in the economic assumptions, including a lower investment return assumption. If a lower investment return assumption were adopted, there would be an additional material increase in the calculated contribution rates.

Recognizing that the County and SBCERS may not be able to implement the strengthening of all of these assumptions at once, there are a few assumptions where we felt we could modify the Proposed Assumptions to something that is still within the range of reasonableness. The Board reviews assumptions every three years and can address some assumptions to see if additional adjustments are still needed at a later date. Thus, we included Alternative Assumptions for the Board to consider regarding the salary merit increase assumption, the service retiree mortality assumption and the investment return rate. Based on discussions with the Board, the Adopted Assumptions used the Alternative Assumptions presented in the report with the one exception regarding the service retiree mortality assumption. The Proposed Assumption for service retiree mortality, which provided a margin for anticipated longevity growth for active members, was adopted.

Introduction

Section 2 discusses the following:

- The "actuarial risk" associated with setting actuarial assumptions.
- How the investigation of experience study was performed.
- Our philosophy in setting actuarial assumptions.
- Actuarial Standards of Practice No. 27 and No. 35.
- The presentation of results you will see in this report.

Actuarial Methods

Section 3 describes the actuarial methods used in performing our valuation. We are recommending several changes in the actuarial valuation methods. We also recommend updating the member contribution rates and the operating tables used by SBCERS to reflect the Adopted Assumptions.

Economic Assumptions

Section 4 discusses the economic assumptions: price inflation, general wage growth (includes price inflation and productivity) and the investment return assumption. For the reasons outlined in this section, we recommended that the Board adopt the following changes in the economic assumptions:

- ✓ Price Inflation: Lower rate from 4.00% to 3.50%.
- ✓ Investment Return: Consider a lower rate. Our recommendation is 8.00%, but we are comfortable with a rate that falls in the 7.25% to 8.16% range.
- ✓ General Wage Growth: Retain the current rate of 4.00%. If lower price inflation is adopted, this is actually a change relative to that assumption. We recommended that the general wage growth assumption reflect a 0.50% increase due to productivity above price inflation. The current assumptions assume the general wage growth and price inflation are the same.

These recommendations reflect recent changes in the national and global economies. The current assumptions fall within our expected range of reasonableness, but at a much more aggressive end of the range. Thus, we believe it is appropriate for the Board to consider if a change is needed at this time. In subsequent discussions, the Board did adopt the 3.50% inflation and a 4.00% wage growth assumptions but kept the investment return assumption at 8.16%. In addition, the impact of excess earnings benefits in the future is critical to projecting future investment returns. For purposes of this study, we assumed there would be no ongoing excess earnings allocations.

For informational purposes, we evaluated the financial impact of a change in the investment return assumption from the current 8.16% to 8.00%, to 7.75% and to 7.50%, based on the new recommended price inflation assumptions. The result of that study is discussed in Section 4.

Merit Salary Increases

Section 5 discusses the individual salary increases due to promotion and longevity – the merit component of salaries. We have recommended changing this assumption from an age-related basis to a service (duration)-related basis. The impact of the change is shown graphically in Appendix B. Note that these assumed annual pay increases are in addition to

the general wage growth assumption of 4.00%. The Alternative set of assumptions was adopted by the Board.

Death from Active Status

Section 6 discusses the probability an active member dies. Since SBCERS has little creditable experience, we are recommending using the same mortality tables used for retired members.

Service Retirement

Section 7 discusses the probability an eligible active member takes a service retirement. The results of our study were fairly consistent with the current rates for General Male and Safety members. However, the study indicated a much higher incident rate for General Females. We have recommended higher rates for all members. We improved the expected experience between ages 50 and 70 for General members and before age 60 for Safety members.

Due to recent benefit enhancements the past four-year period may show higher retirement rates than in the past, but some delays in retirement patterns could still be occurring. In addition, earlier retirements can be more expensive due to the longer period over which to pay benefits and fewer years to collect contributions, but benefits tend to be at a comparatively lower rate so the aggressiveness of this assumption is still reasonable.

Disability Retirement

Section 8 discusses the probability an active member becomes disabled. We studied both service-connected disability (no service requirement) and nonservice-connected disability (requires vested status).

- The current assumptions for service-connected disability expected 19 total disablements and 18 actually occurred, resulting in a total Actual-to-Expected ratio of 95%.
- The current assumptions for nonservice-connected disability expected 12 disablements during the study period and 11 actually occurred, resulting in a total Actual to Expected ratio of 92%.

Due to the relatively small amount of creditable experience, and the study results, we are not making any changes in the disability assumptions.

Termination

Section 9 summarizes the results of our study of terminations of employment for reasons other than death, service retirement, or disability. We are recommending changes as follows:

- Change from an age-related basis to a service (duration)-related basis. The comparative impact of this change is much greater for General members than for Safety members. The comparison is shown graphically in Appendix B.
- Apply termination rates in total, and then add a new assumption regarding the probability of withdrawing (taking a refund).

Probability of Refund

In Section 10, we recommend this assumption as part of our termination rate changes. We are recommending slightly lower rates especially for longer service members that are based on the member's years of service at termination.

Retiree Mortality

Section 11 discusses the probability a retired member dies. There were 225 retiree deaths during the period as compared to 241 expected, based on the current assumptions, resulting in a total Actual-to-Expected ratio of 93%. Although, the overall results are fairly consistent, the number of deaths for healthy female retirees was slightly less than expected. We have recommended strengthening the assumptions for all retirees (i.e., lower the probabilities of death) to provide a margin for the expected future improvements in mortality. An actual-to-expected result of 110% should provide a reasonable margin to reflect expected increases in longevity for active members. The Alternative Assumptions removed any margin for future longevity improvements but moved the valuation basis to a more current mortality table. The proposed disabled retiree mortality assumption was not changed for the Alternative Assumptions.

The Board adopted the recommended Proposed Assumption that provides the 10% margin for expected increases in longevity for active members.

Miscellaneous Assumptions

Section 12 discusses some other assumptions that are made. Subsequent to the Board discussions in October, we realized the assumed retirement age for deferred vested members was significantly higher than the experience over the study period. Therefore, we asked the Board to make a change in that assumption which was adopted in December 2007. We are not making any changes to any other assumptions discussed here.

OPEB Assumptions

Section 13 discusses the actuarial assumptions that are required for the OPEB valuation that are not used to determine the value of the pension benefits. This section summarizes the different assumptions and makes recommendations that the Board adopted in December 2007.

Safety Plan 6 Assumptions

Section 14 discusses a change in the assumed service retirement rates for the new Safety Plan 6 members. The new Plan 6 members will be earn a full unreduced retirement benefit at age 50 rather than at age 55 under Plan 4. Therefore, we recommended assuming a greater probability of retiring for all ages prior to 54. Since the new Plan 6 will not go into effect until early 2008, there is no actual experience upon which to base this assumption. Our recommendation is based on our actuarial judgment and experience with other 37 Act systems that have adopted the same benefit provisions. SBCERS experience will be measured during the next experience study in 2010.

Summary of Recommendations

The following chart summarizes the assumptions adopted by the Board at the October 11, 2007 and the December 19, 2007 meetings. The next section provides an overview of the financial impact of the Proposed, the Alternative and then the final Adopted Assumptions.

Assumption	*Recommendation*
Actuarial Methods	Change the method of applying the 2006 Safety Plans 4C and 4D benefit changes. Change the application method regarding termination rates past retirement eligibility age. Apply the correct member contribution rates for General 5 members.
Economic	Investment Return: 8.16% (no change) Price Inflation: 3.50% (currently 4.00%) General Wage Increase: No Change in total rate, but it is comprised of 3.50% price inflation and a 0.50% assumption regarding wage productivity (4.00%). Payroll Increase: No Change (4.00%).
Merit Salary Increase	New table with much smaller increases for members with more than eight years of service. The Adopted Assumptions used lower increases than those measured by actual experience primarily due to the fact this was the first time it had been measured based on service and because it was so much higher than experience observed in other systems.
Death While Active	Changed to be same basis as is used for retired members.
Service Retirement	Small changes for General Male members; increased rates for General female members. Adopted new rates for Safety Plan 6.
Disability Retirement	No changes.
Termination	1. Adopt lower rates based on service for members with more than eight years of service. 2. Study total termination rates and then apply probability of taking a refund.
Probability of Refund	Adopt rates for General and Safety members based on years of service.
Retiree Mortality	Healthy Service and Disabled Retirees: Adopt new tables with lower rates of mortality for all plans. Alternative Assumptions have very little margin for future longevity improvements. The Board adopted the Proposed Assumption which included the margin for future longevity improvements.
Miscellaneous	Lowered the assumed retirement age for deferred vested members, no other changes.
OPEB	Included a section on assumptions used to value the OPEB benefits.

Financial Impact

Overall, the financial impact of the Proposed Demographic Assumptions is significant. If the investment return assumption had been lowered, the impact would have been more significant. The following exhibit is designed to give the reader an idea of how the Proposed Assumption package would have affected SBCERS as a whole.

The financial impact was evaluated by performing additional valuations with the Modified June 30, 2006 valuation data and benefits, and reflecting the recommended assumption changes. This allows us to evaluate the relative financial impact of the various recommended changes. Note that the relative impact of the various assumption changes by component is somewhat dependent on the order in which they are evaluated.

The costs illustrated in the table below were based on the Modified June 30, 2006 valuation using the Proposed Method Changes as discussed in Section 3 of this report. Note that the financial impact of the demographic assumption changes shown below was based on the current 8.16% investment return assumption.

SBCERS
Financial Impact of Proposed Assumptions on 6/30/2006 Valuation

		Actuarial Accrued Liability	County Normal Cost Rate	UAAL Rate	Total County Contribution Rate
A.	**June 30, 2006 Buck Valuation**	$ 1,671.8	11.80%	9.29%	21.09%
B.	**June 30, 2006 Milliman Replication Valuation**	$ 1,676.0	11.13%	9.35%	20.48%
C.	**Modified June 30, 2006 Valuation**	$ 1,758.0	13.18%	11.69%	24.87%
D.	**Proposed Demographic Changes**				
	Termination Rates & Refund %	9.9	1.37%	0.31%	1.68%
	Service Retirement Mortality	48.7	0.51%	1.53%	2.04%
	Rates of Retirement	18.5	0.27%	0.58%	0.85%
	Merit Salary	(10.6)	-1.50%	-0.33%	-1.83%
	Total Demographic Changes	$ 66.5	0.66%	2.08%	2.74%
E.	**Proposed Economic Changes**				
	Investment Return = 8.00%	$ 39.1	0.78%	1.22%	2.01%
F.	**Combined Change (D + E)**	**$ 105.6**	**1.44%**	**3.31%**	**4.75%**
G.	**Revised June 30, 2006 Valuation**	**$** 1,863.6	14.62%	15.00%	29.62%

We would strongly caution the Board from making actuarial assumption decisions based solely on the financial impact. The final assumptions adopted by the Board should be within the reasonableness range. The assumptions should represent the Board's best estimate and judgment regarding the long-term future economic conditions of SBCERS and all of the issues discussed in this report.

However, we recognize that the County and SBCERS may not be able to implement the strengthening of all of these assumptions at once. There are a few assumptions where we can modify the Proposed Assumption to something that is still within the range of reasonableness. Thus, we have included Alternative Assumptions for the Board to consider

regarding the salary merit increase assumption, the service retiree mortality assumption, and the investment return rate. The financial impact of the Alternative Assumptions on the Modified June 30, 2006 valuation is shown below:

SBCERS
Financial Impact of Alternative Assumptions on 6/30/2006 Valuation

		Actuarial Accrued Liability	County Normal Cost Rate	UAAL Rate	Total County Contribution Rate
A.	**June 30, 2006 Buck Valuation**	$ 1,671.8	11.80%	9.29%	21.09%
B.	**June 30, 2006 Milliman Replication Valuation**	$ 1,676.0	11.13%	9.35%	20.48%
C.	**Modified June 30, 2006 Valuation**	$ 1,758.0	13.18%	11.69%	24.87%
D.	**Alternate Demographic Changes**				
	Termination Rates & Refund %	9.9	1.37%	0.31%	1.68%
	Service Retirement Mortality	10.6	0.05%	0.33%	0.38%
	Rates of Retirement	20.0	0.31%	0.63%	0.93%
	Merit Salary	(35.3)	-2.61%	-1.11%	-3.72%
	Total Demographic Changes	$ 5.2	-0.88%	0.16%	-0.72%
E.	**Alternate Economic Changes**				
	Investment Return = 8.16%	$ 0.0	0.00%	0.00%	0.00%
F.	**Combined Change (D + E)**	**$ 5.2**	**-0.88%**	**0.16%**	**-0.72%**
G.	**Revised June 30, 2006 Valuation**	**$** 1,763.2	12.30%	11.85%	24.15%

Board Action on October 11, 2007

After discussing the various Alternative Assumptions and the issues associated with the three assumptions under consideration, the Board adopted the Alternative salary merit increase assumption, left the investment return rate at 8.16%, and adopted the Proposed Service Retirement Mortality Assumption. The financial impact of the Adopted Assumptions is shown below. Note the discussion regarding Member Contribution Rates which follows. The estimated financial impact illustrated above for both the Proposed and the Alternative Assumption did *not* include any changes to the current member contribution rates. The estimated impact on the total costs due to the Adopted Assumptions on the member rates as shown in the Tables 1-3 of this section was an increase in the County Contribution Rate of approximately 0.60% of pay.

Board Action on December 19, 2007

Of the three assumption changes adopted in December, only the new deferred retirement age for vested terminated members would have impacted the 2006 valuation results. This change in assumptions is added along with the Adopted Assumptions to indicate the financial impact of the final set of assumptions adopted for the 2007 valuation.

SBCERS
Summary of Financial Impact on 6/30/2006 Valuation for all Pension Benefit Assumption Changes

		Actuarial Accrued Liability	County Normal Cost Rate	UAAL Rate	Total County Contribution Rate
A.	**June 30, 2006 Buck Valuation**	$ 1,671.8	11.80%	9.29%	21.09%
B.	**June 30, 2006 Milliman Replication Valuation**	$ 1,676.0	11.13%	9.35%	20.48%
C.	**Modified June 30, 2006 Valuation**	$ 1,758.0	13.18%	11.69%	24.87%
D.	**Adopted Demographic Changes ***				
	Termination Rates & Refund %	9.9	1.37%	0.31%	1.68%
	Service Retirement Mortality	48.7	0.51%	1.53%	2.04%
	Rates of Retirement	18.5	0.27%	0.58%	0.85%
	Merit Salary	(35.3)	-2.17%	-1.11%	-3.28%
	Deferred Retirement Age	3.6	0.18%	0.11%	0.29%
	Total Demographic Changes	$ 45.4	0.16%	1.42%	1.58%
E.	**Adopted Economic Changes**				
	Investment Return = 8.16%	$ 0.0	0.00%	0.00%	0.00%
F.	**Combined Change (D + E)**	**$ 45.4**	**0.16%**	**1.42%**	**1.58%**
G.	**Revised June 30, 2006 Valuation**	**$** 1,803.4	13.34%	13.11%	26.45%
	General Plan 5A		12.14%	12.11%	24.25%
	General Plan 5B		10.76%	12.11%	22.87%
	General Plan 2		2.73%	12.11%	14.84%
	Safety Plan 4A		19.61%	15.94%	35.55%
	Safety Plan 4B		16.06%	15.94%	32.00%
	Safety Plan 4C		19.64%	15.94%	35.58%
	Safety Plan 4D		19.52%	15.94%	35.46%
	APCD Plan 1		14.54%	13.49%	28.03%
	APCD Plan 2		12.61%	13.49%	26.10%

** All assumption changes except Deferred Retirement Age were approved and adopted at the October 2007 Board meeting. The Deferred Retirement Age assumption change was approved and adopted at the December 2007 Board meeting.*

SBCERS
Analysis of Assumption Changes by Plan

	APCD Plan 1	APCD Plan 2	General Plan 5A	General Plan 5B	General Plan 2	Safety Plan 4A	Safety Plan 4B	Safety Plan 4C	Safety Plan 4D	Grand Total
County Normal Cost Rate as of July 1, 2006 Milliman Replication	**11.14%**	**11.09%**	**8.45%**	**8.99%**	**3.05%**	**18.02%**	**15.20%**	**18.92%**	**18.83%**	**11.13%**
Milliman Methodology Change	3.40%	2.13%	3.02%	2.16%	0.27%	1.24%	0.63%	0.33%	0.41%	2.05%
Withdrawal Assumption Change	2.24%	0.36%	2.93%	0.70%	0.67%	1.20%	0.21%	0.58%	0.66%	1.37%
Mortality Assumption Change	0.55%	0.60%	0.51%	0.53%	0.11%	0.50%	0.52%	0.52%	0.48%	0.51%
Retirement Assumption Change	-0.05%	0.05%	0.03%	0.05%	-0.23%	0.98%	0.89%	0.90%	0.91%	0.27%
Salary Scale Assumption Change	-2.99%	-1.80%	-2.96%	-1.80%	-1.14%	-2.37%	-1.42%	-1.65%	-1.80%	-2.17%
Deferred Ret Age Assumption Change	0.25%	0.18%	0.16%	0.13%	0.00%	0.04%	0.03%	0.04%	0.03%	0.18%
County Normal Cost Rate as of Experience Study	**14.54%**	**12.61%**	**12.14%**	**10.76%**	**2.73%**	**19.61%**	**16.06%**	**19.64%**	**19.52%**	**13.34%**
UAAL Rate as of July 1, 2006 Milliman Replication	**8.20%**	**8.20%**	**8.31%**	**8.31%**	**8.31%**	**12.43%**	**12.43%**	**12.43%**	**12.43%**	**9.35%**
Milliman Methodology Change	4.75%	4.75%	3.08%	3.08%	3.08%	0.05%	0.05%	0.05%	0.05%	2.34%
Withdrawal Assumption Change	0.30%	0.30%	0.50%	0.50%	0.50%	-0.23%	-0.23%	-0.23%	-0.23%	0.31%
Mortality Assumption Change	1.38%	1.38%	1.43%	1.43%	1.43%	1.82%	1.82%	1.82%	1.82%	1.53%
Retirement Assumption Change	-0.01%	-0.01%	0.21%	0.21%	0.21%	1.69%	1.69%	1.69%	1.69%	0.58%
Salary Scale Assumption Change	-1.91%	-1.91%	-1.49%	-1.49%	-1.49%	0.01%	0.01%	0.01%	0.01%	-1.11%
Deferred Ret Age Assumption Change	0.78%	0.78%	0.07%	0.07%	0.07%	0.17%	0.17%	0.17%	0.17%	0.11%
UAAL Rate as of Experience Study	**13.49%**	**13.49%**	**12.11%**	**12.11%**	**12.11%**	**15.94%**	**15.94%**	**15.94%**	**15.94%**	**13.11%**
Total County Contribution Rate as of July 1, 2006 Milliman Replication	**19.34%**	**19.29%**	**16.76%**	**17.30%**	**11.36%**	**30.45%**	**27.63%**	**31.35%**	**31.26%**	**20.48%**
Milliman Methodology Change	8.15%	6.88%	6.10%	5.24%	3.35%	1.29%	0.68%	0.38%	0.46%	4.39%
Withdrawal Assumption Change	2.54%	0.66%	3.43%	1.20%	1.17%	0.97%	-0.02%	0.35%	0.43%	1.68%
Mortality Assumption Change	1.93%	1.98%	1.94%	1.96%	1.54%	2.32%	2.34%	2.34%	2.30%	2.04%
Retirement Assumption Change	-0.06%	0.04%	0.24%	0.26%	-0.02%	2.67%	2.58%	2.59%	2.60%	0.85%
Salary Scale Assumption Change	-4.90%	-3.71%	-4.45%	-3.29%	-2.63%	-2.36%	-1.41%	-1.64%	-1.79%	-3.28%
Deferred Ret Age Assumption Change	1.03%	0.96%	0.23%	0.20%	0.07%	0.21%	0.20%	0.21%	0.20%	0.29%
Total County Contribution Rate as of Experience Study	**28.03%**	**26.10%**	**24.25%**	**22.87%**	**14.84%**	**35.55%**	**32.00%**	**35.58%**	**35.46%**	**26.45%**

Member Contribution Rates

As mentioned above, the first two sets of financial impact for the Proposed and Alternative Assumptions costs did not reflect any changes in member contribution rates. Based on the Adopted Assumptions, we recomputed the member rates and have provided a comparison of the member rates on both the Old Assumptions and the new Adopted Assumptions in the following Tables 1, 2 and 3.

The Board also wanted to have a sense of the relative magnitude each assumption change had on the member rates. The member rates are based on three actuarial assumptions; the Investment return assumption or interest rate; the assumed future salary increases for both general wage growth and merit increase; and thirdly the mortality assumptions. Thus, the tables show the prior member rates used and reported in the 2006 valuation – the Old Assumptions, the rates that would have been calculated had only the salary assumption changed – the Salary Scale Only rates and then the final member rates with all assumption changes – the Mortality and Salary Scale rates. These final rates are the member rates that will be used for purposes of determining the 2007 valuation costs to be effective with the July 1, 2008 fiscal year.

NOTE: Based on our replication work on the 2006 Valuation, it is our understanding that the Member Contribution Rates were being computed by Buck under the following basis:

Plan/Tier	Code Section	Member Contribution Provides Average Annuity of	FAC Period
General 5A	31621.5	1/200th of FAC* at age 60	1 year
General 5B	31621.2	1/100th of FAC* at age 60	1 year
General 2	NA	NA	3 years
APCD 1	31621.6 & 31581.1	1/2 x 1/100th of FAC* at age 55	1 year
APCD 2	31621.6	1/100th of FAC* at age 55	1 year
Safety 4A		1/2 x 3/200th of FAC* at age 55	1 year
Safety 4B		3/200th of FAC* at age 55	1 year
Safety 4C & 4D		1/2 x 3/200th of FAC* at age 55	3 years

**FAC is Final Average Compensation. FAC Period is length of time for the average.*

Although prior valuation reports were not clear on the basis for the Safety member rates, we have discussed the current basis and confirmed these are the formulas to be used to determine the member contribution rates.

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

General Members
Member Contribution Rates

Old Assumptions			Salary Scale Only			Mortality and Salary Scale		
Entry Age	One Year FAC Half Rates Plan 5A	One Year FAC Full Rates Plan 5B	Entry Age	One Year FAC Half Rates Plan 5A	One Year FAC Full Rates Plan 5B	Entry Age	One Year FAC Half Rates Plan 5A	One Year FAC Full Rates Plan 5B
20	3.57%	7.13%	20	2.34%	4.67%	20	2.39%	4.77%
21	3.56%	7.13%	21	2.39%	4.78%	21	2.45%	4.89%
22	3.56%	7.13%	22	2.45%	4.89%	22	2.50%	5.00%
23	3.56%	7.13%	23	2.51%	5.01%	23	2.56%	5.12%
24	3.57%	7.14%	24	2.56%	5.12%	24	2.62%	5.24%
25	3.57%	7.15%	25	2.62%	5.24%	25	2.68%	5.36%
26	3.58%	7.16%	26	2.68%	5.36%	26	2.74%	5.48%
27	3.59%	7.18%	27	2.75%	5.49%	27	2.81%	5.61%
28	3.60%	7.20%	28	2.81%	5.61%	28	2.87%	5.74%
29	3.62%	7.23%	29	2.87%	5.74%	29	2.94%	5.87%
30	3.63%	7.26%	30	2.94%	5.88%	30	3.01%	6.01%
31	3.65%	7.30%	31	3.01%	6.01%	31	3.07%	6.14%
32	3.67%	7.34%	32	3.08%	6.15%	32	3.14%	6.28%
33	3.69%	7.39%	33	3.15%	6.29%	33	3.21%	6.42%
34	3.72%	7.43%	34	3.22%	6.43%	34	3.29%	6.57%
35	3.74%	7.49%	35	3.29%	6.57%	35	3.36%	6.71%
36	3.77%	7.54%	36	3.36%	6.71%	36	3.43%	6.86%
37	3.80%	7.60%	37	3.43%	6.86%	37	3.51%	7.01%
38	3.83%	7.66%	38	3.50%	7.00%	38	3.58%	7.16%
39	3.86%	7.73%	39	3.58%	7.15%	39	3.66%	7.31%
40	3.90%	7.80%	40	3.66%	7.31%	40	3.74%	7.47%
41	3.94%	7.88%	41	3.73%	7.46%	41	3.81%	7.62%
42	3.98%	7.96%	42	3.81%	7.62%	42	3.89%	7.78%
43	4.02%	8.04%	43	3.89%	7.77%	43	3.98%	7.95%
44	4.06%	8.13%	44	3.97%	7.93%	44	4.06%	8.11%
45	4.11%	8.21%	45	4.05%	8.10%	45	4.14%	8.27%
46	4.15%	8.31%	46	4.13%	8.26%	46	4.22%	8.44%
47	4.20%	8.41%	47	4.21%	8.42%	47	4.31%	8.61%
48	4.25%	8.51%	48	4.29%	8.58%	48	4.39%	8.77%
49	4.31%	8.61%	49	4.38%	8.75%	49	4.47%	8.94%
50	4.36%	8.72%	50	4.46%	8.92%	50	4.56%	9.12%
51	4.42%	8.83%	51	4.55%	9.09%	51	4.65%	9.29%
52	4.47%	8.95%	52	4.64%	9.27%	52	4.74%	9.47%
53	4.53%	9.06%	53	4.72%	9.44%	53	4.83%	9.65%
54	4.59%	9.18%	54	4.80%	9.60%	54	4.91%	9.81%
55	4.65%	9.30%	55	4.88%	9.75%	55	4.98%	9.96%
56	4.71%	9.41%	56	4.93%	9.86%	56	5.04%	10.08%
57	4.77%	9.53%	57	4.97%	9.94%	57	5.08%	10.16%
58	4.83%	9.65%	58	4.99%	9.97%	58	5.10%	10.19%
59 and Over	4.89%	9.77%	59 and Over	4.99%	9.97%	59 and Over	5.10%	10.19%

Assumptions:			
Interest:	8.16%	8.16%	8.16%
Salary:	2006 Val (Age Based)	Alternative (Service Based)	Alternative (Service Based)
Unisex Mortality:	GAM 1994 (Male, Setback 3 years)	GAM 1994 (Male, Setback 3 years)	RP 2000 (Male, Setback 4 years)

Table 2

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

APCD Members
Member Contribution Rates

Old Assumptions		
Entry Age	One Year FAC Half Rates APCD Plan 1	One Year FAC Full Rates APCD Plan 2
20	4.16%	8.33%
21	4.16%	8.31%
22	4.15%	8.30%
23	4.15%	8.30%
24	4.15%	8.30%
25	4.15%	8.30%
26	4.16%	8.31%
27	4.16%	8.32%
28	4.17%	8.34%
29	4.18%	8.37%
30	4.20%	8.40%
31	4.22%	8.43%
32	4.23%	8.47%
33	4.26%	8.51%
34	4.28%	8.56%
35	4.31%	8.61%
36	4.33%	8.67%
37	4.36%	8.73%
38	4.39%	8.79%
39	4.43%	8.86%
40	4.47%	8.93%
41	4.51%	9.01%
42	4.55%	9.10%
43	4.59%	9.18%
44	4.64%	9.27%
45	4.68%	9.37%
46	4.73%	9.46%
47	4.79%	9.57%
48	4.84%	9.68%
49	4.89%	9.79%
50	4.95%	9.90%
51	5.01%	10.03%
52	5.08%	10.15%
53	5.14%	10.28%
54 and Over	5.21%	10.41%

Salary Scale Only		
Entry Age	One Year FAC Half Rates APCD Plan 1	One Year FAC Full Rates APCD Plan 2
20	2.79%	5.58%
21	2.86%	5.71%
22	2.92%	5.85%
23	2.99%	5.98%
24	3.06%	6.12%
25	3.13%	6.26%
26	3.20%	6.40%
27	3.27%	6.55%
28	3.35%	6.70%
29	3.42%	6.84%
30	3.50%	7.00%
31	3.57%	7.15%
32	3.65%	7.30%
33	3.73%	7.46%
34	3.81%	7.62%
35	3.89%	7.78%
36	3.97%	7.95%
37	4.06%	8.11%
38	4.14%	8.28%
39	4.23%	8.45%
40	4.31%	8.62%
41	4.40%	8.80%
42	4.48%	8.97%
43	4.57%	9.14%
44	4.66%	9.32%
45	4.75%	9.50%
46	4.84%	9.69%
47	4.94%	9.87%
48	5.03%	10.06%
49	5.11%	10.23%
50	5.19%	10.38%
51	5.25%	10.51%
52	5.30%	10.59%
53	5.31%	10.62%
54 and Over	5.31%	10.62%

Salary Scale and Mortality		
Entry Age	One Year FAC Half Rates APCD Plan 1	One Year FAC Full Rates APCD Plan 2
20	2.84%	5.68%
21	2.91%	5.82%
22	2.98%	5.95%
23	3.04%	6.09%
24	3.11%	6.23%
25	3.19%	6.37%
26	3.26%	6.52%
27	3.33%	6.67%
28	3.41%	6.82%
29	3.48%	6.97%
30	3.56%	7.12%
31	3.64%	7.28%
32	3.72%	7.44%
33	3.80%	7.60%
34	3.88%	7.76%
35	3.96%	7.92%
36	4.04%	8.09%
37	4.13%	8.26%
38	4.21%	8.43%
39	4.30%	8.60%
40	4.39%	8.78%
41	4.48%	8.95%
42	4.56%	9.13%
43	4.65%	9.31%
44	4.74%	9.49%
45	4.84%	9.67%
46	4.93%	9.86%
47	5.03%	10.05%
48	5.12%	10.24%
49	5.21%	10.41%
50	5.28%	10.57%
51	5.35%	10.69%
52	5.39%	10.78%
53	5.41%	10.81%
54 and Over	5.41%	10.81%

Assumptions:			
Interest:	8.16%	8.16%	8.16%
Salary:	2006 Val (Age Based)	Alternative (Service Based)	Alternative (Service Based)
Unisex Mortality:	GAM 1994 (Male, Setback 3 years)	GAM 1994 (Male, Setback 3 years)	RP 2000 (Male, Setback 4 years)

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

Safety Members
Member Contribution Rates

Old Assumptions				Salary Scale Only				Salary Scale and Mortality			
Entry Age	One Year FAC Half Rates Plan 4A	One Year FAC Full Rates Plan 4B	Three Year FAC Half Rates Plans 4C and 4D	Entry Age	One Year FAC Half Rates Plan 4A	One Year FAC Full Rates Plan 4B	Three Year FAC Half Rates Plans 4C and 4D	Entry Age	One Year FAC Half Rates Plan 4A	One Year FAC Full Rates Plan 4B	Three Year FAC Half Rates Plans 4C and 4D
20	5.47%	10.93%	5.24%	20	4.38%	8.77%	4.20%	20	4.47%	8.93%	4.28%
21	5.46%	10.93%	5.23%	21	4.48%	8.96%	4.29%	21	4.56%	9.13%	4.37%
22	5.47%	10.93%	5.24%	22	4.58%	9.15%	4.38%	22	4.66%	9.32%	4.46%
23	5.47%	10.94%	5.24%	23	4.67%	9.35%	4.47%	23	4.76%	9.52%	4.56%
24	5.48%	10.95%	5.25%	24	4.77%	9.55%	4.57%	24	4.86%	9.73%	4.66%
25	5.49%	10.98%	5.26%	25	4.88%	9.75%	4.67%	25	4.97%	9.94%	4.76%
26	5.50%	11.01%	5.27%	26	4.98%	9.96%	4.77%	26	5.07%	10.15%	4.86%
27	5.52%	11.05%	5.29%	27	5.09%	10.17%	4.87%	27	5.18%	10.36%	4.96%
28	5.55%	11.10%	5.32%	28	5.19%	10.38%	4.97%	28	5.29%	10.58%	5.06%
29	5.58%	11.16%	5.35%	29	5.30%	10.60%	5.07%	29	5.40%	10.80%	5.16%
30	5.62%	11.24%	5.39%	30	5.41%	10.81%	5.17%	30	5.51%	11.02%	5.27%
31	5.67%	11.34%	5.43%	31	5.52%	11.03%	5.27%	31	5.62%	11.24%	5.37%
32	5.72%	11.44%	5.48%	32	5.63%	11.25%	5.38%	32	5.73%	11.47%	5.48%
33	5.77%	11.55%	5.53%	33	5.74%	11.48%	5.48%	33	5.85%	11.69%	5.58%
34	5.83%	11.66%	5.58%	34	5.85%	11.70%	5.59%	34	5.96%	11.92%	5.69%
35	5.89%	11.78%	5.64%	35	5.96%	11.93%	5.69%	35	6.08%	12.15%	5.80%
36	5.95%	11.90%	5.70%	36	6.08%	12.16%	5.80%	36	6.19%	12.39%	5.91%
37	6.02%	12.03%	5.76%	37	6.19%	12.39%	5.91%	37	6.31%	12.62%	6.02%
38	6.09%	12.17%	5.83%	38	6.31%	12.62%	6.02%	38	6.43%	12.86%	6.14%
39	6.16%	12.31%	5.90%	39	6.43%	12.86%	6.13%	39	6.55%	13.10%	6.25%
40	6.23%	12.47%	5.97%	40	6.55%	13.10%	6.25%	40	6.67%	13.35%	6.37%
41	6.31%	12.63%	6.05%	41	6.67%	13.35%	6.36%	41	6.80%	13.60%	6.48%
42	6.40%	12.79%	6.13%	42	6.80%	13.60%	6.48%	42	6.93%	13.86%	6.60%
43	6.48%	12.97%	6.21%	43	6.93%	13.86%	6.60%	43	7.06%	14.12%	6.73%
44	6.58%	13.15%	6.30%	44	7.06%	14.12%	6.72%	44	7.19%	14.38%	6.85%
45	6.67%	13.35%	6.39%	45	7.19%	14.38%	6.84%	45	7.33%	14.65%	6.97%
46	6.78%	13.56%	6.50%	46	7.33%	14.65%	6.96%	46	7.46%	14.93%	7.09%
47	6.89%	13.78%	6.60%	47	7.46%	14.92%	7.07%	47	7.60%	15.20%	7.20%
48	7.00%	13.99%	6.70%	48	7.59%	15.18%	7.17%	48	7.74%	15.47%	7.30%
49	7.11%	14.21%	6.81%	49	7.71%	15.43%	7.25%	49	7.86%	15.72%	7.39%
50	7.22%	14.44%	6.92%	50	7.82%	15.63%	7.30%	50	7.96%	15.93%	7.44%
51	7.33%	14.67%	7.03%	51	7.89%	15.78%	7.32%	51	8.04%	16.08%	7.45%
52	7.45%	14.91%	7.14%	52	7.93%	15.85%	7.32%	52	8.08%	16.15%	7.45%
53	7.59%	15.18%	7.27%	53	7.93%	15.85%	7.57%	53	8.08%	16.15%	7.71%
54 and Over	7.72%	15.45%	7.40%	54 and Over	7.93%	15.85%	7.87%	54 and Over	8.08%	16.15%	8.02%

Assumptions:

Interest:	8.16%	8.16%	8.16%
Salary:	2006 Val (Age Based)	Alternative (Service Based)	Alternative (Service Based)
Unisex Mortality:	GAM 1994 (Male, Setback 2 years)	GAM 1994 (Male, Setback 2 years)	RP 2000 (Male, Setback 3 years)

Please note that the previous valuation report stated that the Safety member contribution rates were based upon Sections 31639.5 and 31639.25.
We confirmed that this was not correct with Buck Consultants. Buck actually used a target annuity of 1.50% at age 55. We continued that procedure for the proposed member contribution rates.

Section 2

Introduction

A. Funding and Valuation Principles

Just as certain investment choices have an associated "investment risk," choices in actuarial assumptions have an associated "actuarial risk." Our responsibility is to consider the impact our work will have on future taxpayers and on the beneficiaries of SBCERS.

Determining the adequacy of the current contribution rates is dependent on the assumptions we use to project the future benefit payments and then to discount the value of future benefits to determine the present values. Thus, it is important that the Board understand the sensitivity of the actuarial calculations to the underlying assumptions.

- If actual experience shows that the assumptions overestimated the true cost of the plan, justified benefit improvements to employees may be inappropriately denied. Also, if the assumptions overstate the true cost, current taxpayers may be required to bear a burden that rightfully belongs to future taxpayers.
- If actual experience shows that the assumptions underestimated the true costs, inappropriate benefit increases may be enacted. Also, if the assumptions understate the true cost, future taxpayers may be required to bear a burden that rightfully belongs to the current taxpayers.

The actuarial assumptions do not generally impact the true cost of the base plan benefits, they do impact how the financing and pre-funding of those retirement benefits take place before the true costs can be determined. To the extent the Board makes discretionary benefit changes, the assumptions can impact the long term true cost of the base benefits.

The setting of the actuarial assumption for investment return could have an effect on the investment managers' investment strategies. If a higher, more aggressive assumption is used, there may be a tendency to stretch the investment risk to meet the assumption. SBCERS should evaluate its risk tolerance for investment decisions independent of the actuarial assumption rate. The actuarial assumption is based on the investment policy.

Since the actuarial assumption is for the long term, it is expected that in the short term there will be years in which the actual investment return will exceed the actuarial assumption, and there will be years when the actual experience will not meet the assumed rate. It is the expected long-term rate that is used to project and finance the retirement benefits.

Recognition should be made that a higher investment return assumption will tend to lower required contributions in the short term, while a lower investment return assumption will tend to require higher contributions. In the public environment, any move back from a higher return assumption to a lower return assumption could result in higher contribution rates and, thus, higher taxes. Using a slightly lower assumption, or more conservative rate, gives a greater assurance of having actuarial experience gains in the future, whereas using a

slightly higher assumption, or more aggressive rate, implies a willingness to assume a greater "actuarial risk" of future experience losses.

The question that needs to be asked in the public sector is: How great an actuarial risk is the Board willing to accept in the actuarial assumptions? If actuarial experience gains materialize, SBCERS' funded status will be better than expected. If actuarial experience losses materialize, what legal or other restrictions are applicable? The plan is subject to the '37 Act minimum funding requirements which are to pay at least the normal cost rate and an amortization of any UAAL amount over no more than 30 years, as determined by the valuation.

The actuarial assumptions are usually divided into two groups: economic and demographic**.** The economic assumptions must not only reflect SBCERS' actual experience but also give even greater consideration to the long-term expectation of future economic growth for the nation, as well as the global economy. By long term, we are looking at time periods of from 20 to 40, possibly to 75, years – a much longer time frame than investment managers or economists will likely be discussing with you.

The non-economic, or demographic assumptions, are based on SBCERS' actual experience, adjusted to reflect trends and historical experience. Thus, the economic assumptions are much more subjective than the demographic assumptions, and the demographic assumptions are much more dependent on the results of the experience studies.

B. Overview

This report presents the results of an investigation of the recent actuarial experience of SBCERS. We will refer to this investigation as an experience study.

Throughout this report, we refer to "expected" and "proposed" actuarial assumptions. The "expected" assumptions are those used for by the prior actuary for the June 30, 2006 actuarial valuation. They may also be referred to as the "current" assumptions. These assumptions and methods were adopted by the Board based on Buck's 2006 Experience Study. The "proposed" or "recommended" assumptions are those we recommend for use in the valuation as of June 30, 2007 and for subsequent valuations until further changes are made.

The choice of economic assumptions (investment return, general wage growth and payroll increase) is discussed in Section 4 of this report. These assumptions are generally chosen on the basis of the actuary's expectations as to the effect of future economic conditions on the operation of SBCERS. However, the setting of these assumptions is much more subjective than in setting and recommending the demographic assumptions.

Sections 5 through 12 of this report will show the results of our study of demographic assumptions and were discussed with the Board on October 11, 2007. The Board will most likely rely on our analysis of these assumptions as they are much more deterministic than the economic assumptions. The exhibits are detailed comparisons between actual and expected terminations on both the current and proposed bases. These graphs are included in Appendix B for your reference. Each Exhibit is identified by a number and a letter corresponding to the section of the report. For example, Exhibit 7-1 is referred to in

Section 7, retirement rates. If the data is too sparse, no graph is provided. This occurs for disabilities and death while active.

For each type of assumption, graphs show the actual, the expected and proposed rates, usually by a combination of sex, years of service and age group. The exhibits also show the total numbers of actual and expected terminations. Ratios larger than 100% on the current basis indicate that the rates may need to be raised; ratios smaller than 100% indicate that rates may need to be lowered. The exception is the Salary Merit Increases discussed in Section 5. The exhibits show the actual, expected and proposed rates based on a) years of service and b) age.

For each exhibit, the actual decrement rates are shown as bar graphs on either a quinquennial-age basis, a years-of-service basis, or, in the case of retirement rates, on an age-by-age basis. The current rates – the "expected" rates – used in the June 30, 2006 actuarial valuation, are shown as well as the new proposed assumptions as line graphs. Therefore, the assumption changes we are proposing are illustrated by the difference between the two lines in each exhibit. Note that in cases where no change is being proposed, only the expected rate line is shown.

SBCERS' members are covered by several different levels of benefits based on their employment class: General, APCD and Safety members. In addition members within each class are covered by different plans. These are referred to as General Plans 5A, 2, and 5B, APCD has Plans 1 & 2, Safety are now split into Plans 4A, 4B, 4C and 4D. For purposes of studying the demographic experience, it is assumed that the patterns of employment changes can be studied in three groups: General male and female, and a Safety group. Due to the smaller size of each Plan's coverage, it is impractical to study results by Plan even though there could be some variation based on the different benefit provisions. Overall we do not think the benefit differences warrant special experience study groups.

C. Our Philosophy

Similar to an actuarial valuation, the calculation of actual and expected experience is a fairly mechanical process. From one actuary to another, you would expect to see very little difference. However, the setting of assumptions is a different story, as it is more art than science. In this report, we recommend new assumptions. To help you understand our thought process, here is a brief summary of our philosophy:

- **Don't overreact**: When we see significant changes in experience, we generally do not adjust our rates to reflect the entire difference. We will generally recommend rates somewhere between the old rates and the new experience. If the experience during the next study shows the same result, we will probably recognize this trend at that point. On the other hand, if the experience returns closer to its prior level, we will not have overreacted, minimizing volatility in the member and County contribution rates.
- **Anticipate Trends**: If there is an identified trend that is expected to continue, we believe that this should be recognized. An example of this is the retiree mortality assumption. It is an established trend that people are continuing to live longer; therefore, we prefer to build in a margin to reflect future decreases in mortality rates. The use of a margin is in lieu of using projected or generational mortality assumptions. Some public plans have started to use these assumptions which vary

mortality risks based on birth with younger members having longer expected life spans. The requirements of the CERL to use the same assumptions for both valuation and benefit option payment purposes, limits the practical application of this type of mortality assumption to SBCERS. To accomplish a similar financial result we prefer to set the expected retired mortality at about 110% of the current mortality being experienced by current retirees. This extra margin approximates the cost of having active members potentially live longer than current retired members.

- **Simplify**: In this report we describe what factor affects each assumption. In general, we attempt to identify which factors are significant and eliminate the ones that do not improve accuracy.

D. Actuarial Standard of Practice No. 27

The Actuarial Standards Board has adopted Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*. This standard provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans, such as SBCERS. ASOP No. 27 is effective for any valuation with a measurement date on or after July 15, 1997.

Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent experience.

Recognizing that there is not one “right answer”, the standard calls for the actuary to develop a best estimate range for each economic assumption, and then recommend a specific point within that range. Each economic assumption should individually satisfy this standard.

After completing the selection process, the actuary should review the set of economic assumptions for consistency. This may require the actuary to use the same inflation component in each of the economic assumptions selected. However, if a change occurs in one assumption, the actuary needs to consider if the change would modify other economic assumptions as well.

An actuary’s best-estimate range with respect to a particular measurement of pension obligations may change from time to time due to changing conditions or emerging plan experiences. The actuary may change assumptions frequently in certain situations, even if the best-estimate range has not changed materially, and less frequently in other situations. Even if assumptions are not changed, the actuary needs to be satisfied that each of the economic assumptions selected for a particular measurement complies with the new Actuarial Standard of Practice No. 27.

This report will address the relevant types of economic assumptions used in the actuarial valuation to determine the obligations of SBCERS. Based on our review and this study, we believe the current investment return, the general wage increase (includes price inflation and productivity) and payroll assumptions continue to be within a reasonable set of assumptions, but carry with it a potentially higher risk of being slightly more aggressive

regarding future economic experiences with respect to investment returns. We are recommending changes in these economic assumptions. However, this does not diminish the need to discuss the range of reasonableness appropriate for each assumption with the Board and to reaffirm either the Boards' decision to accept our recommendation to lower the price inflation assumption and potentially lower the investment rate of return assumption, and stay at a more moderate position within the range of reasonableness.

In our opinion, the proposed economic assumptions have been developed in accordance with ASOP No. 27.

E. Actuarial Standard of Practice No. 35: Selection of Demographic Assumptions

Actuarial Standard of Practice No. 35 (ASOP 35) governs the selection of demographic and other non-economic assumptions for measuring pension obligations. This standard is effective for any measurement date occurring after September 15, 2001. ASOP 35 states that the actuary should use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment. The actuary should select reasonable demographic assumptions in light of the particular characteristics of the defined benefit plan that is the subject of the measurement. A reasonable assumption is one that is expected to appropriately model the contingency being measured and is not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

ASOP 35 Steps

The actuary should follow the following steps in selecting the demographic assumptions:

1. Identify the types of assumptions. Types of demographic assumptions include but are not limited to retirement, mortality, termination of employment, disability, election of optional forms of payment, administrative expenses, family composition, and treatment of missing or incomplete data. The actuary should consider the purpose and nature of the measurement, the materiality of each assumption, and the characteristics of the covered group in determining which types of assumptions should be incorporated into the actuarial model.
2. Consider the relevant assumption universe. The relevant assumption universe includes experience studies or published tables based on the experience of other representative populations, the experience of the plan sponsor, the effects of plan design, and general trends.
3. Consider the assumption format. The assumption format includes whether assumptions are based on parameters such as gender, age, service or calendar year. The actuary should consider the impact the format may have on the results, the availability of relevant information, the potential to model anticipated plan experience, and the size of the covered population.
4. Select the Specific Assumptions. In selecting an assumption the actuary should consider the potential impact of future plan design as well as the factors listed above.
5. Evaluate the Reasonableness of the Selected Assumption. The assumption should be expected to appropriately model the contingency being measured. The assumption should not be anticipated to produce significant actuarial gains or losses.

ASOP 35 General Considerations and Application

Each individual demographic assumption should satisfy the criteria of ASOP 35. In selecting demographic assumptions the actuary should also consider: the internal consistency between the assumptions, materiality, cost effectiveness, and the combined effect of all assumptions. At each measurement date the actuary should consider whether the selected assumptions continue to be reasonable, but the actuary is not required to do a complete assumption study at each measurement date. In our opinion, the demographic assumptions recommended in this report have been developed in accordance with ASOP 35.

Section 3

Actuarial Methods

As part of the triennial investigation, we have reviewed the valuation methods and other issues related to the actuarial assumptions.

2006 Valuation Replication Results

As discussed with the Board in August, the 2006 Valuation reflected the new member rates for Safety Plans C&D by increasing the UAAL rates rather than increasing the County's portion of the gross normal cost rate. As shown, we did not make this adjustment.

	General			Safety				APCD	
	Plan 5A	Plan 2	Plan 5B	Plan 4A	Plan 4B	Plan 4C	Plan 4D	Plan 1	Plan 2
Normal Cost Rates									
Buck	9.81%	3.36%	9.81%	20.90%	15.69%	15.23%	14.97%	11.68%	12.20%
Milliman	8.45%	3.05%	8.99%	18.02%	15.20%	18.92%	18.83%	11.14%	11.09%
UAAL Rates									
Buck	7.45%	7.45%	7.45%	13.14%	13.14%	16.63%	16.63%	8.25%	8.25%
Milliman	8.31%	8.31%	8.31%	12.43%	12.43%	12.43%	12.43%	8.20%	8.20%
Total Employer Contribution Rates									
Buck	17.26%	10.81%	17.26%	34.04%	28.83%	31.86%	31.60%	19.93%	20.45%
Milliman	16.76%	11.36%	17.30%	30.45%	27.63%	31.35%	31.26%	19.34%	19.29%
Ratio Buck / Milliman									
Total Employer Contribution Rates	103%	95%	100%	112%	104%	102%	101%	103%	106%
Total Present Value Benefits	100%	91%	102%	99%	107%	104%	98%	103%	102%
Total Actuarial Accrued Liability	99%	90%	97%	98%	112%	102%	96%	103%	96%
Buck NC Rate using 7/3/2006 plan provisions:						19.19%	18.87%		

The chart above assumes no changes in the 2006 economic or demographic assumptions. It reports on the differences between the two actuarial firms' approach to evaluating the impact of the 2006 Safety benefit changes. In addition to this change regarding the safety benefit changes, another smaller adjustment was made regarding the General member contribution rates. In Buck's calculations, it appeared that the APCD member rates were being applied for General members for valuation purposes.

Actuarial Methods

- **Cost Method:** The actuarial valuation is prepared using the entry age actuarial cost method (CERL 31453.5). We believe that this cost method is appropriate for SBCERS' valuation. We recommend no change.

- **Valuation of Assets:** We believe that the current asset valuation method which smoothes gains and losses over five years is appropriate for SBCERS' valuation.

The asset valuation method also imposes a corridor limitation so that the actuarial value of assets must be between 80% and 120% of the market value of assets. We recommend no change.

- **Application of Withdrawal Assumption.** As discussed at the August 22, 2007 Board meeting, we are making one significant technical change in our valuation compared to the prior actuary. The prior retained actuary had assumed that there was a significant probability of terminating employment and making a request for a refund of member contributions after a member was eligible for retirement. We modified this methodology such that after a member reaches retirement eligibility, the member can only leave the system through retirement, death or disability. We then re-evaluated the 2006 valuation results using this one change in method and all of the 2006 assumptions. The results of that "Modified 2006 Valuation" is the financial basis upon which we measured the financial impact of the recommended assumption changes. The financial impact of this method is shown in the charts in the Executive Summary section.

  One person illustration: As part of our transition and in confirming the Buck approach to funding, we also looked at specific detailed calculations for many individuals. By comparing the results for one of these members, a General male member currently age 48 with 19 years of service, it becomes apparent how much difference the two applications can make.

Buck Benefit Trace Present Value of Benefits (PVB)	
Service Retirement	192,989
Death Benefits	4,082
Disability Benefits	12,687
Refund of Contributions	9,969
Vested Benefits	34,985
Total	**254,712**

Milliman Replication Present Value of Benefits (PVB)	
Service Retirement	194,108
Death Benefits	3,659
Disability Benefits	12,594
Refund of Contributions	9,783
Vested Benefits	34,623
Total	**254,767**

Milliman Modified Valuation Present Value of Benefits (PVB)	
Service Retirement	294,556
Death Benefits	6,703
Disability Benefits	16,026
Refund of Contributions	2,148
Vested Benefits	7,723
Total	**327,156**

Ratio Milliman Replication to Buck Benefit Trace	
Service Retirement	101%
Death Benefits	90%
Disability Benefits	99%
Refund of Contributions	98%
Vested Benefits	99%
Total	100%

Ratio: Milliman Modified to Buck Benefit Trace	
Service Retirement	153%
Death Benefits	164%
Disability Benefits	126%
Refund of Contributions	22%
Vested Benefits	22%
Total	128%

- **Ultimate Demographics:** In addition to computing the present value of benefits, normal cost rates, and other funding information, our proprietary valuation system produces information regarding the aggregate impact of the various demographic assumptions on a group of employees over time. This report predicts, based on the current assumptions being evaluated, the percentage of the current active membership that is expected to ultimately leave active employment due to withdrawal, retirement, death or disablement.

General 5 Members Expected to eventually separate for:

	Milliman Methods		Buck Methods	
	Number	Percentage	Number	Percentage
Service retirement	2,179	61%	1,679	47%
Withdrawal	1,164	33%	1,681	47%
Death	73	2%	67	2%
Disability	134	4%	123	3%
	3,550	100%	3,550	100%

This chart indicates that by not allowing members to take a refund once they attain retirement eligibility age can have a significant impact on the financial results. Based on just the General 5 group of members, the Milliman Modified valuation assumes the same percentage of combined retirements and withdrawals, but a much greater proportion is assumed to receive the more valuable pension benefit for life rather than a one-time cash payment equal to a refund of member contributions.

- **Actual Experience:** In addition, we also reviewed the data for the Investigation of Experience and found that only four members actually elected a refund after they were eligible for service retirement during the 2003-2007 study period. We compared this actual experience to the expected using the Buck assumptions as follows:

Plan	Sex	Actual	Expected	Actual / Expected
General	Male	1	27	4%
General	Female	3	37	8
Safety	Both	0	4	0
	Total	4	68	6%

Non-Valuation Methods

- **Operating Tables:** The Board adopted changes in the mortality assumption and the salary merit assumption. Therefore, the operating tables should be updated to reflect the longer life expectancy under the new mortality assumptions. We would recommend allowing time for SBCERS' staff to implement any changes in the operating tables and communicate them to the members. Staff may consider a delay in implementation with respect to the operating tables in order to permit retirement estimates on the new assumptions for retirement dates expected to occur after a given effective date for the new assumptions for these purposes.

- **Member Rates:** The adopted changes in the mortality tables and the merit salary scale will impact the basic member contribution rates. New member rates are discussed at the end of Section 1.

- **Male/Female Mix:** For purposes of calculating member rates and option factors, we propose that unisex mortality be based on the following:

General Healthy Members:	RP-2000 Male, set back 4 years
Safety Healthy Members:	RP-2000 Male, set back 3 years
Beneficiaries:	RP-2000 Male, set back 4 years
General Disabled Members:	RP-2000 Female, set forward one year
Safety Disabled Members:	RP-2000 Male, no adjustment

NOTE: The above assumptions are based on the Adopted Assumptions.

Section 4

Economic Assumptions

Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans. Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent experience.

Recognizing that there is not one "right answer", the standard calls for the actuary to develop a best estimate range for each economic assumption, and then recommend a specific point within that range. Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

In our opinion, the economic assumptions recommended in this report have been developed in accordance with ASOP No. 27. However, please refer to the discussions regarding the inflation assumption and the excess earnings aspects of the '37 Act, which are discussed later in this section.

The following table shows our recommendations. This section will discuss the economic assumptions. In brief, they are as follows:

Economic Assumption	Current Assumption (Annual Rate)	Proposed Assumption (Annual Rate)	Alternative Assumption (Annual Rate)
Consumer Price Inflation[(1)]	4.00%	3.50%	3.50%
Investment Return[(2)]	8.16%	8.00%	8.16%
Total Expenses	NA	0.45%	0.45%
Wage Growth (includes inflation and productivity)	4.00%	4.00%	4.00%
Real Wage Inflation (wage growth less price inflation)	0.00%	0.50%	0.50%
Payroll Growth	Assumed to be same as Wage Growth		

[(1)] *SBCERS members except General Plan 2 members receive an automatic 3.00% per year cost of living adjustment. This is a maximum amount and can be less depending on actual inflation. In addition, certain ad hoc COLAs are permitted.*

[(2)] *Net of both investment and administration expenses.*

1. Consumer Price Inflation

Use in the Valuation: When we refer to Inflation in this report, we are referring to price inflation. The inflation assumption has an indirect impact on the results of the actuarial valuation through the development of the assumptions for investment return, general wage increases and the payroll increase assumption. It does not have a direct impact on the valuation results unless it limits the assumed COLA to be paid.

The long-term relationship between inflation and investment return has long been recognized by economists. The basic principle is that the investors demand a "real return" – the excess of actual investment returns over inflation. If inflation rates are expected to be high, investors will demand expected investment returns that are also expected to be high enough to exceed inflation, while lower inflation rates will result in lower demanded expected investment returns, at least in the long run.

The current assumption for inflation is 4.00% per year.

Historical Perspective: The data for inflation shown below is based on the national Consumer Price Index, US City Average, All Urban Consumers (CPI-U) as published by the Bureau of Labor Statistics. The data for periods ending in December of each year is documented in Exhibit 1 at the end of this section.

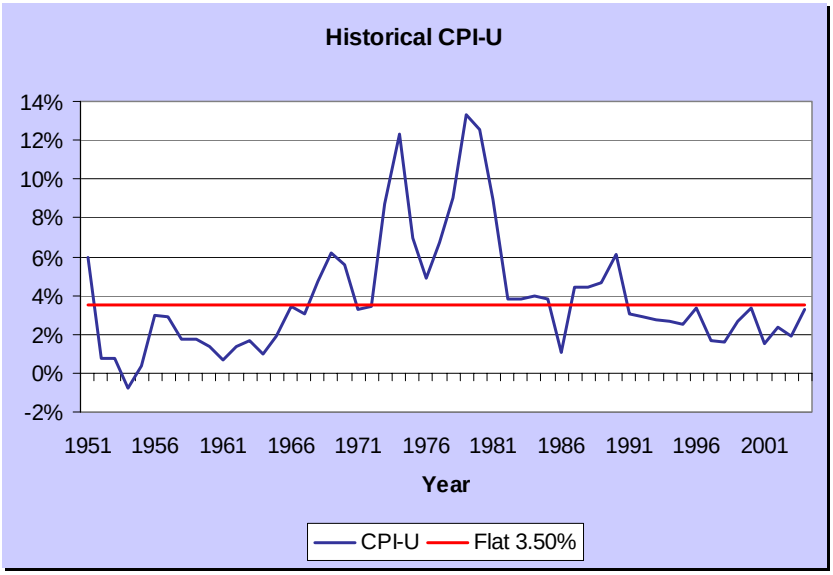
Although economic activities in general and inflation in particular, do not lend themselves to prediction on the basis of historical analysis, historical patterns and long-term trends are a factor to be considered in developing the inflation assumption.

There are numerous ways to review historical data, with significantly differing results. The tables below show the compounded annual inflation rate for various 10-year periods, and for longer periods ended in December of 2006.

Decade	CPI
1996-06	2.4%
1986-96	3.7%
1976-86	6.6%
1966-76	5.9%
1956-66	1.8%

Period	CPI
1996-06	2.4%
1986-06	3.1%
1976-06	4.2%
1966-06	4.6%
1956-06	4.1%
1946-06	3.8%
75 years	3.6%

The following graph shows historical national CPI increases. Note that the actual CPI increase has been less than 3.50% for each of the last 15 years.



It is interesting, but not critical in the global sense of the economy, to look at inflation rates for the Los Angeles-Riverside-Orange County, CA Consumer Price Index – All Urban Consumers - Annual. This is the measure used for the determination of COLA increases for retirees and beneficiaries of SBCERS. There have been variances from the national CPI over short periods; however, the average increases over longer periods of time are very close. The LA CPI history is included in Exhibit 2.

Forecasts of Inflation: Since the U.S. Treasury started issuing inflation indexed bonds, it is possible to determine the approximate rate of inflation anticipated by the financial markets by comparing the yields on inflation indexed bonds with traditional fixed government bonds. Current market prices suggest investors expect inflation to be about 2.5% over the next ten years. This rate is similar to the amount forecast by SBCERS' investment consultant Pension Consulting Alliance (PCA).

Many economists have been forecasting inflation lower than the current assumption of 4.00% for several years. Some of them may be considering shorter time periods than appropriate for a pension valuation. To find an economic forecast with a time frame long enough to suit our purposes, we looked at the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the 2007 Trustees Report, the projected average annual increase in the CPI over the next 75 years under the intermediate cost assumptions was 2.80%. The reasonable range was stated as 1.80% to 3.80%. This assumption was lowered in 2002 by 0.50% from their assumptions in 2001 and has remained at this level since then.

Reasonable Range and Recommendation:
The consumer price inflation assumption is not used directly in determining SBCERS' funding and thus would have no impact on the contribution rates. It is used to determine both the investment return assumption and the wage growth assumptions. We believe that the current assumption of 4.00% per year is very high given other inputs and that historical patterns may not necessarily be repeated in the future. Inflation has averaged 4.00% over the last 50 years; however it has averaged almost a full percent less over the last 20 years.

CONSUMER PRICE INFLATION	
Current Assumption	4.00%
Reasonable Range	2.00% - 4.00%
Recommended Assumption	3.50%

Note that the midpoint of the reasonable range would be at a 3.00% assumption. Thus, it could be stated that 3.00% is a better estimate particularly given recent economic predications of future long term inflation. In accordance with our philosophy regarding sudden changes in assumptions combined with the discussion on net rates of investment return and excess earnings below, we recommend that the long-term assumed inflation rate be lowered from 4.00% to 3.50%.

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

Exhibit 1

US City Average, All Urban Consumers (CPI-U) - December

December of:	*Index*	*Increase*	December of:	Index	Increase
1928	17.1				
1929	17.2	0.6 %	**1969**	37.7	6.2%
1930	16.1	-6.4	**1970**	39.8	5.6
1931	14.6	-9.3	**1971**	41.1	3.3
1932	13.1	-10.3	**1972**	42.5	3.4
1933	13.2	0.8	**1973**	46.2	8.7
1934	13.4	1.5	**1974**	51.9	12.3
1935	13.8	3.0	**1975**	55.5	6.9
1936	14.0	1.4	**1976**	58.2	4.9
1937	14.4	2.9	**1977**	62.1	6.7
1938	14.0	-2.8	**1978**	67.7	9.0
1939	14.0	0.0	**1979**	76.7	13.3
1940	14.1	0.7	**1980**	86.3	12.5
1941	15.5	9.9	**1981**	94.0	8.9
1942	16.9	9.0	**1982**	97.6	3.8
1943	17.4	3.0	**1983**	101.3	3.8
1944	17.8	2.3	**1984**	105.3	3.9
1945	18.2	2.2	**1985**	109.3	3.8
1946	21.5	18.1	**1986**	110.5	1.1
1947	23.4	8.8	**1987**	115.4	4.4
1948	24.1	3.0	**1988**	120.5	4.4
1949	23.6	-2.1	**1989**	126.1	4.6
1950	25.0	5.9	**1990**	133.8	6.1
1951	26.5	6.0	**1991**	137.9	3.1
1952	26.7	0.8	**1992**	141.9	2.9
1953	26.9	0.7	**1993**	145.8	2.7
1954	26.7	-0.7	**1994**	149.7	2.7
1955	26.8	0.4	**1995**	153.5	2.5
1956	27.6	3.0	**1996**	158.6	3.3
1957	28.4	2.9	**1997**	161.3	1.7
1958	28.9	1.8	**1998**	163.9	1.6
1959	29.4	1.7	**1999**	168.3	2.7
1960	29.8	1.4	**2000**	174.0	3.4
1961	30.0	0.7	**2001**	176.7	1.6
1962	30.4	1.3	**2002**	180.9	2.4
1963	30.9	1.6	**2003**	184.3	1.9
1964	31.2	1.0	**2004**	190.3	3.3
1965	31.8	1.9	**2005**	196.8	3.4
1966	32.9	3.5	**2006**	201.8	2.5
1967	33.9	3.0			
1968	35.5	4.7			

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

Exhibit 2

Los Angeles-Riverside-Orange County, CA Consumer Price Index - Annual

Year	Index	Increase	Year	Index	Increase
1958	28.9				
1959	29.4	1.7%	**1984**	103.6	4.5%
1960	30.0	2.0%	**1985**	108.4	4.6%
1961	30.3	1.0%	**1986**	111.9	3.2%
1962	30.7	1.3%	**1987**	116.7	4.3%
1963	31.1	1.3%	**1988**	122.1	4.6%
1964	31.7	1.9%	**1989**	128.3	5.1%
1965	32.4	2.2%	**1990**	135.9	5.9%
1966	33.0	1.9%	**1991**	141.4	4.0%
1967	33.8	2.4%	**1992**	146.5	3.6%
1968	35.2	4.1%	**1993**	150.3	2.6%
1969	36.8	4.5%	**1994**	152.3	1.3%
1970	38.7	5.2%	**1995**	154.6	1.5%
1971	40.1	3.6%	**1996**	157.5	1.9%
1972	41.4	3.2%	**1997**	160.0	1.6%
1973	43.7	5.6%	**1998**	162.3	1.4%
1974	48.2	10.3%	**1999**	166.1	2.3%
1975	53.3	10.6%	**2000**	171.6	3.3%
1976	56.9	6.8%	**2001**	177.3	3.3%
1977	60.8	6.9%	**2002**	182.2	2.8%
1978	65.3	7.4%	**2003**	187.0	2.6%
1979	72.3	10.7%	**2004**	193.2	3.3%
1980	83.7	15.8%	**2005**	201.8	4.5%
1981	91.9	9.8%	**2006**	210.4	4.3%
1982	97.3	5.9%			
1983	99.1	1.8%			

2. Investment Return

Use in the Valuation: The investment return assumption is one of the primary determinants in the calculation of the expected cost of the Association's benefits, providing a discount of the future benefit payments reflecting the time value of money. This assumption has a direct impact on the calculation of liabilities, normal costs, member contribution rates, and the factors for optional forms of benefits. The current investment return assumption for SBCERS is 8.16% per year, net of all administrative and investment-related expenses.

A. Method to Determine Best-Estimate Range for Investment Return

The investment practice of Milliman's Philadelphia office has developed a method to determine the best-estimate range for investment return based upon assumptions for capital markets and the target asset allocation adopted by the Board. The 2006 SBCERS target asset allocation is summarized in the following chart:

Asset Class	Current Asset Allocation	Strategic Target Allocation
Domestic Equities	48%	47%
International Equities	19	17
Domestic Fixed Income	26	25
Real Estate	4	5
Alternative Investments	2	5
Cash	1	1
Total Portfolio	100%	100%

This method is used to provide the range of assumptions appropriate for compliance with Actuarial Standard of Practice No. 27, "Selection of Economic Assumptions for Measuring Pension Obligations." This standard defines the Best-Estimate Range as "the narrowest range within which the actuary reasonably anticipates that the actual results, compounded over the measurement period, are more likely than not to fall."

By assuming the portfolio is re-balanced annually and that annual returns are lognormally distributed and independent from year to year, we can develop expected percentiles for the long-term distribution of annualized returns. Using properties of the lognormal distribution, we calculate the 25th and 75th percentiles of the long-term total return distribution. This becomes our best-estimate range because 50% of the outcomes are expected to fall within this range and it is centered about the mean.

The capital market assumptions were combined with the target asset allocation policy to generate expected rates of returns which were then added to the inflation assumption. The real rate of return is subject to significant year-to-year volatility as measured by the standard deviation. Volatility over time will lower the mean real rate of return but diversification by asset class will reduce the volatility and narrow the range of expected total returns for the entire portfolio. The results are summarized as follows:

Expected Investment Return with 3.50% Inflation and Expected Rates of Return by Asset Class

(net of investment expenses)

Horizon In Years	Percentile Results for Nominal Rate of Return				
	5th	25th	50th	75th	95th
1	(10.6%)	0.1%	8.27%	17.1%	31.1%
5	(0.6%	4.5%	8.27%	12.1%	17.9%
10	1.9%	5.6%	8.27%	11.0%	15.0%
20	3.7%	6.4%	8.27%	10.2%	13.0%
50	5.4%	**7.1%**	**8.27%**	**9.5%**	11.2%

The geometric mean return is 8.27%, but due to the volatility associated with the asset allocation, the range of probable outcomes is quite large. For example, in the first year there is a 5% chance the rate of return will be less than -10.6% and a 5% chance it will be greater than 31.1%. As the time horizon lengthens, the range of the cumulative average results narrows.

Over a 50-year time horizon, we estimate there is a 25% chance the nominal rate of return will be less than 7.1% and a 25% chance the return will be greater than 9.5% (bold numbers on the bottom line in the table above). Therefore, we can say the return is just as likely to be within the range from 7.1% to 9.5% as not. However, this analysis assumes that all returns are applied to the assets being evaluated. If at any time a portion of higher returns are diverted to other funds, then the long term expected returns would be reduced. Please refer to further discussion regarding expenses, excess earnings and risk below.

This methodology provides a range for real rates of return (total return less assumed inflation) equal to 3.5% - 5.8%. If the underlying inflation assumption were changed, then the estimated long term returns would change as well. Using the same modeling tools, if the inflation assumption were at the midpoint of the reasonable range, 3.00%, then the expected geometric mean would be 7.79%, and if it were equal to the PCA inflation assumption of 2.50% then the mean return would be 7.32%. Thus, over the near term if inflation is indeed as low as 2.50% there is a good chance that any investment assumption greater than 7.50% will result in experience losses more often than experience gains.

We tested the use of the modeling tool using the actual PCA assumptions for returns and correlation coefficients for each asset class. PCA assumes a 2.5% inflation assumption. These assumptions produced a median return of 7.48% compared to our assumption, net of expenses of 7.32%. Thus, our results are comparable to those being used by PCA.

B. Arithmetic versus Geometric

Note that the median for the investment return discussed above is 8.27% (net of expenses), and net of inflation is 4.61%. This is more than 1% less than the real rate of return discussed by Buck in the 2006 Experience Study report of 5.76%. The difference is that Buck was computing an arithmetic mean, and we are showing a geometric mean.

The simplest way to understand this difference is with an example. If during a two-year period a fund returns 0% one year and 20% the next year, the arithmetic mean is 10.00% (the simple average of the two numbers); whereas, the geometric mean is only 9.54%. That is, if the fund earned 9.54% each year for two years, it would be equivalent to the 0% return in the first year followed by the 20% return or 20% in the first year followed by 0%. This is consistent with the way the investment return assumption works in the valuation. We assume one flat return rate to approximate the actual future return which we know will be volatile from year to year.

C. Administrative and Investment-Related Expenses

The investment return used for the valuation is assumed to be net of all administrative and investment-related expenses. Note that the returns provided by PCA excluded investment expenses. The following table shows the ratio of expenses to the SBCERS Plan assets over the last four fiscal years ending June 30. Data was taken from recent CAFR documents posted on the SBCERS website. The expense ratio is calculated as the total expense divided by the average asset balance at the beginning and end of the year at fair market value.

($million)	SBCERS Plan Assets	Net Investment Expense	Net Investment Ratio	Administrative Expense	Administrative Ratio	Expense Ratio
2006	$ 1,628.958	$ 4.474	0.29%	$ 2.465	0.16%	0.45%
2005	1,476.158	4.396	0.31%	1.842	0.13%	0.44%
2004	1,346.619	3.772	0.30%	1.990	0.16%	0.46%
2003	1,169.417	3.248	0.28%	1.525	0.13%	0.42%

As the above chart illustrates, the expense ratio has averaged approximately 0.45% in recent years. The expense assumption does not have a direct impact on the actuarial valuation results, but it does provide a measure of gross return on investments that will be needed to meet the actuarial assumption used for the valuation. For example, if the investment return assumption is set equal to 8.16%, then SBCERS would need to earn a gross return on its assets of 8.61% in order to net the 8.16% for funding purposes if the expense ratio remains steady at 0.45%.

D. Excess Earnings

Section 31592.2 of the 1937 Act provides the Retirement Board with the authority to set aside earnings of the retirement fund during any year in excess of the total interest credited to contributions when such surplus exceeds 1% of the total assets of the retirement system.

The excess earnings are considered on a year-by-year basis, so excess earnings are not based upon overall funded status. This means that the Board can choose to distribute excess earnings at a time when actuarial accrued liabilities exceed assets.

We understand that since 1990 SBCERS has applied the concept of excess earnings in a variety of methods. We are also aware that the application of any excess earnings is currently under discussion between the SBCERS Board and the Board of Supervisors for Santa Barbara County.
It is our understanding that the treatment of SBCERS excess earnings for the future cannot be determined at this time. Therefore, we have included in this report a discussion of

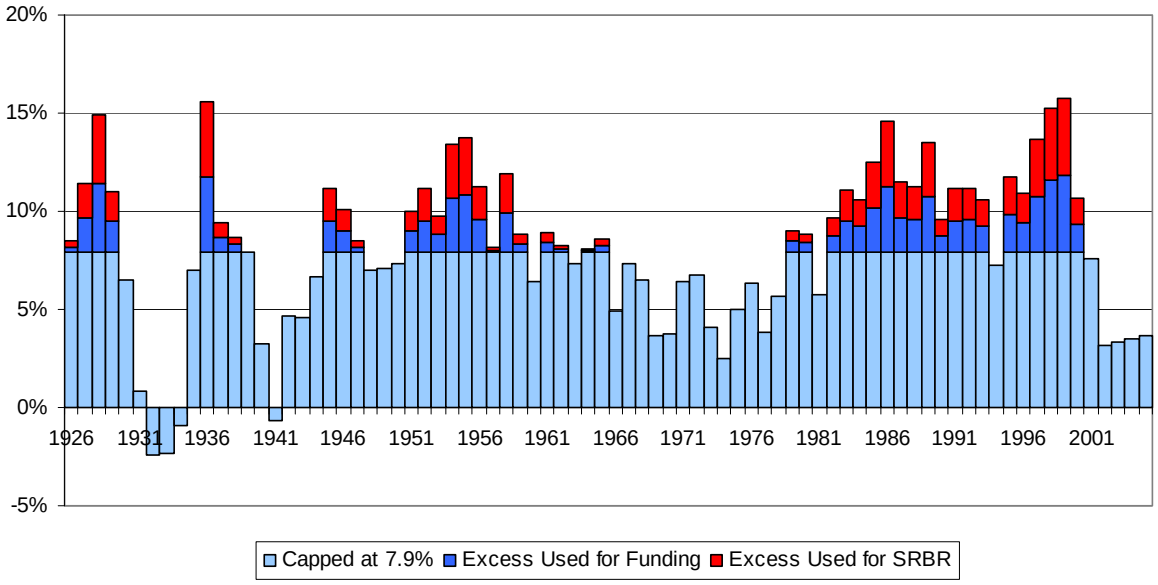
excess earnings and how that could impact the best estimate used for the investment return assumption. At the end of this section we discuss three different economic assumption scenarios for the Board to consider. Alternative 2 uses the projected investment returns discussed above, but then reduces the results by about 0.50% to implicitly recognize the cost of providing excess earnings benefits based on the Retired Member Reserves (RMR) only. The Board will need to evaluate its intention to distribute excess earnings in the future when making a final economic assumption decision. Given the number of uncertainties surrounding this issue now in 2007, the Board may wish to adopt a mid assumption and then reevaluate it as part of the 2010 assumption study when there may be a more definitive decision regarding the treatment of excess earnings in the future.

If the Board determines that the fund should share excess earnings with members when times are good, but the fund is not able to collect additional revenue when investment returns lag expectations, there is a cost to SBCERS over time. A plan that pays excess earnings benefits must find some way to recognize an obligation for those benefits. An excess earnings policy would result in increased payments made by SBCERS to members over the long-term. If these potential future benefits are not recognized in setting the investment return assumption or in determining SBCERS' future benefit payments, the total liabilities will be understated.

A fund with an asset allocation like that of SBCERS, which is heavily invested in equities, can expect volatile returns including many years above 8.27% and many below 8.27%. For discussion purposes, if one-half of excess actuarial returns are credited to non valuation reserves to be used for funding discretionary benefits, then the return on the valuation assets will be less than 8.27%. Based on historical returns for this situation [a typical Supplemental Retirement Benefit Reserve (SRBR), a Section 5.5 plan], the impact is an approximate 0.50% reduction in the investment return on the valuation assets.

The following graph illustrates how much of the return might be credited to the excess earnings benefits. It shows the returns for a fund with nearly 70% equity/30% fixed income and five-year asset smoothing of asset gains and losses. The red bars represent the approximate 0.50% reduction in annual average investment return.

Impact of Crediting a Portion of Excess Returns to SRBR
(Based on Historical Investment Returns with 5-Year Smoothing)



E. Reasonable Range and Recommendations Based on Current Market Expectations

Based on the ASOP No. 27 guidelines, we conclude that the reasonable range is the expected real rates of return between the 25th and 75th percentile projected out 50 years, plus the assumed inflation rate.

Based upon our Philadelphia office model methodology and our recommendation for inflation of 3.50%, we have the following results:

	Percentile Results		
	25th	**50th**	**75th**
Net Investment Return	7.1%	8.2%	9.5%

Based upon this model, there is a less than 56.00% chance that the net return will be 8.00% or more over a 50-year period. A net return of 8% is at the 44th percentile for a 50 year investment horizon. The net returns are computed net of investment expenses, but as indicated above, about 0.15% of the return will be needed for administrative costs.

Historically, the Board has allowed some room for conservatism when setting its investment return assumption to provide a buffer against future adverse experience. For the 2006 study, the expected investment return rate was 9.76% using Buck's building block approach based on current asset allocations and historical and the inflation assumption of 4.00%. They then recommended the valuation assumption be left at 8.16%. This resulted in a buffer of 1.60% that allowed for future uncertainties and adverse experience, measured as an arithmetic mean return. The current expectations discussed above do not reflect any buffer at all. Thus, an 8.00% assumption appears to be in the reasonable range based on

current capital market assumptions but has almost no buffer, particularly if administrative expenses are directly reflected.

Capital market expectations can move over short periods of time. The actuarial valuation assumption should be a long term expected rate and thus would not be expected to change rapidly. The above returns are based upon a 3.50% inflation assumption, which could be considered an aggressive assumption given current capital market expectations regarding lower inflation assumptions. The above also does not reflect the impact of excess earnings, an issue discussed in greater detail above. We recommend that, all other factors considered, the Board could consider lowering its investment return assumption at this time to 8.00%. Costs associated with these various assumptions are discussed below.

F. Other factors for Board consideration

Since economic assumptions are subjective in nature, it is our recommendation that the Board be fully comfortable with the implications of the economic assumptions, particularly with the investment return assumption. There is an "actuarial risk" associated with the economic assumptions the same as there is an investment risk associated with a given portfolio mix.

Actuarial assumptions are used to measure and budget future costs. Changing assumptions will not change the actual cost of future benefits. Aggressive assumptions plan for good future experience in advance and factor it into budget estimates. Conservative assumptions on the other hand tend to recognize good experience after it happens.

Conservative assumptions increase short-term contributions. However, future experience gains will be larger with conservative assumptions than they would be with more aggressive assumptions, assuming all else is the same. This is because when there are gains, the actual returns will exceed assumed experience by a greater margin when using more conservative assumptions. Future losses are smaller with conservative assumptions in that they are not as far below assumed experience as they would be with aggressive assumptions. Similarly, aggressive assumptions decrease short-term contributions, but will result in smaller future experience gains and larger future experience losses.

The choice of assumptions depends on a system's risk tolerance. The final determination of whether or not a set of assumptions was either conservative or aggressive will only be determined by future experience.

The prior discussions on investment return assumptions reflect current modeling techniques, and capital market expectations. Through most of the prior decade, when actual returns were quite high the actuarial economic assumptions did not fully reflect current capital market expectations. There was an assumption that actual return rates would not continue at these higher levels and thus, actuarial assumptions were generally set lower than recent experience and capital market expectations. The reverse could be considered now that the expectations have declined and the Board will need to decide when these new current expectations need to be reflected in the actuarial assumptions.

The models used in this report are based on only current market expectations to predict future returns at a time when we are coming out of a dramatic shift in economic predictions for future market returns. There are no perfect modeling tools for predicting future investment returns.

The current 8.16% assumption is still within the reasonable range and several large public retirement systems are maintaining their current assumptions, waiting to see whether or not a real shift in expected returns over the long term has occurred. On the other hand, there has been a recent trend, especially since 2004, for systems to take a less aggressive approach to their total expected investment returns. These systems have lowered their investment return assumption, generally below 8.00%. These recent changes may not be reflected in the current surveys as there is a lag. These recent downward adjustments are likely an indication of a reaction to the recent market fall, as well as lower expected returns on the systems' portfolios.

Even if member reserves and other accounting reserves are credited interest every six months, when projecting the longer term investment returns for an actuarial discount rate, based on a fund's portfolio, we do not think the six-month compounding should impact the expected investment returns. All other things being equal, we would like to propose an 8.00% rate rather than the 8.16% rate.

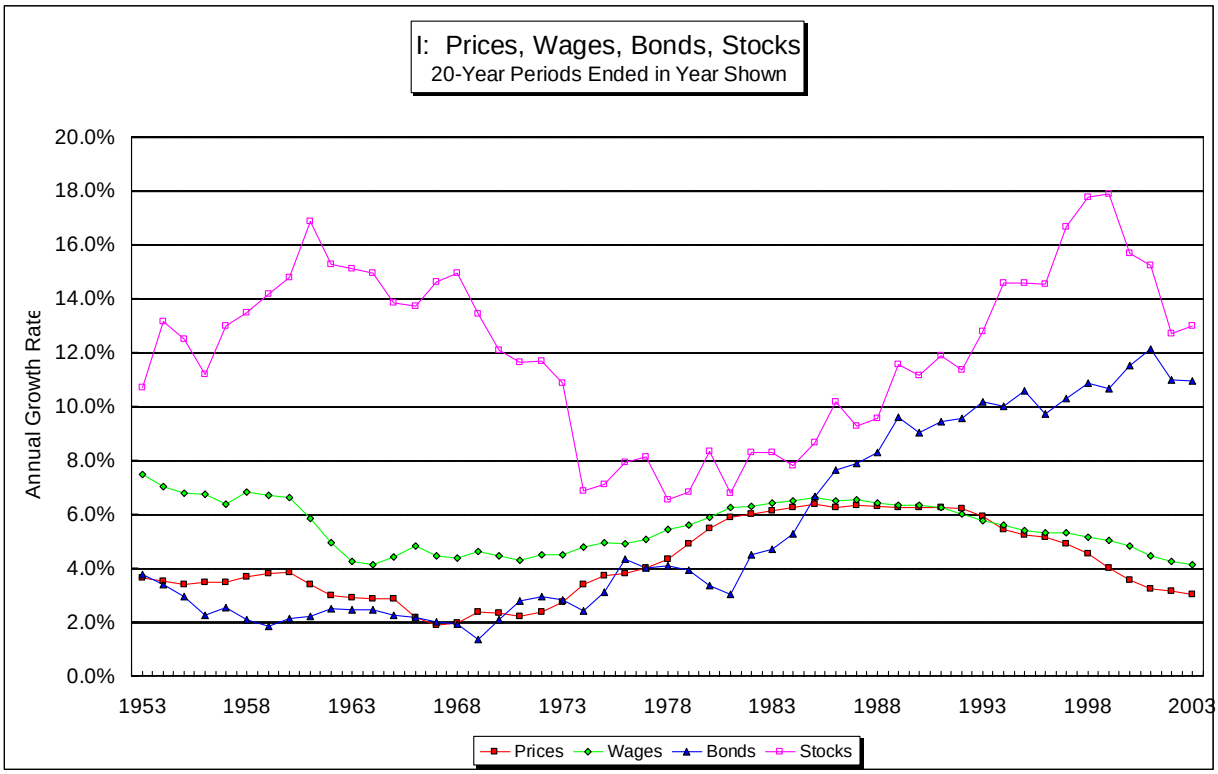
G. Historical Data

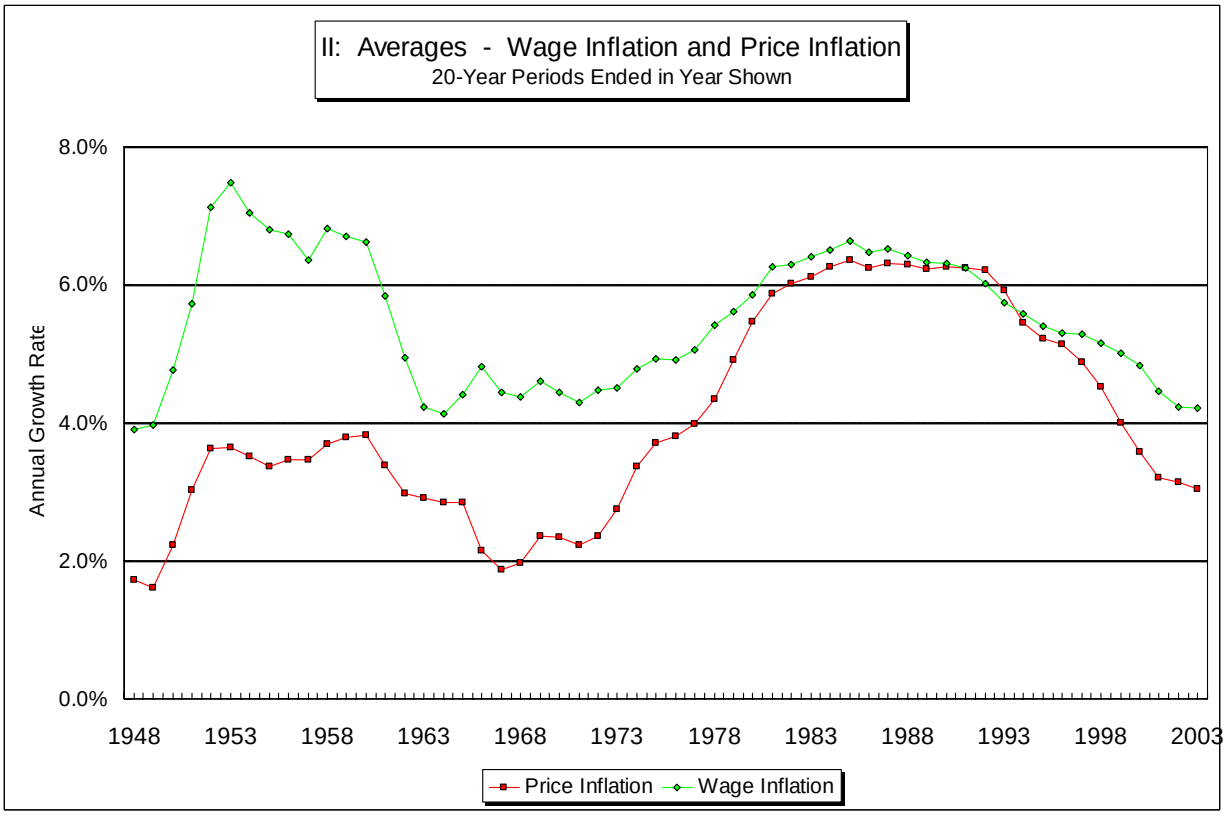
Looking at the longer term historical data and averages may help the Board to decide if it is the appropriate time to adjust the investment return assumption. In the long run, broader economic forces will control the experience of SBCERS in the area of general wage growth and investment returns. Inflation will drive wages, and investment yields will be governed by national and international markets. Accordingly, our analysis of the economic assumptions tends to focus more on national economic statistics, rather than the actual historical experience of SBCERS itself.

Economic Statistics

Charts I and II that follow on the next page, assist in evaluating the economic assumptions from a historical perspective. Each of the charts shows growth patterns in various economic statistics. These statistics are based on material in the 2006 yearbook published by Ibbotson Associates. Chart I summarizes the annualized rates of growth in prices and wages and the annual yields of bonds and stocks for each 20-year period through 2006. These wage statistics reflect the general wage growth, including inflation and productivity gains, but excluding pay increases due to an individual's promotion or longevity. The 20-year period helps eliminate the effect of short-term influences and focuses instead on the long-term trends that affect the future actuarial experience of SBCERS.

Chart II shows that wages have generally grown at faster rates than prices. We appear to be coming out of a period where the difference between the two was smaller than the historic average.


I: Prices, Wages, Bonds, Stocks
20-Year Periods Ended in Year Shown
Annual Growth Rate
20.0%
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
1953
1958
1963
1968
1973
1978
1983
1988
1993
1998
2003
Prices
Wages
Bonds
Stocks


II: Averages - Wage Inflation and Price Inflation
20-Year Periods Ended in Year Shown
Annual Growth Rate
8.0%
6.0%
4.0%
2.0%
0.0%
1948
1953
1958
1963
1968
1973
1978
1983
1988
1993
1998
2003
Price Inflation
Wage Inflation

3. Wage Growth

Use in the Valuation: Estimates of future salaries are based on two types of assumptions. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salaries due to promotion and longevity occur even in the absence of inflation. The promotion and longevity assumptions, referred to as the merit scale, will be reviewed with the other demographic assumptions.

The current assumption is for no wage growth above the inflation assumption.

Historical Perspective: We have used statistics from the Social Security Administration on the National Average Wage back to 1951. For years prior to 1951, we studied the Total Private Nonagricultural Wages as published in *Historical Statistics of the U.S., Colonial Times to 1970*. The data for each year is documented in Exhibit 3.

There are numerous ways to review this data. For consistency with our observations of other indices, the table below shows the compounded annual rates of wage growth for various 10-year periods, and for longer periods ended in 2006. The excess of wage growth over price inflation represents "productivity" or the increase in the standard of living, (also called the real wage inflation rate). The following table shows the compounded wage growth over various periods, along with the comparable inflation rate for the same period.

Decade	Wage Growth	CPI Incr.	Real Wage Inflation
1997-2006	3.9%	2.4%	1.5%
1987-1996	4.1%	3.7%	0.4%
1977-1986	6.5%	6.6%	(0.1)%
1967-1976	6.4%	5.9%	0.5%
1957-1966	3.4%	1.8%	1.6%

Period	Wage Growth	CPI Incr.	Real Wage Inflation
1997-2006	3.9%	2.4%	1.5%
1987-2006	4.0%	3.1%	0.9%
1977-2006	4.8%	4.2%	0.6%
1967-2006	5.2%	4.6%	0.6%
1957-2006	4.9%	4.1%	0.8%
1932-2006	5.1%	3.6%	1.5%

The excess of wage growth over price inflation represents the increase in the standard of living, also called the real wage inflation rate. In general, real wage inflation had been decreasing until recently.

There has been debate on the issue of whether public sector employees will receive, over the long term, the same rewards for productivity as employees in the private sector, where productivity is more readily measurable. To our knowledge, no definitive research has been completed on this topic. Nevertheless, it is our opinion that public sector employees must be rewarded, even if there is a time lag, with the same productivity increases as those participating in the remainder of the economy.

Forecasts of Future Wages: The wage index we used for the historical analysis has been projected forward by the Office of the Chief Actuary of the Social Security Administration. In the 2007 Trustees Report, the long-term annual increase in the National Average Wage is 1.1% higher than the Social Security intermediate inflation assumption of 2.8% per year. The range of the assumed real wage growth in the 2007 Trustees Report was from 0.6% to 1.6% per year.

Reasonable Range and Recommendation: We believe that a range between 0.50% and 1.50% is reasonable for the actuarial valuation. We recommend that the long-term assumed real wage inflation rate be set at 0.50% per year, the bottom of the range, since the prior assumption was 0.0%, and we prefer to make slow and steady changes in assumptions, rather than move quickly and then need to retract the changes.

REAL WAGE INFLATION RATE	
Current Assumption	0.00%
Reasonable Range	0.50% - 1.50%
Recommended Assumption	0.50%

The Wage Growth assumption is the total of the consumer price inflation assumption and the real wage inflation rate.

Due to our recommendation that the inflation assumption be lowered from 4.00% to 3.50%, the wage growth assumption would remain at 4.00% per year and because it is unchanged, there will be no impact on liabilities for the wage growth assumption.

Payroll Increase Assumption: In addition to setting salary assumptions for individual members, the aggregate payroll of SBCERS is expected to increase, without accounting for the possibility of an increase in membership. See comments on growth in membership below.

The current payroll increase assumption is equal to the general wage growth assumption of 4.0%. It is our general recommendation to set these two assumptions to be equal, unless there is a specific circumstance that would call for an alternative assumption.

A UAAL (or Overfunded Actuarial Accrued Liability -OAAL) may be amortized as a percentage of payroll in determining future contribution rates as a percentage of pay. Payroll growth increases lower than expected have a negative effect on determining the UAAL contribution rate, as a greater percentage of pay will be required to fund the UAAL over a smaller expected payroll. Likewise, payroll growth increases greater than expected have a positive effect on determining the UAAL contribution rate, as a lower percentage of pay will be required to fund the UAAL over a larger expected payroll

Growth in Membership: We propose continuing the assumption that no future growth in membership will occur. This assumption affects the UAAL amortization payment rate. With no assumed growth in membership, future salaries are assumed to grow due to wage growth increases. If increases should occur because of additional members, there will be a larger pool of salaries over which to spread the UAAL, if any, resulting in an actuarial gain.

The short-term pattern of the three years 2004 – 2006 indicates that membership growth might be anticipated, as SBCERS had about a 3.0% increase in membership between 2005 and 2006. Nonetheless, we do not recommend anticipating membership growth as an actuarial assumption. Current conditions in public employment and the state of the national economy argue against anticipating any increase in membership. In addition, the GASB Statement No. 25 will not accept a growth in membership assumption as meeting its required parameters for accounting disclosure purposes. Thus, if a membership growth assumption were to be used for funding purposes, a different set of calculations and results would be needed for accounting disclosure purposes.

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

Exhibit 3

National Average Wage Index

	Index	Increase		Index	Increase
1927	$1,159.14				
1928	1,162.53	0.3%	**1968**	$5,571.76	6.9%
1929	1,196.88	3.0	**1969**	5,893.76	5.8
1930	1,164.95	(2.7)	**1970**	6,186.24	5.0
1931	1,086.09	(6.8)	**1971**	6,497.08	5.0
1932	954.02	(12.2)	**1972**	7,133.80	9.8
1933	892.58	(6.4)	**1973**	7,580.16	6.3
1934	929.34	4.1	**1974**	8,030.76	5.9
1935	968.53	4.2	**1975**	8,630.92	7.5
1936	1,008.20	4.1	**1976**	9,226.48	6.9
1937	1,071.58	6.3	**1977**	9,779.44	6.0
1938	1,047.39	(2.3)	**1978**	10,556.03	7.9
1939	1,076.41	2.8	**1979**	11,479.46	8.7
1940	1,106.41	2.8	**1980**	12,513.46	9.0
1941	1,228.81	11.1	**1981**	13,773.10	10.1
1942	1,455.70	18.5	**1982**	14,531.34	5.5
1943	1,661.79	14.2	**1983**	15,239.24	4.9
1944	1,796.28	8.1	**1984**	16,135.07	5.9
1945	1,865.46	3.9	**1985**	16,822.51	4.3
1946	2,009.14	7.7	**1986**	17,321.82	3.0
1947	2,205.08	9.8	**1987**	18,426.51	6.4
1948	2,370.53	7.5	**1988**	19,334.04	4.9
1949	2,430.52	2.5	**1989**	20,099.55	4.0
1950	2,570.33	5.8	**1990**	21,027.98	4.6
1951	2,799.16	8.9	**1991**	21,811.60	3.7
1952	2,973.32	6.2	**1992**	22,935.42	5.2
1953	3,139.44	5.6	**1993**	23,132.67	0.9
1954	3,155.64	0.5	**1994**	23,753.53	2.7
1955	3,301.44	4.6	**1995**	24,705.66	4.0
1956	3,532.36	7.0	**1996**	25,913.90	4.9
1957	3,641.72	3.1	**1997**	27,426.00	5.8
1958	3,673.80	0.9	**1998**	28,861.44	5.2
1959	3,855.80	5.0	**1999**	30,469.84	5.6
1960	4,007.12	3.9	**2000**	32,154.82	5.5
1961	4,086.76	2.0	**2001**	32,921.92	2.4
1962	4,291.40	5.0	**2002**	33,252.09	1.0
1963	4,396.64	2.5	**2003**	34,064.95	2.4
1964	4,576.32	4.1	**2004**	35,648.55	4.6
1965	4,658.72	1.8	**2005**	36,952.94	3.7
1966	4,938.36	6.0	**2006**	37,968.14 (est.)	2.7
1967	5,213.44	5.6			

H. Cost Implications of Changes in Economic Assumptions

In most retirement systems with variable contribution rates, such as SBCERS, the greatest factor contributing to the volatility of contribution rates is the return on investments. If, in the future, the investment returns are less than the actuarial assumptions, there will likely be increases in the County contribution rate. The base member contribution rates are determined based on the 37 Act statutes, the actuarial assumptions and the benefit provisions. Therefore, any experience gain or loss in investments is not expected to directly impact the member contribution rates but will impact the County contribution rates.

In the short term, the impact of a loss in investment return may be relatively small, since gains and losses on investments are recognized over a five-year period under the current actuarial asset method. Hence, only 20% of any loss would be reflected in the first year.

To assist the Board in understanding the sensitivity to changes in the investment return rate assumption, we valued the Modified 2006 valuation results using three different economic situations. See section 3 of this report for further description of the Modified 2006 valuation results.

The "real rate of investment return" was discussed earlier and is shown as the difference between the investment earnings assumption and the CPI inflation rate assumption. Changes in the real rate of return represent changes in the expected results from investments. These changes are often due to either changes in the market conditions or the investment policy. The investment return assumption impacts the present value of both active and inactive members' benefits.

The financial impact of using an alternative economic assumptions is illustrated in Exhibit 4 Three alternative sets of economic assumptions were valued and are compared to the Modified 2006 valuation using the current economic assumptions.

Alternative 1: The investment return assumption was lowered from 8.16% to 8.00%, and the underlying CPI assumption was lowered from 4.00% to 3.50%. This change produces a change in the expected real rate of return from 4.16% to 4.50%, resulting in a higher expectation of long term growth from the portfolio over time. The spread between wages and the investment return changes from the current assumption of 4.16% to 4.00%.

Since valuation assumptions are usually set at rates to the nearest 0.50% or 0.25% then a slight risk adjustment was made to account for the use of current market assumptions, knowing there may be some short term volatility in those assumptions. Administrative expenses are assumed to be paid out of these returns.

Alternative 2: The investment return assumption was decreased from 8.16% to 7.75% in addition to having the underlying CPI assumption lowered from 4.00% to 3.50%. This lower return assumption is about 0.50% less than the median rate developed using the capital market assumptions with no risk adjustment. Under this alternative, the return was reduced by 0.50% from the capital market assumptions to allow for some implicit recognition for excess earnings benefits in the future. Administrative expenses are assumed to be paid from additional returns.

The spread between wages and the investment return assumption decreases from the 4.16% under current assumptions to 3.75% and the real rate of return increases from 4.16% to 4.25%, resulting in a higher expectation of long term growth from the portfolio over time but less than the increase under Alternative 1.

Alternative 3: The investment return assumption was decreased from 8.16% to 7.50% in addition to having the underlying CPI assumption lowered from 4.00% to 2.75%. The spread then increases from 4.16% to 4.50% and the real rate of return increases to 4.75%. This alternative makes no further adjustments for risk, or excess earnings. Administrative expenses are assumed to be paid from additional returns.

Note that PCA is currently assuming a 2.50% inflation assumption. This alternative is shown for illustration purposes using 2.75% inflation. Moving down to 2.50% inflation would be a significant change for SBCERS at this time.

Exhibit 4-1 illustrates the financial impact on the Modified 2006 valuation results for these three alternative economic assumption packages. As indicated above, although the real rate of return changed for Alternative 1, the costs are impacted less than for other alternative assumption sets. This is because only the investment return assumption and the general wage increase assumption are used to evaluate the present value of benefit obligations. The CPI inflation assumption is used in determining the other economic assumptions.

We would strongly caution the Board from making actuarial assumption decisions based solely on the financial impact. The final assumptions adopted by the Board using the new proposed price inflation, wage inflation and the current 8.16% investment return assumption are within the reasonableness range.

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

Exhibit 4-1

Analysis of Alternative Investment Return Assumptions

(dollar amounts in millions)

Actuarial Assumption	Current Assumptions	Alternative 1	Alternative 2	Alternative 3	Adopted
Investment return	8.16%	8.00%	7.75%	7.50%	8.16%
General wage increase	4.00%	4.00%	4.00%	3.00%	4.00%
CPI inflation	4.00%	3.50%	3.50%	2.75%	3.50%
Development of Investment Return Assumption					
Projected Median Return Net of Inflation	5.76%	4.61%	4.61%	4.61%	4.61%
Risk Adjustment	1.61%	0.12%	0.00%	0.00%	-0.04%
Excess Earnings Adjustment	none	none	-0.50%	0.00%	none
Administrative Expense Adjustment	0.15%	0.15%	none	none	0.15%
Net Median Return	4.00%	4.34%	4.11%	4.61%	4.50%
Inflation assumption	4.00%	3.50%	3.50%	2.75%	3.50%
Investment Return	8.00%				
Compound Annualized rate	(8.16%)	8.00%	7.75%	7.50%	8.16%
Spread:					
Investment earnings less general wage increase	4.16%	4.00%	3.75%	4.50%	4.16%
Real rate of return:					
Investment earnings less CPI inflation (arithmetic)	4.16%	4.50%	4.25%	4.75%	4.66%

Actuarial Impact on Funding

"Modified June 30, 2006 Valuation"

Actuarial Accrued Liability	$1,758.0	$1,795.9	$1,857.5	$1,922.3	$1,758.0
Funding Ratio	80.5%	78.8%	76.2%	73.6%	80.5%
County Normal Cost Rate	13.18%	13.88%	15.04%	16.30%	13.18%
UAAL Contribution	11.69%	12.88%	14.81%	16.84%	11.69%
Total County Contribution	24.87%	26.76%	29.85%	33.14%	24.87%
Increase / Decrease from Current Economic Assumptions	N/A	1.89%	4.98%	8.27%	N/A

Notes:

The spread is the effective discount rate for the active member present values.

The investment return assumption less the statutory COLA increases is the effective discount rate for the inactive member present values.

The real rate of return reflects an investment return net of inflation. This is expected to be mostly dependent on the fund's asset allocation.

All actuarial assumptions are set for the purposes of funding the obligations of SBCERS on a reasonable basis. While historical information is useful, it should not be the sole basis for establishing assumptions for the future.

The general wage increase assumption is used to project future payrolls which in turn is used to amortize any Unfunded Actuarial Accrued Liabilities (UAAL)

J. Conclusion

Current portfolio expectations, even for 20 years or more, indicate that a decrease in the investment return assumption to 7.75% is reasonable, yet historical returns support a continuation of the current 8.16% rate. The Board needs to decide if this is the appropriate time to make a change, or whether to wait another three years until the next triennial experience study to consider a change in the investment return assumption. This assumption can also be reviewed prior to the next experience study.

Maintaining the investment return assumption at 8.16% is less conservative under current capital market and inflation expectations than it has been in the past, and thus, the current assumption is more aggressive than the economic assumptions used in funding SBCERS' benefits in the past. The 8.16% is particularly aggressive if excess earnings benefits are payable. The decrease in the assumed price inflation assumption to 3.50%, requires an increase in the expected real rate of return for investments to maintain the same total investment return assumption. The Board should understand that the investment return assumption is a long-term assumption. A desire to anticipate trends and yet not overact too quickly would allow for keeping the assumption at 8.00% for the next few years. This would not harm the long-term funding integrity of the plan, barring there are no excess earnings benefits.

In addition to looking at the actuarial studies and models, the Board needs to consider all other factors related to this discussion. The following is a list of comments presented earlier and other factors not otherwise discussed:

- From the capital market assumptions study and SBCERS' current asset allocation, there is a 44% probability the expected returns for funding purposes will be less than 8.00% and a 56% probability they will be greater than 8.00% over the next 50 years. Expenses are assumed to be 0.45%, so the gross returns would need to be higher.

- Similar capital market expectation studies for other systems in 2001 and earlier predicted a range of reasonableness for the valuation investment return assumption of 8.0% to 9.6%.

- Excess Earnings over that needed to maintain a 1.0% Contingency Reserve are assumed to be available for funding purposes. Any future distributions of excess earnings are ignored for this discussion except for under Alternative 2.

- Historically, over longer periods of time and based on the current asset allocation the fund would have earned more than the current 8.16% assumed rate of return, prior to consideration of excess earnings.

- The economic assumptions are subjective and the Board can adopt changes at any time between the triennial studies. Changes in demographic assumptions are more objective and need to be based on an actuarial investigation which is scheduled to occur only every three years.

Based on all of these factors, we feel that an investment return assumption between 7.50% and 8.16% is reasonable for funding the SBCERS benefits for the 2007-2009 actuarial valuations.

INVESTMENT RETURN	
Current Assumption	8.16%
Reasonable Range Based on Studies	7.00% - 9.50%
Recommended Range for Actuarial Assumption Purposes	7.50% - 8.16%

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

Exhibit 4-2

PCA's Capital Market Assumptions

Asset Class	Expected Return*	Standard Deviation
Domestic Equities	9.00%	15.0%
International Equities	9.00	18.5
Domestic Fixed Income	5.25	5.0
Real Estate	7.00	10.0
Alternative Investments	12.50	32.0
Cash	4.50	2.0

** Arithmetic return includes PCA's assumed inflation rate of 2.50%.*

	Cross Correlation Matrix				
Asset Class	**Domestic Equities**	**International Equities**	**Domestic Fixed Income**	**Real Estate**	**Alternative Investments**
Domestic Equities	1.00				
International Equities	0.60	1.00			
Domestic Fixed Income	0.00	0.00	1.00		
Real Estate	0.20	0.10	-0.10	1.00	
Alternative Investments	0.75	0.60	-0.20	-0.10	1.00
Cash	0.00	-0.05	0.15	0.20	0.10

Exhibit 4-3

Milliman's Capital Market Assumptions

Asset Class	Expected Return*	Standard Deviation
Domestic Equities	9.00%	18.5%
International Equities	9.18%	19.7%
Domestic Fixed Income	5.64%	6.8%
Real Estate	7.35%	12.9%
Alternative Investments	12.21%	30.0%
Cash	3.79%	1.5%

** Arithmetic return includes assumed inflation rate of 2.50%.*

	Cross Correlation Matrix				
Asset Class	**Domestic Equities**	**International Equities**	**Domestic Fixed Income**	**Real Estate**	**Alternative Investments**
Domestic Equities	1.00				
International Equities	0.71	1.00			
Domestic Fixed Income	0.33	0.27	1.00		
Real Estate	0.05	0.18	0.03	1.00	
Alternative Investments	0.63	0.40	-0.04	0.16	1.00
Cash	-0.30	-0.34	-0.46	-0.27	0.00

Section 5

Salary Increases Due to Promotion and Longevity (Merit Increases)

As discussed in Section 4, estimates of future salaries are based on assumptions for two types of increases:

(1) Increases in each individual's salary due to promotion or longevity, which occur even in the absence of inflation; and

(2) Increases in the general wage level of the membership, which are directly related to inflation and increases in productivity.

In this section we will study the first of these rates, increases due to promotion or longevity. We generally refer to these increases as merit increases.

Results

Merit increases are usually related to four factors. We studied each of these factors to see if they were significant, and, if so, what the impact was. Our findings were as follows:

- **Sex**: The current rates assume that there is no significant long-term difference in salary merit increases between males and females. We generally do not differentiate between males and females for merit increases. We have continued to ignore sex in our recommended merit increases.
- **Attained Age**: Members with younger ages may be assumed to get larger merit increases than older members with the same years of service. However, based on other studies, we have found that service rather than age has a much higher correlation in predicting future salary merit increases. SBCERS' current assumption is relative to age and is independent of years of service.
- **Service**: Members in the early stages of their careers tend to get larger merit increases. In other studies, we have found years of service to have the most significant impact on merit increases. We found this to be true with SBCERS.
- **Membership**: Members in the General and APCD Plans may receive different merit increases than Safety Members. In the review of experience for this study we found this to be true. SBCERS' current assumption is also dependent on membership. We continue to support different merit increase assumptions based on membership.

Methodology

In studying merit increases, we first calculated the increase in member salaries that was due to general wage growth for each year of the study. For each individual we then calculated their total salary increase by comparing their salaries for successive years. The merit increase was then identified by removing the general wage growth portion from the member's total salary increase.

The study by years of service for General members resulted in increases similar to, but slightly higher than, those measured by other client studies. However, the rates for Safety members are especially high. Therefore, we are recommending proposed merit increases 1% lower than those from the study on the experience basis. This adjustment reflects the likelihood that a greater than usual share of salary increases came from individual merit increases rather than general wage inflation over this study period. This is because for the Safety group the underlying general wage growth appeared to be less than price inflation measured over the same period.

Comments

We studied the SBCERS salary increases using our traditional approach for studying service related merit increases. This method can be somewhat dependent on the experience for the period of time studied. If the overall wage increases for a period are somewhat held back due to prior negotiations, then we often find the merit piece appears to be larger than would occur during other periods of time when the "across the board" types of increases are fixed.

Based on our prior experience with other public systems, we felt the base experience data for the Safety group appeared to be unusually high (up to 2.00% per year) for merit increases after 10 years of service. Normally, we would expect to see experience data rates around 0.50% for members with longer service durations. Therefore, we made our "best estimate" recommendation on proposed merit increases for Safety about 1.00% less than the study would have indicated from measured experience and based the General proposed rates on the experience base data.

After reviewing the financial impact of the "best estimate" recommendation, we felt this is one area where the proposed assumptions could be potentially high compared to other systems. In addition, this was the first time the SBCERS data had been studied on the duration basis. Therefore, we have suggested the Board consider an Alternative Assumption for merit increases which has removed another 0.50% from the proposed rates for both General and Safety members. This adjustment has the members with longer durations receiving merit increases around the 0.50% level and is much more in line with typical results from other studies we have seen.

Recommendation

We are recommending a change from an age-based merit increase assumption to a service-based assumption as shown in Appendix B: Exhibit 5-1(a) and 5-2(b). Exhibit 5-2(a) shows the base experience data and possible rates but this was not used to make the proposed recommendation. The proposed rates were reduced by 1.00% and are also shown numerically in Appendix A.

The new recommended rates reflect the following:

- Higher merit increases in the early years of service decreasing sharply over the first eight (8) years of service. After about eight years, merit increase rates are fairly stable.
- For General members, this assumption generally assumes a lower merit increase rate after the first four years of service. For Safety members, the proposed rates are higher throughout an individual's service.

We believe the modified rates used for the Alternative Assumptions are reasonable but not necessarily "best estimate" assumptions. Subsequent experience studies should indicate if the assumptions are reasonable and this was an unusual period to measure the duration merit increase rates or if the rates should in fact be higher.

The set of assumptions labeled Alternative Assumptions above are shown in Exhibit 5-1(b) and 5-2(c). The Board adopted the Alternative Assumptions.

Financial Impact

Please refer to the financial information in the Executive Summary for the financial impact of the recommended assumption changes. We have included in the Alternative Assumptions costs the impact for the modified assumption as discussed above.

Section 6

Death from Active Status

We studied rates of mortality among active members. At any given age, the current assumption is a lower probability of death for an active member than for a retired member. We feel this is reasonable as a person who is actively working tends to be healthier, and therefore less likely to die, than the general population.

Results: Ordinary Deaths

Overall, the current rates provided a good estimate of the number of deaths. The following is a comparison of the actual to expected deaths of active members by plan and sex for this study period. Our recommendation for the proposed rates is discussed below

Plan	Sex	Actual	Expected	Actual / Expected	Proposed	Actual / Proposed
General	Male	6	4	150%	5	120%
General	Female	6	6	100%	7	86%
Safety	Both	1	2	50%	2	50%
	Total	13	12	108%	14	92%

The rates are also shown numerically in Appendix A. The rates are currently based on three factors. We studied each of these factors to see if they were significant, and, if so, what the impact was. Our findings were as follows:

- **Age**: Members at older ages tend to have a greater probability of dying than younger members.
- **Sex**: Male members tend to have a greater probability of dying than females. This trend is generally true for all mortality studies, and we found this to be true with SBCERS.
- **Membership:** Usually the Safety members have comparatively lower rates of mortality. These lower rates of death while still in active employment are most likely a result of the much earlier retirement ages available to Safety members and their higher rates of disablement while active. However, the SBCERS data is so small it is not possible to verify any difference by class. Therefore, the assumption used for Safety members is the same as assumed for General members.

Recommendation

In Section 11 we are making a recommendation to change the mortality assumptions to be based on a more current table, the RP2000 Table. For consistency, we recommend using the same mortality assumptions for active members as the rates recommended for retired members.

Financial Impact

There is no significant financial impact due to the change in mortality assumptions for deaths from active status.

Section 7

Service Retirement

Exhibits in this section present comparisons of actual service retirements during the study period with those expected according to the actuarial assumptions used in Buck's June 30, 2006 valuation.

Results

- For Safety members and General Plan Males, the current service retirement rates fit reasonably well to the experience for the study period. For Safety members, there were slightly more service retirements than expected. For General Plan Females, there were significantly more retirements than expected. The results are summarized for all ages below.

Plan	Sex	Actual	Expected	Actual / Expected	Proposed	Actual / Proposed
General	Male	135	140	96%	147	92%
General	Female	247	136	182%	243	102%
Safety	Both	100	102	98%	104	96%
	Total	482	378	128%	494	98%

Retirement rates are currently based on three factors. We studied each of these factors to see if they were significant, and, if so, what the impact was. Our findings were as follows:

- **Age**: For General members, the probabilities of retirement tend to be higher at ages 62 and above than at earlier ages. Additionally, there tend to be even higher rates at ages 62 and 67, mainly due to the impact of Medicare and Social Security. For Safety members, the rate of retirement is highest between ages 55 to 58. This is not unexpected, given the Safety retirement eligibility rules. For both General and Safety members, we noticed several members who are still active after age 70 (General) and age 60 (Safety). Note that we focused on the fit of the Proposed Assumptions to the experience between ages 50 and 70 for General members and below age 60 for Safety members, as shown in the Exhibits. Please refer to the Exhibits to compare the Actual/Proposed on that range.
- **Sex**: In this study, we found slightly different patterns between General Plan males and females, and retained separate rates of retirement by sex. For Safety members, we use the same rates regardless of sex.
- **Membership**: Safety members are currently assumed to have retired from active status by age 60 and have much higher rates of retirement between ages 55 and 60 than the General members. General members are currently assumed to have retired from active status by age 70.

Recommendation

We are recommending changes in the rates of retirement, as shown in Appendix B: Exhibits 7-1 to 7-3. The new proposed rates are also shown numerically in Appendix A. The recommended changes are as follows:

- For General Plan Male members, there were slightly less service retirements than expected. We have recommended modest increases in the rates for service retirement. Again, we have recommended extending the ultimate assumed retirement age from age 70 to 75.
- For General Plan Female members, there were significantly more service retirements than expected. We have recommended increasing the rates for service retirement, particularly between ages 50-64. We have also recommended extending the ultimate assumed retirement age from 70 to 75.
- For Safety members, there were more service retirements than expected, particularly between ages 53-58. We have recommended increasing the rates for service retirement, primarily between these ages. We also recommend extending the ultimate assumed retirement age from 60 to 65 as several Safety members are still active beyond age 60.

Financial Impact

Please refer to the financial information in the Executive Summary for the financial impact of the recommended assumption changes.

Section 8

Disability Retirement

SBCERS allows a member to start receiving benefits prior to eligibility for service retirement if they become disabled. There are two types of disability:

- Nonservice-Connected Disability: This is available to a disabled member only if he has satisfied the vesting requirement.
- Service-Connected Disability: This is available only to members who are disabled for the performance of duty. There is no service requirement, and the service-connected disability benefit generally pays a larger benefit than nonservice-connected disability.

Results – Service-Connected Disability

Overall, we found there were fewer service-connected disabilities than the current rates would have predicted. The following is a comparison of the actual to expected service-connected disabilities for active members by sex and plan for this study period.

Plan	Sex	Actual	Expected	Actual / Expected
General	Male	1	4	25%
General	Female	3	6	50%
Safety	Both	14	9	156%
	Total	18	19	95%

The rates are currently based on age, sex and plan membership. Our findings were as follows:

- **Age**: Members at older ages tend to have a greater probability of becoming disabled than younger members.
- **Sex**: We applied the current service-connected disability rates which are higher for General Males than for General Females and not sex-distinct for Safety members. Given the limited number of disabilities, these differences appear to be reasonable.
- **Membership:** Safety members have higher rates of disablement than General members; therefore, separate rates are recommended for each class.

Recommendation: Service-Connected Disability

Since actual experience was less than expected and the number of disabilities studied is not large enough upon which to have creditable information regarding a change, no changes are recommended.

Results: Nonservice-Connected Disability

Overall, we found there were about the same nonservice-connected disabilities than what the current rates would have predicted. The following is a comparison of the actual-to-expected nonservice-connected disabilities for active members by plan and sex for this study period.

Plan	Sex	Actual	Expected	Actual / Expected
General	Male	0	2	0%
General	Female	9	9	100%
Safety	Both	2	1	200%
	Total	11	12	92%

We studied rates by sex, age, and plan. Our findings were as follows:

- **Age**: Members at older ages tend to have a greater probability of becoming disabled than younger members.
- **Sex**: We applied the current nonservice-connected disability rates which are higher for General Females than for General Males and not sex-distinct for Safety members. Given the limited number of disabilities, these differences appear to be reasonable.
- **Membership:** The current assumptions have higher probabilities for Safety members than General Male members, but lower than General Female members.

Recommendation: Nonservice-Connected Disability

We are recommending no change in these rates.

Note that over just a single four-year period, the number of disabled is very small upon which to base a creditable set of age factors. We did compare the current service-connected and nonservice-connected rates with those used in the LACERA valuation. LACERA is large enough to have more creditability experience. The current SBCERS rates tend to be lower than LACERA's rates for duty (service-connected) disability and slightly higher for nonduty (nonservice-connected).

Overall, for all disabilities and all members, the actual number of disabilities was 29 compared to an expected total of 31, or a 94% A/E ratio. We are not inclined to adjust the rates based solely on this single four-year period.

Financial Impact

Since no changes are recommended, there is no financial impact.

Section 9

Termination
(Includes both Refunds and Vested Terminations)

This section of the report summarizes the results of our study of terminations of employment for reasons other than death, service retirement, or disability. A member who terminates, but does not retire, is assumed to either take a refund (a withdrawal) or terminate employment but leave their member contributions with the system (a vested termination). We will refer to the combination of the two rates as the aggregate termination rate. This approach sets a probability that the member will terminate, and then assumes a certain portion of the members terminating will elect a refund. The probability of refund is discussed in more detail in Section 10.

Results – Aggregate Terminations (Refunds and Vested Terminations)

Exhibits 9-1 to 9-3 in Appendix B show the results of the study graphically. The following chart summarizes these results:

Plan	Sex	Actual	Expected	Actual / Expected	Proposed	Actual / Proposed
General	Male	273	262	104%	274	100%
General	Female	612	677	90%	598	102%
Safety	Both	89	106	84%	98	91%
	Total	974	1,045	93%	970	100%

Termination rates are usually based on four factors: age, years of service, sex and membership. We studied each of these factors to see if they were significant, and if so, what the impact was. Our findings were as follows:

- **Service**: Members in the early stages of their careers have a higher probability of terminating. In other studies, we have found years of service to have the most significant impact on termination. We found this to be true with SBCERS.
- **Sex**: The current rates assume that General Plan Males and Females have different termination rates. We discovered very few differences in termination patterns based on sex in this study, so we are recommending one set of rates for both sexes.

  The Safety Plan has significantly more male than female members. The current rates assume that males and females in this plan have similar termination patterns. We are recommending retaining this approach.

- **Age**: The current termination assumptions for General and Safety members are based on age; however, we found that years of service was a more significant factor for both Safety and General members. We are recommending new rates for both Safety and General members based on service. The exhibits illustrate the overstatement of termination when using age-based rates.

Recommendation

We are recommending new rates of termination for all plans as follows:

- **General Plans:** We are recommending adopting rates of termination based on service rather than age. These types of rates are typically called "duration-based". The current assumptions are "age-based". We have recommended the same rates for males and females.
- **Safety Plans:** We have also recommended rates of termination based on service. We have recommended the same rates for males and females.

Financial Impact - Recommended Rates

Please refer to the financial information in the Executive Summary for the financial impact of the recommended assumption changes.

Section 10

Probability of Refund

As discussed in Section 9, the aggregate termination rates include both members who terminate and take a refund of their contributions and those who elect to keep their contributions with SBCERS and receive a deferred vested benefit. The percentage of members who are expected to take a refund of their contributions is the probability of refund assumption.

Results

For vested members, there were fewer refunds that the assumptions projected. There was some correlation between years of service at termination; that is, members who terminated with more years of service were less likely to take a refund.

Plan	Sex	Actual	Expected	Actual / Expected	Proposed	Actual / Proposed
General	Male	182	201	91%	190	96%
General	Female	433	523	83%	434	100%
Safety	Both	52	70	74%	59	88%
	Total	657	704	84%	683	96%

Recommendation

We are recommending decreasing the probability of refund and basing these rates on years of service. No refunds are assumed to occur after a member in any plan has 20 years of service. The rates start higher for members with fewer years of service and decline as indicated to 0% or no refund.

Financial Impact

The financial impact of this recommended change was included with the change in termination rates. Please refer to the financial information in the Executive Summary for the financial impact of the recommended assumption changes.

Section 11

Retiree Mortality for Valuation Purposes

We studied rates of mortality among healthy and disabled retired members. Valuation mortality is a critical assumption, since if members live longer than expected, we will be understating the true cost of the future plan obligations.

Results – Service Retirees

Overall, we found there were slightly fewer deaths than the current rates would have predicted for healthy retired members: 206 actual to 217 expected for a total ratio of 95%. We strongly recommend the healthy retiree assumptions be strengthened. The following is a comparison of the actual-to-expected deaths of retired members by sex and type for the study period 2003-2007. There are very few disabled members upon which to base a credible experience study. The disabled retiree experience , with a total actual-to-expected ratio of 79% also needs to be strengthened.

Class	Type	Sex	Actual	Expected	Actual / Expected	Proposed	Actual / Proposed
General	Healthy	Male	100	96	104%	91	110%
General	Healthy	Female	96	103	93	87	110
Safety	Healthy	Male	8	17	47	14	57
Safety	Healthy	Female	2	1	200	1	200
Subtotal	Healthy		206	217	95%	193	107%
General	Disabled	Male	7	11	64%	7	100%
General	Disabled	Female	9	7	129	5	180
Safety	Disabled	Both	3	6	50	4	75
Subtotal	Disabled		19	24	79%	16	119%
Total All			225	241	93%	209	108%

Exhibits 11-1 through 11-4 show the results of the study graphically for the period studied 2003-2007, but only for the Healthy retiree deaths. The data was too sparse to graph for the disabled retiree deaths. Note that the combined General and Safety Healthy member experience suggests an actual-to-proposed A/E ratio of 103% for Males and 111% for Females. Thus, the proposed rates still have very little margin for Male longevity improvements.

The rates are currently based on four factors. We studied each of these factors to see if they were significant, and, if so, what the impact was. Our findings were as follows:

- **Age**: Members at older ages tend to have a greater probability of dying than younger members.
- **Sex**: Male members tend to have a greater probability of dying than females. This trend is generally true for all mortality studies, and we found this to be true with SBCERS.
- **Retirement Type**: Healthy retirees live longer than disabled retirees. This trend is generally true for all mortality studies, and we found this to be true with SBCERS.
- **Membership:** The current assumptions predict that Safety members have the same expected mortality as General members. There were very few deaths among Safety members upon which to determine credible rates. This study assumes the same rates for Safety and General members.

In this study, we did not study how the value of an individual's benefit affects their mortality. However, in general, we find that mortality rates decrease as the value of benefits increase. This is important because even if, in the aggregate, the number of deaths equals the expected numbers, actuarial losses will still occur.

Recommendation

We recommend changing the mortality assumption for healthy and disabled retirees. We studied the experience using the RP-2000 Mortality Tables as the base table for all groups, but adjusted the standard rates to be either lower or higher than these rates (an age set back or age set forward) to recognize SBCERS' experience.

It is an established trend that people are continuing to live longer. We feel it is appropriate to include some margin in the rates to account for the future improvement in mortality. Generally, we like to see a margin of at least 10%; that is, the actual deaths among current retirees are at least 10% greater than the expected deaths during the study period. For this study, we are recommending changes in the retiree assumption. Our reasoning is as follows:

- **Healthy General Male Retirees**: The actual number of deaths is only slightly greater than the assumption predicted (actual deaths are 104% of expected). We are recommending updating these rates to a more modern mortality table (RP-2000) with lower mortality rates in order to:
  1) provide a margin for future mortality improvements; and
  2) account for the lower mortality of those with the most valuable benefits, as discussed above.
- **Healthy General Female Retirees:** The current rates assume more deaths than were actually experienced (actual-to-expected is 93%). We are recommending updating these rates to a more modern mortality table (RP-2000) with lower mortality rates. Again, this helps to achieve the two goals outlined above.
- **Healthy Safety Retirees:** There are very few actual deaths among the Safety members upon which to base a credible study. We have recommended adopting the same mortality tables for Safety members as adopted for General members.

Comments on Service Retirees

Although we believe that SBCERS should be recognizing the potential for future improvements in longevity for its active members, in the interest of providing the Board with some discussion surrounding all of the proposed assumption changes, we have provided a set of Alternative Assumptions for the Service Retiree Mortality assumptions. If the Board should adopt these Alternative Assumptions it should be considered as only a temporary measure with the expectation that additional strengthening of this assumption will occur in 2010 with the next experience study.

We reduced the age setbacks on the RP-2000 table by one year so that the proposed Male rates on the Combined table were not age-adjusted back three years but only two years. Likewise, for the Females the age adjustment was reduced to a one-year age setback. The Alternative Assumptions do not provide any margin for future mortality improvements. The Alternative Assumptions do strengthen the Female mortality assumptions and better match actual experience. The base mortality table for the Alternative Assumptions relies upon more recent data than the old mortality table. Also, the new table is designed to allow projections for improvements in future years.

Class	Type	Sex	Actual	Expected	Actual / Expected	Alternative	Actual / Proposed
General	Healthy	Male	100	96	104%	101	99%
General	Healthy	Female	96	103	93	96	100
Safety	Healthy	Male	8	17	47	15	53
Safety	Healthy	Female	2	1	200	1	200
Subtotal	Healthy		206	217	95%	213	96%
General	Disabled	Male	7	11	64%	7	100%
General	Disabled	Female	9	7	129	5	180
Safety	Disabled	Both	3	6	50	4	75
Subtotal	Disabled		19	24	79%	16	119%
Total All			225	241	93%	229	98%

Disabled Retirees

In SBCERS there is very little data upon which to base a credible experience study of disabled retiree mortality. We recommend adopting a more modern table than was previously used, but assuming they have a shorter life expectancy than the healthy retired members. The recommended proposed rates are based on the new standard RP-2000 Combined Mortality Table with age adjustments as follows:

		Mortality Tables								
		Current			Ratio†	Proposed				Ratio
General	Healthy	1994 GAR -2	M	100%	104%	RP-2000	M	Combined	-3	110%
General	Healthy	1994 GAR +1	F	100	93	RP-2000	F	Combined	-2	110
Safety	Healthy	1994 GAR -2	M	100	47	RP-2000	M	Combined	-3	57
Safety	Healthy	1994 GAR +1	F	100	200	RP-2000	F	Combined	-2	200
General	Disabled	1994 GAR +5	M	100	64	RP-2000	M	Combined		100
General	Disabled	1994 GAR +5	F	100	129	RP-2000	F	Combined		180
Safety	Disabled	1994 GAR +2	M	100	50	RP-2000	M	Combined		75
Safety	Disabled	1994 GAR +2	F	100	n/a	RP-2000	F	Combined		n/a
Total					**93%**					**108%**

† Ratio: The ratio of actual to expected deaths for the 2003-2007 study period.

Note that the "-2" after the table name indicates that mortality rates are set backward two years. By setting a table backward two years, we are assuming that a 70-year old SBCERS healthy male retiree would have the same probability of dying as a 68-year old from the standard table. If no age adjustment is indicated, the table is not adjusted.

Financial Impact

Please refer to the financial information in the Executive Summary for the financial impact of the recommended assumption changes.

Section 12

Miscellaneous Assumptions

Probability of Eligible Survivor

All members are assumed to elect the unmodified retirement allowance. Surviving beneficiaries (spouses or qualified domestic partners of members) generally receive a 60% continuance of the member's benefit (100% continuance for service-connected disabilities and 50% for Plan 2 members). Thus, the probability that a member has an eligible survivor impacts the value of the benefit.

We analyzed the option selected by recent service retirees. We found that 75% of males and 50% of females elected the unmodified option and had a qualified survivor beneficiary (either an eligible spouse, qualified domestic partner, or eligible child).

Marital statistics from the U.S. Census Bureau showed that 79% of males and 66% of females were married, for people between age 55 and 64 (the ages when most retirements occur). Based on this, we believe that the results of our study are credible.

We recommend retaining the current assumptions that 80% of all male retirees have an eligible survivor and 50% of all female retirees. These assumptions should allow for an implicit assumption to include eligible domestic partners as well as spouses.

Beneficiary Age

To determine the value of a member's retirement or death benefit, we must estimate the value of the portion payable to the surviving eligible beneficiary. Since the value of the survivor's benefit is dependent on his/her age, we must estimate it. Based on studies we did on SBCERS retiree data, we found that, on average, male spouses were two years older than female members and that female spouses were just over three years younger than male members. Therefore, we feel that the current assumption is reasonable.

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

Since the majority of eligible survivors are expected to be of the opposite sex, even with the inclusion of qualified domestic partners, we will continue to assume that the survivor's sex is the opposite of the member. This assumption should be reviewed again during the 2010 study.

Retirement for Vested Terminated Members

To determine the value of a vested terminated member's future retirement benefit, we must estimate the age at which a member will start to receive the benefit. Based on our study of members who moved from a vested terminated status to a retirement pay status during the period 2003 - 2007 we found that, on average

- General Plan 5 and APCD members commenced retirement benefits at age 56.
- Safety members commenced retirement benefits at age 52.

Since General Plan 2 has relatively few vested terminated members, and actuarially equivalent early retirement reduction factors, we determined that the current assumption (age 65) is still appropriate.

Since Safety Plan 6 members can receive an unreduced benefit at age 50, we recommend using this as the assumption for that Plan, compared to age 52 for Safety Plan 4.

Therefore, based on the above we recommend adopting the following retirement age assumptions for vested terminated members.

Plan	Age at which a vested terminated member commences retirement benefits	
	Current Assumption	Recommended Assumption
General Plan 2	65	No change
General Plan 5	62	56
Safety Plan 4	55	52
Safety Plan 6	N/A	50
APCD Plan	62	56

Reciprocity

The current assumption is that 50% of all deferred vested members are eligible for reciprocity with another California retirement system. We analyzed the recent experience and are comfortable with continuing to use this assumption.

Financial Impact

The financial impact of this change was measured as part of the June 30, 2007 Actuarial Valuation. On that basis, this change in retirement age assumption changes the total County Normal Cost rate increases by approximately 0.18%, and the total Unfunded Actuarial Accrued Liability rate increases by approximately 0.11%, for a total increase of 0.29%.

Since we are not making any recommendations for changes in any other of the above assumptions, there is no financial impact for those assumptions.

Section 13

Assumptions for Post Employment Benefits Other than Pensions

When appropriate, our assumptions for valuing the Postretirement Medical Plan will match the assumptions used for the pension valuation. The termination, retirement, disability, mortality, and other assumptions will be the same as used for the pension valuation.

We also have assumptions unique to the Postretirement Medical Plan valuation and discuss those below:

Health Plan Participation

We recommend an assumption that 75% of future retirees will select a monthly subsidy for County health plan benefits of $15 per year of service, while 25% will select the cash benefit option. This is a significant increase from the 60% assumed for the June 30, 2006 valuation.

As of the valuation date, approximately 65% of retirees choose the $15 subsidy. However, those with long service are significantly more likely to choose the $15 option than those with short service. When we reviewed the selection of health plan coverage on a service-weighted basis, we found that those who chose the $15 subsidy had approximately 76% of the total service. For this reason, we feel that an assumption of 75% is more appropriate than the previous assumption.

To illustrate why a service-weighted assumption is more appropriate, consider an example. Suppose that five people retire, three with 20 years of service and two with 10 years of service. Now, suppose that all three with 20 years of service elect the $15 subsidy, while both of the others select the $4 option. In this case, 60% of the retirees have chosen the $15 subsidy; however, those retirees have 60 of the 80 total years of service, or 75% of the total service.

The total monthly benefit in this scenario is summarized as follows:

Number of Retirees		Benefit Level		Years of Service		Benefit
3	x	$15.00	x	20	=	$900
2	x	$4.00	x	10	=	80
5						$980

If we assumed that each person had a 60% chance of choosing the $15 option and 40% chance of choosing the $4 cash option, then the expected monthly benefits would be as follows:

Likelihood of Choosing Option		Number of Retirees		Benefit Level		Years of Service		Benefit
60%	x	3	x	$15.00	x	20	=	$540
40%	x	3	x	$4.00	x	20	=	96
60%	x	2	x	$15.00	x	10	=	180
40%	x	2	x	$4.00	x	10	=	32
								$848

If we use a service-weighted assumption, then the expected monthly benefits would be as follows:

Likelihood of Choosing Option		Number of Retirees		Benefit Level		Years of Service		Benefit
75%	x	3	x	$15.00	x	20	=	$675
25%	x	3	x	$4.00	x	20	=	60
75%	x	2	x	$15.00	x	10	=	225
25%	x	2	x	$4.00	x	10	=	20
								$980

For this reason, using a 60% likelihood of choosing the $15 subsidy for everyone will understate the future benefits, assuming that the current patterns regarding health plan participation continue in the future. Therefore, we have recommended a 75% assumption to reflect the service-weighted decisions of current retirees.

Maximum Subsidy

When the monthly premium for the health plan selected is less than $15 times the member's years of service, the subsidy is limited to the entire premium.

In the June 30, 2006 valuation, when retirees had health premiums lower than the maximum monthly subsidy implied by $15 times years of service, the premiums were assumed to remain constant for that person. For the June 30, 2007 valuation, we recommend using the maximum monthly subsidy.

As of June 30, 2007, there were retirees receiving a subsidy that is less than the maximum monthly subsidy implied by $15 times years of service. When considering all retirees, the total subsidy as of the June 30, 2007 was approximately 99% of the maximum possible based upon $15 times years of service. As health costs continue to increase, this percentage should increase with time. For this reason, we feel it is appropriate to use the maximum subsidy for our valuation.

Post-retirement Benefit Increases

For the June 30, 2006 valuation, it was assumed that no future increases will be granted in any of the following:

- Monthly Health Premium Subsidy of $15 per year of service
- Monthly Cash Benefit of $4 per year of service for those electing to forego the health subsidy
- Monthly Subsidy of $187 for members receiving disability retirement benefits

We recommend a continuation of that assumption for the June 30, 2007 valuation. There have been multiple increases in these benefit levels in the past, although they have not been increased since 2002. If this history of increases is considered part of the substantive plan, continued increases should be assumed. We recommend that this assumption be reviewed if any additional increases are made to the level of benefits.

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

Section 14

Service Retirement – Safety Plan 6

Section 7 of this report discussed rates of service retirement for General and Safety members. The investigation of experience included in that section considered System provisions in effect on June 30, 2007. The recommendations of section 7 are therefore appropriate for Safety Plan 4. This section presents recommendations for rates of service retirement for Safety Plan 6.

Effective during the Fiscal Year ending on June 30, 2008 Safety Plan 6 will be established. With regard to demographic assumptions, Safety Plan 6 differs from Safety Plan 4 primarily by defining Normal Retirement Age as age 50, rather than age 55. We would expect different member behavior among Safety Plan 6 members, compared to Safety Plan 4 as a result of the different Normal Retirement Age. It is therefore appropriate to select different rates of service retirement for each of the Safety plans. For this study period (2003 – 2007) there is not any actual experience for Safety Plan 6 to assist in setting assumptions for Safety Plan 6. As such, we base our recommendations on our actuarial judgment and experience with other Systems. In the next investigation of experience we will review the continued appropriateness of this assumption, taking into consideration actual experience for Safety Plan 6.

Recommendation

We are recommending changes in the rates of service retirement for Safety Plan 6, relative to the recommendations in Section 7 for Safety Plan 4. The new proposed rates are shown numerically in Appendix A. The recommended changes are as follows:

- For Safety Plan 6 members, we recommend increasing the rates for service retirement from 3% to 4% each year until age 48. We recommend increasing the rates for service retirement more substantially for members aged 49 to 53 to reflect an expected higher rate of service retirement during those years relative to Safety Plan 4. For ages after 53 we recommend using the same service retirement rates for Safety Plan 6 as for Safety Plan 4.
- As was recommended for Safety Plan 4 members, we also recommend extending the ultimate assumed retirement age from 60 to 65 for Safety Plan 6 members until actual data can determine a basis for a different assumed age.

Financial Impact

The financial impact of this change was measured as part of the June 30, 2007 Actuarial Valuation. On that basis, this change in retirement assumption from the Plan 4 retirement assumption increases the total County Normal Cost rate by approximately 0.06% (0.90% for Safety Plan 6 only), and the total Unfunded Actuarial Accrued Liability rate by approximately 0.19% (1.43% for Safety Plan 6 only). This results in total increases of 0.25% for the total County contribution rate (2.33% for the Safety Plan 6 only).

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

Appendix A

Proposed Actuarial Procedures and Assumptions

The only change in content between this copy dated December 11, 2007 and the final reports sent to SBCRS dated October 16, 2007 is Appendix A. The October version had a draft of Appendix A. This final version has the same material as Appendix A for the June 30, 2007 report.

Appendix A: Actuarial Procedures and Assumptions

The actuarial procedures and assumptions used in this valuation are described in this section. The assumptions were reviewed and changed June 30, 2007 as a result of the 2007 Investigation of Experience Study.

The actuarial assumptions used in the valuations are intended to estimate the future experience of the members of SBCERS and of SBCERS itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of SBCERS' benefits.

Table A-1 summarizes the assumptions. The mortality rates are taken from the sources listed.

Tables A-2 and A-3 show how members are expected to leave retired status due to death.

Table A-4 presents the probability of refund of contributions upon termination of employment while vested.

Table A-5 and A-6 present the expected annual percentage increase in salaries.

Tables A-7 to A-12 were developed from the experience as measured by the 2007 Investigation of Experience Study. The rates are the probabilities a member will leave the system for various reasons.

The service retirement probabilities were changed for Plans 6A and 6B based on our letter dated November 20, 2007. They have not yet been adopted by the Board of Retirement. The retirement rates are the only changes between Tables 9 and 10 and Tables 11 and 12.

Actuarial Cost Method	The actuarial valuation is prepared using the entry age actuarial cost method (CERL 31453.5). Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit (until maximum retirement age). For members who transferred between plans, entry age is based on original entry into the system. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the Unfunded Actuarial Accrued Liability (UAAL). The UAAL (or Surplus Funding) is amortized as a percentage of the projected salaries of present and future members of SBCERS. Each year's change is measured separately and amortized over a fixed 15-year period. This approach is sometimes referred to as a "layered" amortization method.
Records and Data	The data used in this valuation consist of financial information and the age, service, and income records for active and inactive members and their survivors. All of the data were supplied by SBCERS and are accepted for valuation purposes without audit.
Replacement of Terminated Members	The ages and relative salaries at entry of future members are assumed to follow a new entrant distribution based on the pattern of current members. Under this assumption, the normal cost rates for active members will remain fairly stable in future years unless there are changes in the governing law, the actuarial assumptions or the pattern of the new entrants.
Growth in Membership	For benefit determination purposes, no growth in the membership of SBCERS is assumed. For funding purposes, if amortization is required, the total payroll of covered members is assumed to grow due to the combined effects of future wage increases of current active members and the replacement of the current active members by new employees. No growth in the total number of active members is assumed.
Internal Revenue Code Section 415 Limit	The Internal Revenue Code Section 415 maximum benefit limitations are not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.
Internal Revenue Code Section 401(a)(17)	The Internal Revenue Code Section 401(a)(17) maximum compensation limitation is not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.

County Contributions	The County and other employers' contribution rates are set by the Retirement Board based on actuarial valuations.
Member Contributions	The member contribution rates vary by entry age and are described in the law. Code references and a description of the rates are shown in Section 5 of the report. The methods and assumptions used are detailed later in this section. The individual member rates by entry age, plan and class are illustrated in Appendix D.
Valuation of Assets	The assets are valued using a five-year smoothed method based on the difference between the expected market value and the actual market value of the assets as of the valuation date. The expected market value is the prior year's market value increased with the net increase in the cash flow of funds, all increased with interest during the past fiscal year at the expected investment return rate assumption. The expected market-value, with five-year smoothing valuation basis for all assets was adopted effective June 30, 2002.
Investment Earnings and Expenses	The future investment earnings of the assets of SBCERS are assumed to accrue at an annual rate of 8.16% compounded annually, net of both investment and administrative expenses. This rate was adopted prior to June 30, 2007.
Post-retirement Benefit Increases	Post-retirement increases are assumed for the valuation in accordance with the benefits provided as described in Appendix B. These adjustments are assumed payable each year in the future as they are less than the expected increase in the Consumer Price Index of 3.50% per year. This rate was adopted effective June 30, 2007.
Interest on Member Contributions	The annual credited interest rate on member contributions is assumed to be 8.00% compounded semi-annually for an annualized rate of 8.16%. This rate was adopted prior to June 30, 2007.
Future Salaries	The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table A-5 and A-6. In addition to increases in salary due to promotions and longevity, this scale includes an assumed 4.00% per annum rate of increase in the general wage level of the membership. These rates were adopted effective June 30, 2007.

Social Security Wage Base

General Plan 2 members have their benefits offset by an assumed Social Security Benefit. For valuation funding purposes, we need to project the Social Security Benefit. We assume the current Social Security provisions will continue and the annual Wage Base will increase at the rate of 4% per year. Note, statutory provisions describe exactly how to compute the offset for purposes of determining a member's offset amount at time of termination or retirement.

Retirement

After members attain age 50 (55 for General Plan 2 members) and have 10 years of service, they may retire with a benefit commencing immediately. All members except General Plan 2 members, may also retire regardless of age after 20 years of service for safety members and after 30 years of service for general members. The retirement rates vary by age and are shown by plan in Tables A-7 through A-12

All General members who attain or who have attained age 75 in active service and all Safety members who have attained age 65 in active service are assumed to retire immediately.

All deferred vested members are assumed to retire at the later of age 56 for General members and age 52 for Safety members, except for General Plan 2, who are assumed to retire at 65.

The assumptions regarding termination of employment, early retirement, and unreduced service retirement are treated as a single set of decrements in regards to a particular member. For example, a general member hired at age 30 has a probability to withdraw from SBCERS due to death, disability or *other termination of employment* until age 50. After age 50, the member could still withdraw due to death, disability or *retirement*. Thus, in no year during the member's projected employment would they be eligible for both a probability of other termination of employment and a probability of retirement.

These rates were adopted effective June 30, 2007.

Disablement

The rates of disablement used in the valuation are also illustrated in Tables A-7 through A-12. These rates were revised June 30, 2006.

Mortality – Other Than Disabled Members

The same postretirement mortality rates are used in the valuation for active members, members retired for service, and beneficiaries. These rates are illustrated in Table A-2. Beneficiary mortality is assumed to be the same assumption as healthy members. Beneficiaries are assumed to be of the opposite sex, and have the same mortality as General members. These rates were adopted June 30, 2007.

Males General members: RP-2000 Combined Mortality Table for Males, with ages set back 3 years.

Safety members: RP-2000 Combined Mortality Table for Males, with ages set back 3 years.

Females General members: RP-2000 Combined Mortality Table for Females, with ages set back 2 years.

Safety members: RP-2000 Combined Mortality Table for Females, with ages set back 2 years.

Mortality – Disabled Members

For disabled members, the mortality rates used in the valuation rates are illustrated in Table A-3. These rates were adopted June 30, 2007.

Males General members: RP-2000 Combined Mortality Table for Males, with no age adjustment.

Safety members: RP-2000 Combined Mortality Table for Males, with no age adjustment.

Females General members: RP-2000 Combined Table for Females, with no age adjustment.

Safety members: RP-2000 Combined Mortality Table for Females, with no age adjustment.

Other Employment Terminations

Tables A-7 to A-12 show, for all ages, the rates assumed in this valuation for future termination from active service other than for death, disability or retirement. These rates do not apply to members eligible for service retirement. These rates were adopted effective June 30, 2007.

Terminating employees may withdraw their contributions immediately upon termination of employment and forfeit the right to further benefits, or they may leave their contributions with SBCERS. Former contributing members whose contributions are on deposit may later elect to receive a refund, may return to work or may remain inactive until becoming eligible to receive a retirement benefit under either SBCERS or a reciprocal retirement system.

Other Employment Terminations (continued)

All terminating members are assumed to not be rehired. Table A-4 gives the assumed probabilities that vested members will withdraw their contributions and elect a refund immediately upon termination and the probability the remaining members will elect a deferred vested benefit. Some non-vested members may not elect a refund due to employment at a reciprocal agency. These rates were adopted effective June 30, 2007.

Probability of Eligible Survivor

For members not currently in pay status, 80% of all males and 50% of all females are assumed to have eligible survivors (spouses or qualified domestic partners). Survivors are assumed to be three years younger than male members and three years older than female members. Survivors are assumed to be of the opposite sex as the member. There is no explicit assumption for children's benefits. We believe the survivor benefits based on this assumption are sufficient to cover children's benefits as they occur.

Member Contribution Rate Assumptions

The following assumptions summarize the procedures used to compute member contribution rates based on entry age:

In general, the member rate is determined by the present value of the future benefit (PVFB) payable at retirement age, divided by the present value of all future salaries payable between age at entry and retirement age. For these purposes, per the CERL, the:

A. Annuity factor used for General and Safety members is based on using a unisex mortality assumption. For these purposes, as well as determining option factors, the unisex mortality assumption is:

General Healthy Members:	RP-2000 Male, set back 4 years
Safety Healthy Members:	RP-2000 Male, set back 3 years
Beneficiaries:	RP-2000 Male, set back 4 years
General Disabled Members:	RP-2000 Female, set forward 1 year
Safety Disabled Members:	RP-2000 Male, no adjustment

B. The annuity factor used in determining the present value of future benefits (PVFB) at entry age is equal to the life only annuity factor at 8.16%.

C. The Final Compensation is based on the salary paid in the year prior to attaining the retirement age.

   Example: For a General Plan 5 member who enters at age 59 or earlier, the Final Compensation at retirement (age 60) will be the monthly average of the annual salaries during age 59.

D. Member Rates are assumed to increase with entry age.

Santa Barbara County Employees'
Retirement System

Table A-1: Summary of Valuation Assumptions as of June 30, 2006

I.	Economic assumptions	
	A. General wage increases	4.00%
	B. Investment earnings	8.16%
	C. Growth in membership	0.00
	D. Postretirement benefit increases (varies by plan)	Plan COLA not greater than CPI assumption.
	E. CPI inflation assumption	3.50%
II.	Demographic assumptions	
	A. Salary increases due to service	Tables A-5 to A-6
	B. Retirement	Tables A-7 to A-12
	C. Disablement	Tables A-7 to A-12
	D. Mortality for active members after termination and service retired members.	Table A-2

Basis – RP-2000 Combined Mortality Table
for respective sexes for general members, as adjusted:

Class of Members	Age Adjustment
General – males	-3 years
General – females	-2 years
Safety – males	-3 years
Safety – females	-2 years

E. Mortality among disabled members — Table A-3

Basis – RP-2000 Combined Mortality Table, as adjusted:

General - males	0 years
General - females	0 years
Safety - males	0 years
Safety - females	0 years

F. Mortality for beneficiaries. — Table A-2

Basis – Beneficiaries are assumed to have the same mortality as a general member of the opposite sex who has taken a service retirement.

G. Other terminations of employment — Tables A-7 to A-10

H. Refund of contributions on vested termination — Table A-4

Santa Barbara County Employees' Retirement System

Table A-2: Mortality for Members Retired for Service

Age	Safety Male	Safety Female	General Male	General Female
20	0.030%	0.019%	0.030%	0.019%
25	0.037%	0.020%	0.037%	0.020%
30	0.038%	0.024%	0.038%	0.024%
35	0.056%	0.039%	0.056%	0.039%
40	0.090%	0.060%	0.090%	0.060%
45	0.122%	0.094%	0.122%	0.094%
50	0.173%	0.143%	0.173%	0.143%
55	0.267%	0.221%	0.267%	0.221%
60	0.469%	0.392%	0.469%	0.392%
65	0.876%	0.765%	0.876%	0.765%
70	1.608%	1.345%	1.608%	1.345%
75	2.728%	2.297%	2.728%	2.297%
80	4.691%	3.760%	4.691%	3.760%
85	8.049%	6.251%	8.049%	6.251%
90	13.604%	10.730%	13.604%	10.730%

Table A-3: Mortality for Members Retired for Disability

Age	Safety Male	Safety Female	General Male	General Female
20	0.035%	0.019%	0.035%	0.019%
25	0.038%	0.021%	0.038%	0.021%
30	0.044%	0.026%	0.044%	0.026%
35	0.077%	0.048%	0.077%	0.048%
40	0.108%	0.071%	0.108%	0.071%
45	0.151%	0.112%	0.151%	0.112%
50	0.214%	0.168%	0.214%	0.168%
55	0.362%	0.272%	0.362%	0.272%
60	0.675%	0.506%	0.675%	0.506%
65	1.274%	0.971%	1.274%	0.971%
70	2.221%	1.674%	2.221%	1.674%
75	3.783%	2.811%	3.783%	2.811%
80	6.437%	4.588%	6.437%	4.588%
85	11.076%	7.745%	11.076%	7.745%
90	18.341%	13.168%	18.341%	13.168%

Santa Barbara County Employees' Retirement System

Table A-4: Immediate Refund of Contributions Upon Termination of Employment

Years of Service	General Male	General Female	Safety
0	100%	100%	100%
1	95%	95%	100%
2	90%	95%	90%
3	80%	85%	85%
4	80%	85%	75%
5	50%	50%	35%
6	50%	50%	35%
7	50%	50%	35%
8	50%	50%	35%
9	50%	50%	35%
10	15%	20%	35%
11	15%	20%	35%
12	15%	20%	35%
13	15%	20%	35%
14	15%	20%	35%
15	10%	10%	20%
16	10%	10%	20%
17	10%	10%	20%
18	10%	10%	20%
19	10%	10%	20%
20	0%	0%	0%
21	0%	0%	0%
22	0%	0%	0%
23	0%	0%	0%
24	0%	0%	0%
25	0%	0%	0%
26	0%	0%	0%
27	0%	0%	0%
28	0%	0%	0%
29	0%	0%	0%
30 & Up	0%	0%	0%

Santa Barbara County Employees' Retirement System

Table A-5: Annual Increase in Salary General

Years of Service	Due to Promotion and Longevity	Total Annual Increase*
<1	4.75%	8.94%
1	4.00%	8.16%
2	3.25%	7.38%
3	2.50%	6.60%
4	2.00%	6.08%
5	1.50%	5.56%
6	1.25%	5.30%
7	1.00%	5.04%
8	0.90%	4.94%
9	0.80%	4.83%
10	0.78%	4.81%
11	0.75%	4.78%
12	0.70%	4.73%
13	0.65%	4.68%
14	0.60%	4.62%
15	0.55%	4.57%
16	0.50%	4.52%
17	0.48%	4.50%
18	0.46%	4.48%
19	0.44%	4.46%
20	0.42%	4.44%
21	0.40%	4.42%
22	0.38%	4.40%
23	0.36%	4.37%
24	0.34%	4.35%
25	0.32%	4.33%
26	0.30%	4.31%
27	0.28%	4.29%
28	0.26%	4.27%
29	0.25%	4.26%
30 or More	0.25%	4.26%

** The total expected increase in salary is the increase due to promotions and longevity, adjusted for an assumed 4.00% per annum increase in the general wage level of the membership. The total result is compounded rather than additive.*

Santa Barbara County Employees' Retirement System

Table A-6: Annual Increase in Salary Safety

Years of Service	Due to Promotion and Longevity	Total Annual Increase*
<1	6.00%	10.24%
1	5.00%	9.20%
2	4.00%	8.16%
3	3.25%	7.38%
4	2.50%	6.60%
5	2.00%	6.08%
6	1.60%	5.66%
7	1.30%	5.35%
8	1.20%	5.25%
9	1.10%	5.14%
10	1.00%	5.04%
11	0.95%	4.99%
12	0.92%	4.96%
13	0.89%	4.93%
14	0.87%	4.90%
15	0.85%	4.88%
16	0.82%	4.85%
17	0.80%	4.83%
18	0.77%	4.80%
19	0.74%	4.77%
20	0.72%	4.75%
21	0.69%	4.72%
22	0.67%	4.70%
23	0.64%	4.67%
24	0.62%	4.64%
25	0.59%	4.62%
26	0.57%	4.59%
27	0.54%	4.57%
28	0.52%	4.54%
29	0.50%	4.52%
30 or More	0.50%	4.52%

** The total expected increase in salary is the increase due to promotions and longevity, adjusted for an assumed 4.00% per annum increase in the general wage level of the membership. The total result is compounded rather than additive.*

Santa Barbara County Employees' Retirement System

Table A-7: Rate of Separation From Active Service For General Members All Plans - Male

Age	Service Retirement	Service Disability	Ordinary Disability	Death	Years of Service	Other Terminations
18	0.0000	0.00008	0.00000	0.00027	0	0.0998
19	0.0000	0.00008	0.00000	0.00028	1	0.0998
20	0.0000	0.00008	0.00000	0.00030	2	0.0998
21	0.0000	0.00008	0.00000	0.00032	3	0.0998
22	0.0000	0.00008	0.00000	0.00033	4	0.0998
23	0.0000	0.00008	0.00000	0.00035	5	0.0875
24	0.0000	0.00008	0.00000	0.00036	6	0.0752
25	0.0000	0.00008	0.00000	0.00037	7	0.0630
26	0.0000	0.00008	0.00000	0.00037	8	0.0582
27	0.0000	0.00008	0.00000	0.00038	9	0.0535
28	0.0000	0.00008	0.00000	0.00038	10	0.0487
29	0.0000	0.00008	0.00000	0.00038	11	0.0440
30	0.0000	0.00017	0.00000	0.00038	12	0.0392
31	0.0000	0.00017	0.00000	0.00039	13	0.0373
32	0.0000	0.00017	0.00000	0.00041	14	0.0354
33	0.0000	0.00017	0.00000	0.00044	15	0.0334
34	0.0000	0.00017	0.00000	0.00050	16	0.0315
35	0.0000	0.00025	0.00008	0.00056	17	0.0296
36	0.0000	0.00033	0.00008	0.00063	18	0.0276
37	0.0000	0.00041	0.00008	0.00070	19	0.0257
38	0.0000	0.00050	0.00008	0.00077	20	0.0237
39	0.0000	0.00058	0.00016	0.00084	21	0.0218
40	0.0200	0.00066	0.00016	0.00090	22	0.0198
41	0.0200	0.00074	0.00016	0.00096	23	0.0160
42	0.0200	0.00091	0.00024	0.00102	24	0.0123
43	0.0200	0.00099	0.00032	0.00108	25	0.0085
44	0.0200	0.00107	0.00040	0.00114	26	0.0048
45	0.0200	0.00124	0.00047	0.00122	27	0.0010
46	0.0200	0.00132	0.00055	0.00130	28	0.0008
47	0.0200	0.00140	0.00063	0.00140	29	0.0006
48	0.0200	0.00148	0.00071	0.00151	30 & Above	0.0004
49	0.0200	0.00157	0.00087	0.00162		
50	0.0200	0.00165	0.00103	0.00173		
51	0.0200	0.00182	0.00119	0.00186		
52	0.0400	0.00198	0.00134	0.00200		
53	0.0500	0.00206	0.00150	0.00214		
54	0.0700	0.00214	0.00166	0.00245		
55	0.0800	0.00231	0.00182	0.00267		
56	0.0800	0.00247	0.00197	0.00292		
57	0.0800	0.00256	0.00213	0.00320		
58	0.1000	0.00264	0.00236	0.00362		
59	0.0900	0.00281	0.00260	0.00420		
60	0.1500	0.00289	0.00292	0.00469		
61	0.2500	0.00305	0.00323	0.00527		
62	0.2500	0.00314	0.00355	0.00595		
63	0.1500	0.00330	0.00386	0.00675		
64	0.3000	0.00346	0.00418	0.00768		
65	0.1500	0.00346	0.00449	0.00876		
66	0.2000	0.00346	0.00481	0.01001		
67	0.2000	0.00346	0.00520	0.01128		
68	0.2000	0.00346	0.00559	0.01274		
69	0.2000	0.00346	0.00599	0.01441		
70	0.2000	0.00346	0.00599	0.01608		
71	0.2000	0.00346	0.00599	0.01787		
72	0.2000	0.00346	0.00599	0.01980		
73	0.2000	0.00346	0.00599	0.02221		
74	0.2000	0.00346	0.00599	0.02457		
75	1.0000	0.00000	0.00000	0.00000		

Table A-8: Rate of Separation From Active Service For General Members All Plans - Female

Age	Service Retirement	Service Disability	Ordinary Disability	Death	Years of Service	Other Terminations
18	0.0000	0.00012	0.00000	0.00018	0	0.1132
19	0.0000	0.00012	0.00000	0.00018	1	0.1132
20	0.0000	0.00012	0.00000	0.00019	2	0.1132
21	0.0000	0.00012	0.00000	0.00019	3	0.0952
22	0.0000	0.00012	0.00000	0.00019	4	0.0861
23	0.0000	0.00012	0.00000	0.00019	5	0.0784
24	0.0000	0.00012	0.00000	0.00019	6	0.0681
25	0.0000	0.00012	0.00018	0.00020	7	0.0630
26	0.0000	0.00012	0.00018	0.00020	8	0.0582
27	0.0000	0.00012	0.00018	0.00021	9	0.0535
28	0.0000	0.00012	0.00018	0.00021	10	0.0487
29	0.0000	0.00012	0.00018	0.00022	11	0.0440
30	0.0000	0.00012	0.00018	0.00024	12	0.0392
31	0.0000	0.00012	0.00018	0.00025	13	0.0373
32	0.0000	0.00012	0.00035	0.00026	14	0.0354
33	0.0000	0.00012	0.00035	0.00031	15	0.0334
34	0.0000	0.00012	0.00035	0.00035	16	0.0315
35	0.0000	0.00024	0.00050	0.00039	17	0.0296
36	0.0000	0.00024	0.00050	0.00044	18	0.0276
37	0.0000	0.00036	0.00050	0.00048	19	0.0257
38	0.0000	0.00036	0.00050	0.00051	20	0.0237
39	0.0000	0.00048	0.00050	0.00055	21	0.0218
40	0.0800	0.00060	0.00068	0.00060	22	0.0198
41	0.0800	0.00072	0.00085	0.00065	23	0.0160
42	0.0800	0.00084	0.00085	0.00071	24	0.0123
43	0.0800	0.00096	0.00117	0.00077	25	0.0085
44	0.0800	0.00096	0.00135	0.00085	26	0.0048
45	0.0800	0.00108	0.00153	0.00094	27	0.0010
46	0.0800	0.00108	0.00168	0.00103	28	0.0008
47	0.0800	0.00120	0.00168	0.00112	29	0.0006
48	0.0800	0.00132	0.00185	0.00122	30 & Above	0.0004
49	0.0800	0.00144	0.00203	0.00133		
50	0.0800	0.00144	0.00219	0.00143		
51	0.0800	0.00156	0.00236	0.00155		
52	0.0800	0.00168	0.00252	0.00168		
53	0.0800	0.00180	0.00252	0.00185		
54	0.0800	0.00192	0.00270	0.00202		
55	0.0800	0.00204	0.00286	0.00221		
56	0.0800	0.00216	0.00305	0.00242		
57	0.0800	0.00216	0.00319	0.00272		
58	0.1000	0.00228	0.00354	0.00309		
59	0.1200	0.00240	0.00387	0.00348		
60	0.1500	0.00252	0.00422	0.00392		
61	0.1800	0.00264	0.00458	0.00444		
62	0.3000	0.00276	0.00506	0.00506		
63	0.3000	0.00288	0.00557	0.00581		
64	0.2000	0.00300	0.00608	0.00666		
65	0.2500	0.00300	0.00608	0.00765		
66	0.2500	0.00300	0.00608	0.00862		
67	0.2500	0.00300	0.00608	0.00971		
68	0.2500	0.00300	0.00608	0.01095		
69	0.2500	0.00300	0.00608	0.01216		
70	0.3000	0.00300	0.00608	0.01345		
71	0.3000	0.00300	0.00608	0.01486		
72	0.5000	0.00300	0.00608	0.01674		
73	0.5000	0.00300	0.00608	0.01858		
74	0.5000	0.00300	0.00608	0.02067		
75	1.0000	0.00000	0.00000	0.00000		

Santa Barbara County Employees' Retirement System

Table A-9: Rate of Separation From Active Service For Safety Members Plan 4 - Male

Age	Service Retirement	Service Disability	Ordinary Disability	Death
18	0.0000	0.00015	0.00000	0.00027
19	0.0000	0.00015	0.00000	0.00028
20	0.0000	0.00015	0.00000	0.00030
21	0.0000	0.00015	0.00000	0.00032
22	0.0000	0.00015	0.00000	0.00033
23	0.0000	0.00015	0.00000	0.00035
24	0.0000	0.00020	0.00000	0.00036
25	0.0000	0.00030	0.00004	0.00037
26	0.0000	0.00040	0.00004	0.00037
27	0.0000	0.00054	0.00004	0.00038
28	0.0000	0.00069	0.00004	0.00038
29	0.0000	0.00085	0.00004	0.00038
30	0.0300	0.00103	0.00004	0.00038
31	0.0300	0.00123	0.00007	0.00039
32	0.0300	0.00143	0.00010	0.00041
33	0.0300	0.00168	0.00017	0.00044
34	0.0300	0.00193	0.00025	0.00050
35	0.0300	0.00222	0.00032	0.00056
36	0.0300	0.00257	0.00038	0.00063
37	0.0300	0.00292	0.00046	0.00070
38	0.0300	0.00327	0.00052	0.00077
39	0.0300	0.00362	0.00059	0.00084
40	0.0300	0.00396	0.00066	0.00090
41	0.0300	0.00430	0.00074	0.00096
42	0.0300	0.00470	0.00081	0.00102
43	0.0300	0.00510	0.00084	0.00108
44	0.0300	0.00549	0.00084	0.00114
45	0.0300	0.00594	0.00088	0.00122
46	0.0300	0.00639	0.00088	0.00130
47	0.0300	0.00683	0.00091	0.00140
48	0.0300	0.00727	0.00091	0.00151
49	0.0300	0.00772	0.00094	0.00162
50	0.0400	0.00816	0.00094	0.00173
51	0.0300	0.00867	0.00098	0.00186
52	0.0300	0.00916	0.00098	0.00200
53	0.0300	0.00965	0.00102	0.00214
54	0.1500	0.01014	0.00105	0.00245
55	0.2000	0.01014	0.00105	0.00267
56	0.2000	0.01014	0.00105	0.00292
57	0.3000	0.01014	0.00105	0.00320
58	0.3000	0.01014	0.00105	0.00362
59	0.2000	0.01014	0.00105	0.00420
60	0.2000	0.01014	0.00105	0.00469
61	0.2000	0.01014	0.00105	0.00527
62	0.3500	0.01014	0.00105	0.00595
63	0.2000	0.01014	0.00105	0.00675
64	0.2000	0.01014	0.00105	0.00768
65	1.0000	0.00000	0.00000	0.00000

Years of Service	Other Terminations
0	0.0488
1	0.0488
2	0.0488
3	0.0488
4	0.0392
5	0.0360
6	0.0328
7	0.0296
8	0.0286
9	0.0276
10	0.0266
11	0.0257
12	0.0247
13	0.0237
14	0.0227
15	0.0218
16	0.0208
17	0.0198
18	0.0158
19	0.0119
20 & Above	0.0000

Santa Barbara County Employees' Retirement System

Table A-10: Rate of Separation From Active Service For Safety Members Plan 4 - Female

Age	Service Retirement	Service Disability	Ordinary Disability	Death
18	0.0000	0.00015	0.00000	0.00018
19	0.0000	0.00015	0.00000	0.00018
20	0.0000	0.00015	0.00000	0.00019
21	0.0000	0.00015	0.00000	0.00019
22	0.0000	0.00015	0.00000	0.00019
23	0.0000	0.00015	0.00000	0.00019
24	0.0000	0.00020	0.00000	0.00019
25	0.0000	0.00030	0.00004	0.00020
26	0.0000	0.00040	0.00004	0.00020
27	0.0000	0.00054	0.00004	0.00021
28	0.0000	0.00069	0.00004	0.00021
29	0.0000	0.00085	0.00004	0.00022
30	0.0300	0.00103	0.00004	0.00024
31	0.0300	0.00123	0.00007	0.00025
32	0.0300	0.00143	0.00010	0.00026
33	0.0300	0.00168	0.00017	0.00031
34	0.0300	0.00193	0.00025	0.00035
35	0.0300	0.00222	0.00032	0.00039
36	0.0300	0.00257	0.00038	0.00044
37	0.0300	0.00292	0.00046	0.00048
38	0.0300	0.00327	0.00052	0.00051
39	0.0300	0.00362	0.00059	0.00055
40	0.0300	0.00396	0.00066	0.00060
41	0.0300	0.00430	0.00074	0.00065
42	0.0300	0.00470	0.00081	0.00071
43	0.0300	0.00510	0.00084	0.00077
44	0.0300	0.00549	0.00084	0.00085
45	0.0300	0.00594	0.00088	0.00094
46	0.0300	0.00639	0.00088	0.00103
47	0.0300	0.00683	0.00091	0.00112
48	0.0300	0.00727	0.00091	0.00122
49	0.0300	0.00772	0.00094	0.00133
50	0.0400	0.00816	0.00094	0.00143
51	0.0300	0.00867	0.00098	0.00155
52	0.0300	0.00916	0.00098	0.00168
53	0.0300	0.00965	0.00102	0.00185
54	0.1500	0.01014	0.00105	0.00202
55	0.2000	0.01014	0.00105	0.00221
56	0.2000	0.01014	0.00105	0.00242
57	0.3000	0.01014	0.00105	0.00272
58	0.3000	0.01014	0.00105	0.00309
59	0.2000	0.01014	0.00105	0.00348
60	0.2000	0.01014	0.00105	0.00392
61	0.2000	0.01014	0.00105	0.00444
62	0.3500	0.01014	0.00105	0.00506
63	0.2000	0.01014	0.00105	0.00581
64	0.2000	0.01014	0.00105	0.00666
65	1.0000	0.00000	0.00000	0.00000

Years of Service	Other Terminations
0	0.0488
1	0.0488
2	0.0488
3	0.0488
4	0.0392
5	0.0360
6	0.0328
7	0.0296
8	0.0286
9	0.0276
10	0.0266
11	0.0257
12	0.0247
13	0.0237
14	0.0227
15	0.0218
16	0.0208
17	0.0198
18	0.0158
19	0.0119
20 & Above	0.0000

Santa Barbara County Employees' Retirement System

Table A-11: Rate of Separation From Active Service For Safety Members Plan 6 - Male

Age	Service Retirement	Service Disability	Ordinary Disability	Death
18	0.0000	0.00015	0.00000	0.00027
19	0.0000	0.00015	0.00000	0.00028
20	0.0000	0.00015	0.00000	0.00030
21	0.0000	0.00015	0.00000	0.00032
22	0.0000	0.00015	0.00000	0.00033
23	0.0000	0.00015	0.00000	0.00035
24	0.0000	0.00020	0.00000	0.00036
25	0.0000	0.00030	0.00004	0.00037
26	0.0000	0.00040	0.00004	0.00037
27	0.0000	0.00054	0.00004	0.00038
28	0.0000	0.00069	0.00004	0.00038
29	0.0000	0.00085	0.00004	0.00038
30	0.0300	0.00103	0.00004	0.00038
31	0.0300	0.00123	0.00007	0.00039
32	0.0300	0.00143	0.00010	0.00041
33	0.0300	0.00168	0.00017	0.00044
34	0.0300	0.00193	0.00025	0.00050
35	0.0300	0.00222	0.00032	0.00056
36	0.0300	0.00257	0.00038	0.00063
37	0.0300	0.00292	0.00046	0.00070
38	0.0300	0.00327	0.00052	0.00077
39	0.0300	0.00362	0.00059	0.00084
40	0.0300	0.00396	0.00066	0.00090
41	0.0400	0.00430	0.00074	0.00096
42	0.0400	0.00470	0.00081	0.00102
43	0.0400	0.00510	0.00084	0.00108
44	0.0400	0.00549	0.00084	0.00114
45	0.0400	0.00594	0.00088	0.00122
46	0.0400	0.00639	0.00088	0.00130
47	0.0400	0.00683	0.00091	0.00140
48	0.0400	0.00727	0.00091	0.00151
49	0.0800	0.00772	0.00094	0.00162
50	0.0800	0.00816	0.00094	0.00173
51	0.0800	0.00867	0.00098	0.00186
52	0.1000	0.00916	0.00098	0.00200
53	0.1000	0.00965	0.00102	0.00214
54	0.1500	0.01014	0.00105	0.00245
55	0.2000	0.01014	0.00105	0.00267
56	0.2000	0.01014	0.00105	0.00292
57	0.3000	0.01014	0.00105	0.00320
58	0.3000	0.01014	0.00105	0.00362
59	0.2000	0.01014	0.00105	0.00420
60	0.2000	0.01014	0.00105	0.00469
61	0.2000	0.01014	0.00105	0.00527
62	0.3500	0.01014	0.00105	0.00595
63	0.2000	0.01014	0.00105	0.00675
64	0.2000	0.01014	0.00105	0.00768
65	1.0000	0.00000	0.00000	0.00000

Years of Service	Other Terminations
0	0.0488
1	0.0488
2	0.0488
3	0.0488
4	0.0392
5	0.0360
6	0.0328
7	0.0296
8	0.0286
9	0.0276
10	0.0266
11	0.0257
12	0.0247
13	0.0237
14	0.0227
15	0.0218
16	0.0208
17	0.0198
18	0.0158
19	0.0119
20 & Above	0.0000

Santa Barbara County Employees' Retirement System

Table A-12: Rate of Separation From Active Service For Safety Members Plan 6 - Female

Age	Service Retirement	Service Disability	Ordinary Disability	Death
18	0.0000	0.00015	0.00000	0.00018
19	0.0000	0.00015	0.00000	0.00018
20	0.0000	0.00015	0.00000	0.00019
21	0.0000	0.00015	0.00000	0.00019
22	0.0000	0.00015	0.00000	0.00019
23	0.0000	0.00015	0.00000	0.00019
24	0.0000	0.00020	0.00000	0.00019
25	0.0000	0.00030	0.00004	0.00020
26	0.0000	0.00040	0.00004	0.00020
27	0.0000	0.00054	0.00004	0.00021
28	0.0000	0.00069	0.00004	0.00021
29	0.0000	0.00085	0.00004	0.00022
30	0.0300	0.00103	0.00004	0.00024
31	0.0300	0.00123	0.00007	0.00025
32	0.0300	0.00143	0.00010	0.00026
33	0.0300	0.00168	0.00017	0.00031
34	0.0300	0.00193	0.00025	0.00035
35	0.0300	0.00222	0.00032	0.00039
36	0.0300	0.00257	0.00038	0.00044
37	0.0300	0.00292	0.00046	0.00048
38	0.0300	0.00327	0.00052	0.00051
39	0.0300	0.00362	0.00059	0.00055
40	0.0300	0.00396	0.00066	0.00060
41	0.0400	0.00430	0.00074	0.00065
42	0.0400	0.00470	0.00081	0.00071
43	0.0400	0.00510	0.00084	0.00077
44	0.0400	0.00549	0.00084	0.00085
45	0.0400	0.00594	0.00088	0.00094
46	0.0400	0.00639	0.00088	0.00103
47	0.0400	0.00683	0.00091	0.00112
48	0.0400	0.00727	0.00091	0.00122
49	0.0800	0.00772	0.00094	0.00133
50	0.0800	0.00816	0.00094	0.00143
51	0.0800	0.00867	0.00098	0.00155
52	0.1000	0.00916	0.00098	0.00168
53	0.1000	0.00965	0.00102	0.00185
54	0.1500	0.01014	0.00105	0.00202
55	0.2000	0.01014	0.00105	0.00221
56	0.2000	0.01014	0.00105	0.00242
57	0.3000	0.01014	0.00105	0.00272
58	0.3000	0.01014	0.00105	0.00309
59	0.2000	0.01014	0.00105	0.00348
60	0.2000	0.01014	0.00105	0.00392
61	0.2000	0.01014	0.00105	0.00444
62	0.3500	0.01014	0.00105	0.00506
63	0.2000	0.01014	0.00105	0.00581
64	0.2000	0.01014	0.00105	0.00666
65	1.0000	0.00000	0.00000	0.00000

Years of Service	Other Terminations
0	0.0488
1	0.0488
2	0.0488
3	0.0488
4	0.0392
5	0.0360
6	0.0328
7	0.0296
8	0.0286
9	0.0276
10	0.0266
11	0.0257
12	0.0247
13	0.0237
14	0.0227
15	0.0218
16	0.0208
17	0.0198
18	0.0158
19	0.0119
20 & Above	0.0000

Santa Barbara County Employees' Retirement System
2007 Investigation of Experience

Appendix B

Graph Exhibits for Sections 5-12

As mentioned on page 10 of the report, this Appendix contains the graphs that parallel Sections 5-12. However, there are no graphs for the assumptions discussed in Sections 6, 8, 10 and 12.