

**STANISLAUS COUNTY  
EMPLOYEES' RETIREMENT  
ASSOCIATION**

**REPORT ON THE EXPERIENCE STUDY  
FOR THE PERIOD  
JULY 1, 2003 THROUGH  
JUNE 30, 2006**



January 4, 2007

Board of Retirement  
Stanislaus County  
Employees' Retirement Association  
1010 10<sup>th</sup> Street, Suite 5800  
Modesto, CA 95353

Members of the Board:

We are pleased to present our report on the experience analysis of your Retirement System for the period from July 1, 2003 through June 30, 2006.

We hereby certify that the experience was performed in accordance with generally accepted actuarial principles and practices.

We look forward to discussing this report with the Board and wish to express our appreciation for the invaluable cooperation extended to us by the Retirement Staff during the course of this study.

Respectfully submitted,

Harold Loeb, A.S.A., E.A.  
Principal and Consulting Actuary

## TABLE OF CONTENTS

<b>I</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>II</b>	<b>STATISTICAL HIGHLIGHTS .....</b>	<b>3</b>
<b>III</b>	<b>SUMMARY OF ACTUARIAL ASSUMPTIONS .....</b>	<b>5</b>
	Noneconomic Assumptions .....	5
	Economic Assumptions.....	11
<b>IV</b>	<b>APPENDIX .....</b>	<b>18</b>
	Schedule 1 – Summary of Actuarial Assumptions.....	19
	Schedule 2 – Probabilities of Separation from Active Service.....	20
	Schedule 3 – Years of Life Expectancy.....	25
	Schedule 4 – Ratio of Compensation.....	28

## ***SECTION I: EXECUTIVE SUMMARY***

We were commissioned by the Board to perform an experience study of the Retirement System as of June 30, 2006, using the unaudited statistical information data supplied by the Retirement Office for the active, inactive and retired membership.

A brief summary of the results of our valuation is presented below. More comprehensive information on each topic is presented in the relevant section of the report.

### **Section II - Statistical Highlights**

This section shows a summary of the inactive, retired and active membership data used for the experience analysis.

### **Section III - Summary of Actuarial Assumptions**

#### *Noneconomic Assumptions*

We have examined the plan experience during the three year period from July 1, 2003 through June 30, 2006. We analyzed data for this period regarding service retirement, deaths, disabilities and terminations of employment and compared the number of actual terminations to the incidence expected using the current actuarial assumptions. Where the results differ materially, and the change points to a developing trend, we recommend modifying the assumptions. The summary of our findings and recommendations are incorporated in the body of this report.

#### *Economic Assumptions*

In order to ensure that the same inflationary expectations are included in all of the economic assumptions, we used a building block approach in developing the economic assumptions. That is, we assumed that the investment return earned over the long term is comprised of inflation and real

rate of return and we assumed that future salary increases are comprised of inflation and merit and longevity increases.

The summary of our findings and recommendations are incorporated in the body of this report.

## **Section IV - Appendix**

Detailed information on the current and recommended actuarial assumptions is shown in Section IV.

## SECTION II: STATISTICAL HIGHLIGHTS

Our June 30, 2006 experience study of your System was based on the following data that was collected for the June 30, 2004, June 30, 2005 and June 30, 2006 actuarial valuations.

SUMMARY OF INACTIVE MEMBERSHIP			
	June 30, 2004	June 30, 2005	June 30, 2006
<b>TOTAL</b>			
Number	803	891	915

SUMMARY OF RETIRED MEMBERSHIP			
	June 30, 2004	June 30, 2005	June 30, 2006
<b>TOTAL</b>			
Number	2,166	2,293	2,443
Basic Annual Allowance	\$ 33,801,000	\$ 36,778,000	\$ 41,581,000
Average Basic Monthly Allowance	1,300	1,337	1,418
Total Annual Allowance	\$ 43,467,000	\$ 47,423,000	\$ 53,112,000
Average Total Monthly Allowance	1,672	1,724	1,812

SUMMARY OF ACTIVE MEMBERSHIP			
	June 30, 2004	June 30, 2005	June 30, 2006
<b>TOTAL</b>			
Number	4,222	4,347	4,366
Annual Payroll*	\$ 199,963,000	\$ 211,681,000	\$ 219,768,000
Average Monthly Salary	3,947	4,058	4,195
Average Age	43.47	43.47	43.54
Average Service	9.01	9.07	9.19

† Represents the annualization of active members' pay rates on each valuation date.

SUMMARY OF ACTIVE MEMBERSHIP			
	June 30, 2004	June 30, 2005	June 30, 2006
<b>GENERAL TIER 1/4</b>			
Number	311	276	235
Annual Payroll	\$ 18,750,000	\$ 17,608,000	\$ 15,588,000
Average Monthly Salary	5,024	5,316	5,528
Average Age	53.89	54.56	55.14
Average Service	24.77	25.49	26.06
<b>GENERAL TIER 2/5</b>			
Number	3,234	3,338	3,403
Annual Payroll	\$ 143,778,000	\$ 153,671,000	\$ 162,124,000
Average Monthly Salary	3,705	3,836	3,970
Average Age	43.64	43.90	44.04
Average Service	7.65	7.95	8.22
<b>GENERAL TIER 3</b>			
Number	48	49	45
Annual Payroll	\$ 1,934,000	\$ 2,120,000	\$ 2,055,000
Average Monthly Salary	3,358	3,605	3,805
Average Age	45.58	46.24	47.27
Average Service	8.71	9.88	10.96
<b>SAFETY TIER 1/4</b>			
Number	30	21	14
Annual Payroll	\$ 2,281,000	\$ 1,709,000	\$ 1,114,000
Average Monthly Salary	6,336	6,780	6,630
Average Age	51.67	52.10	51.86
Average Service	23.03	24.48	24.21
<b>SAFETY TIER 2/5</b>			
Number	599	663	669
Annual Payroll	\$ 33,220,000	\$ 36,573,000	\$ 38,887,000
Average Monthly Salary	4,622	4,597	4,844
Average Age	36.57	36.21	36.52
Average Service	7.48	7.36	7.74

\* Represents the annualization of active members' pay rates on each valuation date.

### ***SECTION III: SUMMARY OF ACTUARIAL ASSUMPTIONS***

To perform an actuarial valuation of the assets and liabilities of your System, the actuary must first adopt assumptions with respect to each of the following items:

#### ***Noneconomic assumptions***

- ♦ The probabilities of members separating from active service on account of nonvested and vested withdrawal, and retirement for service, death, and disability, and
- ♦ The mortality rates to be experienced among retired persons.

#### ***Economic assumptions***

- ♦ Investment earnings to be realized on the funds over many years in the future, and
- ♦ The increases in each member's salary from the date of the valuation to the date of separation from active service.

We discuss each of the above items in the following paragraphs of this Section.

### **NONECONOMIC ASSUMPTIONS**

#### ***Rates of Separation from Active Service***

In connection with the June 30, 2006 actuarial valuation, we compared the expected number of terminations from active service to the number actually experienced during the three-year period beginning July 1, 2003 and ending June 30, 2006. Based on this comparison and the trends observed over the prior three and/or six years, the probabilities of separation were adjusted accordingly, as identified below.

During the experience study period, the number of *deaths* was approximately equal to the number expected for each participant group. Given that result and the overall small number of deaths, we recommend no changes to these assumptions at this time.



During the experience study period, the incidence of both *ordinary disability* and *duty disability* was lower than expected for all General members. This result is consistent with the experience over the previous three-year study period. Therefore, we recommend a 50% reduction to these assumptions at this time. For Safety members, the experience approximated our expected number of ordinary and duty disability terminations and we recommend no change at this time.

The number of actual separations due to *vested termination* among General members closely approximated the number of expected separations. Therefore we recommend no change at this time. We recommend increasing the vested termination rates for Safety members by 50% to reflect the higher than expected experience for this group during the previous three years.

During the experience study period, the incidence of *withdrawal* prior to becoming eligible for a benefit was slightly lower than expected for all member groups. We recommend that the withdrawal rates remain the same for all groups.

The number of actual separations due to *service retirement* was slightly lower than the number of expected separations for General male and female members and slightly higher than expected for Safety members. The differences were not significant and, therefore, we recommend no changes in service retirement rates at this time.

None of the other types of separation demonstrated a statistically significant trend when compared to the prior three- or six-year period; hence, we recommend continuing the existing assumptions for the remaining types of separation.

The purpose of the following table is to provide the reader with a shorthand summary of the experience compared with the existing assumptions. A complete list of the current and recommended rates of separation from active service can be found in Schedule 2 of the Appendix. These rates should be viewed in the aggregate rather than examining each of them separately. This is due to the interdependency of the rates. For example, if turnover were to increase, there would be fewer retirements.

“Expected separations” means the number of terminations that would occur if the currently assumed probabilities were applied to your actual work force over the period under investigation.

SUMMARY OF ACTUARIAL INVESTIGATION WITH RESPECT TO RATES OF SEPARATION FROM ACTIVE SERVICE			
	Actual Separations	Expected Separations	Revised Separations
<b>Withdrawal</b>			
General Male	92	130.8	N/A
General Female	306	371.1	N/A
Safety	38	64.0	N/A
<b>Pre-retirement Death</b>			
General Male	6	5.6	N/A
General Female	11	10.1	N/A
Safety	2	3.0	N/A
<b>Ordinary Disability</b>			
General Male	3	6.6	3.3
General Female	7	16.0	8.0
Safety	1	1.7	N/A
<b>Duty Disability</b>			
General Male	2	6.5	3.3
General Female	4	11.7	5.9
Safety	12	15.7	N/A
<b>Service Retirement*</b>			
General Male	69	95.0	N/A
General Female	197	197.3	N/A
Safety	45	36.7	N/A
<b>Deferred Retirement</b>			
General Male	72	57.9	N/A
General Female	154	155.1	N/A
Safety	37	22.4	33.6
<b>All Terminations</b>	1,048	1,230.2	1,221.1

- Excludes General members older than 70 and Safety members older than 60.

A complete listing of the rates of separation from active service can be found in Schedule 2 of the Appendix. These rates should be viewed in the aggregate rather than examining each of them separately. This is due to interdependency of the rates. For example, if turnover were to increase, there would be fewer retirements.

### ***Recommendation***

We recommend that the Board adopt the new rates of separation shown in Schedule 2 of the Appendix.

### ***Mortality After Retirement***

We have also analyzed mortality after retirement by comparing the expected number of deaths with the actual incidence of death after service retirement. The comparison was made by utilizing the following mortality tables currently in use:

#### **Current Service Retirement Mortality Tables**

- ♦ General Males      1994 Group Annuity Mortality Table for Males
- ♦ General Females    1994 Group Annuity Mortality Table for Females
- ♦ Safety              1994 Group Annuity Mortality Table for Males

The results of the experience analysis are as follows:

NUMBER OF DEATHS AFTER SERVICE RETIREMENT			
	Actual	Expected	Revised
General Males and Male Beneficiaries	62	65.0	N/A
General Females and Female Beneficiaries	85	91.8	N/A
Safety Members	9	10.3	N/A

During the period under investigation, the number of actual deaths was slightly lower than expected for all members. Based on these results, we are not recommending a change to these assumptions at this time.

A full listing of the life expectancies based on these tables is shown in Schedule 3 of the Appendix.

### ***Mortality After Disability Retirement***

In addition, we analyzed mortality after disability retirement. This comparison was made by utilizing the following mortality tables currently in use:

#### **Current Disability Retirement Mortality Tables**

- ♦ General        1981 Disability Mortality Table for General Members
- ♦ Safety        1981 Disability Mortality Table for Safety Members

The results of the experience analysis are as follows:

NUMBER OF DEATHS AFTER DISABILITY RETIREMENT			
	Actual	Expected	Revised
General Members	17	22.5	N/A
Safety Members	5	4.8	N/A

During the period under investigation, the number of actual deaths after disability retirement was lower than expected for General members and close for Safety members. These numbers were very close over previous studies and we recommend that the current disability mortality tables continue to be used for these groups.

A full listing of the life expectancies based on these tables is shown in Schedule 3 of the Appendix.

#### **Mortality Tables for Employee Contribution Rates**

The recommendation to make no changes to the mortality tables after service retirement mentioned above means that the member basic rates will not change for this valuation. These rates will be provided in our final valuation report to the Board.

## **ECONOMIC ASSUMPTIONS**

In setting the economic assumptions, we take a building block approach. Specifically, we first look at the rate of inflation that underlies both the total rate of return and the salary scale assumptions. To aid us in determining an appropriate inflation rate for your System, we have reviewed long-term historical inflation averages, recent trends, and the assumptions adopted by other public retirement systems governed by the 1937 Act. It should be noted that we have placed more emphasis on long-term historical averages and long-term future predictions than on the more recent, short-term trends. This helps to minimize fluctuations that are more apparent in short-term trends.

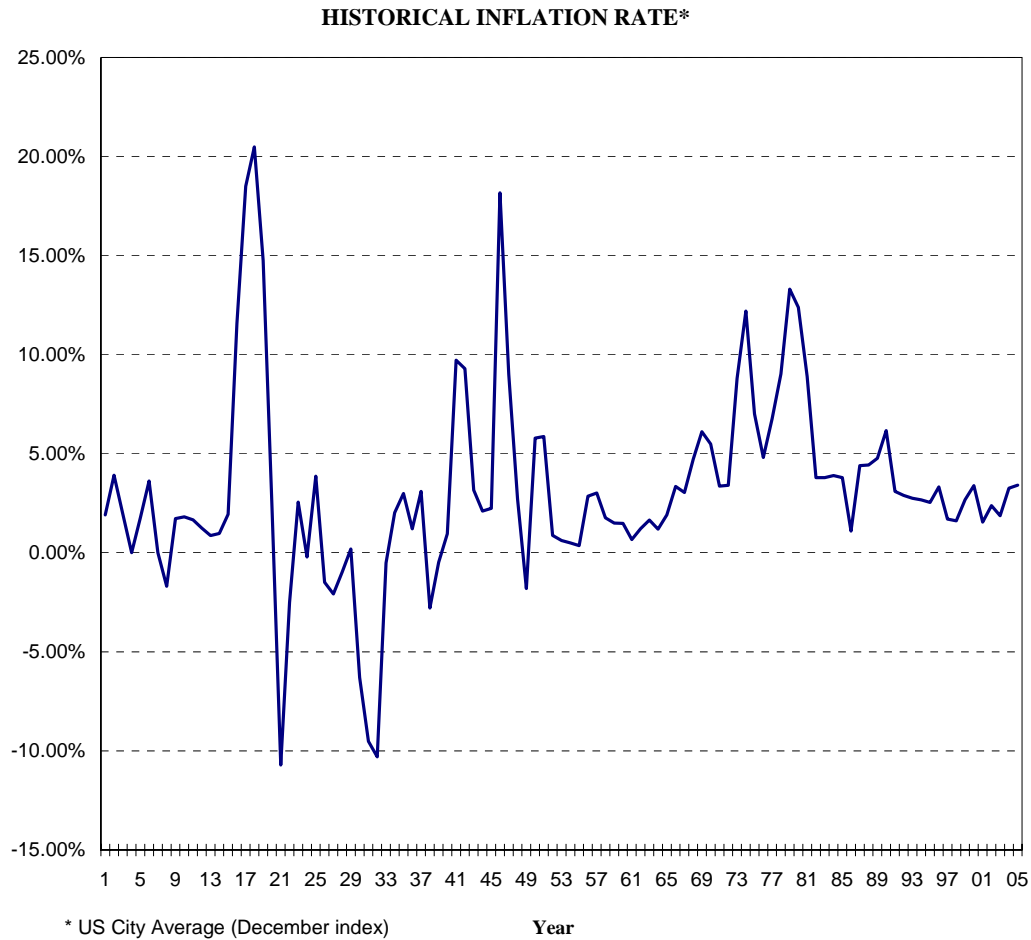
Secondly, we review the anticipated real rate of return on investments. The real rate of return is dependent on the anticipated returns on classes of investments and the asset allocation of the System's funds. To develop the individual real rates of return we utilize various empirical studies. By applying the results of these studies to the System's target asset allocation, we develop the real rate of return. This rate may then be adjusted for any known or anticipated changes in the economy that may occur. Using our building block approach, we combine the underlying inflation assumption with the real rate of return to develop the total rate of return assumption (interest rate assumption).

The salary scale assumption is developed in a similar manner. The inflation rate is combined with merit and longevity increases to produce a total salary increase assumption.

### ***Inflation***

One of the most important assumptions used in valuing the System's liabilities is the rate of inflation. This assumption underlies both the investment return assumption and the salary increase assumption. These in turn directly impact the employer and employee contribution rates.

If the pattern of inflation during the last 90-year period is analyzed, it may be extrapolated that the current low rates will not continue into the future indefinitely. Inflation appears to move in a cyclical fashion as may be seen in the following graph.



From	To	Years	Average
1996	2005	10	2.52%
1986	2005	20	3.00%
1976	2005	30	4.35%
1966	2005	40	4.70%
1956	2005	50	4.11%
1946	2005	60	4.12%
1936	2005	70	3.94%
1926	2005	80	3.12%
1916	2005	90	3.45%

Because of the cyclical nature of inflation and the long-term nature of the System's liabilities, we believe that it is appropriate to assume that the average inflation rate to be experienced over the next 30 to 50 years (which is approximately the lifetime of the present obligations of the System) will be between 4.00% and 4.50%.

The current long-term inflation assumptions adopted by the 1937 act counties are shown in the following chart. The average inflation assumption for these systems is currently 3.91%, excluding Stanislaus County.

CURRENT LONG-TERM INFLATION ASSUMPTIONS ADOPTED BY OTHER 1937 ACT COUNTIES			
Retirement Association	Assumed Inflation Rate	Retirement Association	Assumed Inflation Rate
Alameda	4.00%	Sacramento	3.50%
Contra Costa	4.00%	San Bernardino	4.00%
Fresno	4.00%	San Diego	4.00%
Imperial	N/A	San Joaquin	3.50%
Kern	3.50%	San Mateo	3.50%
Los Angeles	3.50%	Santa Barbara	4.00%
Marin	N/A	Sonoma	4.25%
Mendocino	4.75%	<b>Stanislaus</b>	<b>4.50%</b>
Merced	4.50%	Tulare	4.00%
Orange	3.50%	Ventura	4.00%

Based on this information, we recommend that the current inflation rate assumption of 4.50% be reduced to 4.00%

### ***Real Rate of Return***

The first step in developing a real rate of return is to analyze how the System's assets are allocated among the various investment classes. Based on this information, we can then apply the anticipated rate of return to the respective classes and develop an overall estimated real rate of return. The System's current asset allocation is shown in the following exhibit.



ASSET ALLOCATION AS OF JUNE 30, 2006 (MARKET VALUE)	
	Target
Equity	63.6%*
Fixed Income/Bonds	36.4%
Real Estate	0%
Short Term Cash Equivalents	0%

\*Includes International Equity and Fixed Income

There have been numerous studies performed which analyze the expected long-term real rates of return for use in asset allocation models. Roger Ibbotson and Rex A. Sinquefeld produced one of these studies for the period 1926-2005 called Stocks, Bonds and Inflation: Simulations of the Future. The results of this study are presented below.

IBBOTSON-SINQUEFIELD REAL RATES OF RETURN (1926 - 2005)	
Stocks	7.1%
Long-term government bonds	2.8%
Long-term corporate bonds	2.4%
Treasury bills	0.7%

Applying the System's current asset allocation to the real rates of return in the table above produces a real rate of return of approximately 5.46% (assuming an equal proportion of government and corporate bonds). After adjusting for expenses and potential adverse future experience, we believe that a real rate of return of 4.00% provides a reasonable degree of conservatism when used with a 4.00% inflation rate. This represents a 0.50% increase in our real rate of return assumption. The combination of the decrease in our inflation assumption and increase in our real rate of return assumption results in the same 8.00% investment return assumption used in the prior valuation. In addition, since the reserves are credited at the assumed investment rate semiannually, the 8.00% interest rate is compounded for valuation purposes.

The return on assets, net of expenses, experienced by the Fund since 1997 is shown below. The increase in the Consumer Price Index is also shown for comparative purposes.

<b>NET RETURN ON ASSETS vs. INCREASE IN CONSUMER PRICE INDEX</b>			
<b>Year Ended June 30,</b>	<b>Annualized Rate of Return @ Market Value</b>	<b>Annualized Rate of Return @ Actuarial Value</b>	<b>Increase in Consumer Price Index*</b>
1997	20.4%		2.3%
1998	13.4%		1.7%
1999	10.6%		2.0%
2000	6.3%		3.7%
2001	7.0%		3.2%
2002	(4.5)%		1.1%
2003	5.2%	4.9%	2.1%
2004	16.1%	6.3%	3.3%
2005	8.2%	5.5%	2.5%
2006	9.9%	4.8%	4.3%
Compounded Average	9.1%	5.4%	2.6%

\* Based on All Urban Consumer - U.S. City Average, June indices.

### ***Merit and Longevity Increases***

The merit and longevity component of the total salary scale assumption reflects increases in members' salaries due to promotions, advances in pay grades, etc. These increases are dependent on an individual's membership and are generally decrease as members age.

The overall effect of the merit and longevity increases is to add approximately 1.00% to members' salaries.

### ***Recommendation***

The combination of the new 4.00% inflation rate assumption and an average merit and longevity assumption of 1% results in an average salary scale assumption of 5.00% used to develop the System's liabilities and costs.

## **SECTION IV - APPENDIX**

## SCHEDULE 1

### SUMMARY OF ACTUARIAL ASSUMPTIONS

- |  |  |
|--|--|
| 1. Investment Return:  | 8.00% per annum, compounded semi-annually to an 8.16% effective rate.  |
| 2. Interest Credited to Employee Accounts:                                   | 0.25% per annum for year starting July 1, 2005.  |
| 3. Inflation:  | 4.00% per annum.   |
| 4. Asset Valuation:  | Smoothed actuarial value.  |
| 5. Salary Scale:   | See Schedule 4   |
| 6. Spouses and Dependents:   | 90% of male employees and 50% of female employees assumed married at retirement, with wives assumed three years younger than husbands. |
| 7. Rates of Termination of Employment:                                       | See Schedule 2   |
| 8. Years of Life Expectancy After Retirement:                                | See Schedule 3   |
| 9. Years of Life Expectancy After Disability:                                | See Schedule 3   |
| 10. Life Expectancy After Retirement for Employee Contribution Rate Purposes |  |
| ♦ General Members:   | 1994 Group Annuity Table for Males, set back three years.  |
| ♦ Safety Members:  | 1994 Group Annuity Table for Males, with no setback.   |
| 11. Reciprocity Assumption:  | 50% of members who terminate with a vested benefit are assumed to enter a reciprocal system.   |
| 12. Deferral Age for Vested Terminations:                                    | 62 for General Tier 1/4 and Tier 2/5 members; 65 for General Tier 3 members; 55 for Safety members.                                    |
| 13. Sex:   | All Safety members are assumed to be male.   |

## SCHEDULE 2

### **PROBABILITIES OF SEPARATION FROM ACTIVE SERVICE**

The following pages indicate the probability of separation from active service for each of eight separate sources of termination:

- ♦ *Withdrawal:* member terminates and elects refund of member contributions.
- ♦ *Vested termination:* member terminates and contributions are left on deposit.
- ♦ *Ordinary death:* member dies prior to eligibility for retirement; death not employment-related.
- ♦ *Ordinary disability:* member receives disability retirement; disability not employment-related.
- ♦ *Service retirement:* member retires after satisfaction of requirements of age and/or service for reasons other than disability.
- ♦ *Duty disability:* member receives disability retirement; disability is employment-related.
- ♦ *Duty death:* member dies prior to retirement; death is employment-related.
- ♦ *Death while eligible:* member dies prior to retirement but after satisfaction of age and/or service requirements for service retirement or ordinary disability.

The probabilities shown for each cause of termination represent the probability that a given member will terminate at a particular age for the indicated reason. For example, if the probability of withdrawal at age 25 is .1200, then we are assuming that 12.0% of the active members at age 25 will terminate without vested rights during the next year.

**SCHEDULE 2**  
**PROBABILITIES OF SEPARATION FROM ACTIVE SERVICE**  
**GENERAL MEMBERS – MALES**  
**RECOMMENDED ASSUMPTIONS**

Age	Duty Death	Ordinary Death	Death While Eligible	Duty Disability	Ordinary Disability	Service	Terminated Vested	Withdraw
20	0.000000	0.000300	0.000000	0.000065	0.000130	0.000000	0.000000	0.143016
21	0.000000	0.000300	0.000000	0.000082	0.000164	0.000000	0.004180	0.136884
22	0.000000	0.000300	0.000000	0.000099	0.000197	0.000000	0.008030	0.130776
23	0.000000	0.000300	0.000000	0.000114	0.000229	0.000000	0.011440	0.124644
24	0.000000	0.000300	0.000000	0.000130	0.000259	0.000000	0.014520	0.122400
25	0.000000	0.000300	0.000100	0.000153	0.000307	0.000000	0.017380	0.119520
26	0.000000	0.000300	0.000100	0.000167	0.000335	0.000000	0.019910	0.116064
27	0.000000	0.000400	0.000100	0.000181	0.000361	0.000000	0.022550	0.112320
28	0.000000	0.000400	0.000100	0.000203	0.000406	0.000000	0.024860	0.108576
29	0.000000	0.000400	0.000100	0.000225	0.000449	0.000000	0.026950	0.104736
30	0.000000	0.000400	0.000100	0.000316	0.000316	0.000000	0.028930	0.104100
31	0.000000	0.000400	0.000100	0.000331	0.000332	0.000000	0.030580	0.101712
32	0.000000	0.000400	0.000100	0.000346	0.000347	0.000000	0.031680	0.098016
33	0.000000	0.000400	0.000100	0.000373	0.000374	0.000000	0.032230	0.092112
34	0.000000	0.000500	0.000100	0.000400	0.000400	0.000000	0.032560	0.088728
35	0.000000	0.000500	0.000200	0.000426	0.000426	0.000000	0.032450	0.083808
36	0.000000	0.000500	0.000200	0.000452	0.000452	0.000000	0.032010	0.078624
37	0.000000	0.000500	0.000200	0.000490	0.000490	0.000000	0.031900	0.073656
38	0.000000	0.000600	0.000200	0.000515	0.000515	0.000000	0.031680	0.069228
39	0.000000	0.000600	0.000200	0.000565	0.000565	0.000000	0.031350	0.066600
40	0.000000	0.000600	0.000300	0.000602	0.000602	0.000000	0.030800	0.064680
41	0.000000	0.000700	0.000300	0.000651	0.000651	0.000000	0.029920	0.062160
42	0.000000	0.000700	0.000300	0.000712	0.000713	0.000000	0.028820	0.057240
43	0.000000	0.000800	0.000400	0.000774	0.000773	0.000000	0.027610	0.052320
44	0.000000	0.000900	0.000400	0.000847	0.000847	0.000000	0.025960	0.047280
45	0.000000	0.000900	0.000500	0.000920	0.000920	0.000000	0.024200	0.042240
46	0.000000	0.000900	0.000500	0.001005	0.001005	0.000000	0.022220	0.037320
47	0.000000	0.001000	0.000600	0.001091	0.001091	0.000000	0.020020	0.032280
48	0.000000	0.001000	0.000700	0.001176	0.001175	0.000000	0.018810	0.029280
49	0.000000	0.001000	0.000900	0.001260	0.001260	0.000000	0.017600	0.026400
50	0.000000	0.001000	0.001100	0.001345	0.001345	0.040000	0.016170	0.023520
51	0.000000	0.001000	0.001200	0.001442	0.001442	0.015000	0.015070	0.021240
52	0.000000	0.001000	0.001400	0.001538	0.001538	0.020000	0.013860	0.018960
53	0.000000	0.001100	0.001600	0.001635	0.001635	0.030000	0.012650	0.016680
54	0.000000	0.001100	0.001800	0.001731	0.001731	0.035000	0.011770	0.015120
55	0.000000	0.001200	0.002000	0.001840	0.001840	0.075000	0.010890	0.013560
56	0.000000	0.001300	0.002200	0.001973	0.001973	0.085000	0.009790	0.011880
57	0.000000	0.001400	0.002400	0.002094	0.002094	0.090000	0.008140	0.009600
58	0.000000	0.001500	0.002600	0.002215	0.002215	0.095000	0.006930	0.007920
59	0.000000	0.001600	0.002800	0.002336	0.002336	0.100000	0.006490	0.007200
60	0.000000	0.001700	0.003100	0.002456	0.002456	0.120000	0.006600	0.007200
61	0.000000	0.001800	0.003300	0.002568	0.002569	0.150000	0.006600	0.007200
62	0.000000	0.001900	0.003600	0.002694	0.002693	0.300000	0.006600	0.007200
63	0.000000	0.001900	0.003900	0.002819	0.002819	0.200000	0.006600	0.007200
64	0.000000	0.002000	0.004200	0.002956	0.002956	0.300000	0.006600	0.007200
65	0.000000	0.002200	0.004500	0.000000	0.000000	0.500000	0.000000	0.000000
66	0.000000	0.002400	0.004900	0.000000	0.000000	0.400000	0.000000	0.000000
67	0.000000	0.002600	0.005300	0.000000	0.000000	0.500000	0.000000	0.000000
68	0.000000	0.002800	0.005700	0.000000	0.000000	0.500000	0.000000	0.000000
69	0.000000	0.003100	0.006100	0.000000	0.000000	0.600000	0.000000	0.000000
70	0.000000	0.000000	0.000000	0.000000	0.000000	0.999999	0.000000	0.000000

**SCHEDULE 2**  
**PROBABILITIES OF SEPARATION FROM ACTIVE SERVICE**  
**GENERAL MEMBERS - FEMALES**  
**RECOMMENDED ASSUMPTIONS**

Age	Duty Death	Ordinary Death	Death While Eligible	Duty Disability	Ordinary Disability	Service	Terminated Vested	Withdraw
20	.000000	.000200	.000000	.000013	.000025	.000000	.000000	.142344
21	.000000	.000200	.000000	.000013	.000025	.000000	.003416	.132048
22	.000000	.000200	.000000	.000013	.000025	.000000	.006306	.122184
23	.000000	.000200	.000000	.000013	.000025	.000000	.008692	.112680
24	.000000	.000200	.000000	.000013	.000025	.000000	.010920	.105624
25	.000000	.000300	.000075	.000025	.000050	.000000	.012989	.101016
26	.000000	.000300	.000075	.000025	.000050	.000000	.014929	.096624
27	.000000	.000300	.000075	.000025	.000050	.000000	.016711	.092448
28	.000000	.000300	.000075	.000038	.000075	.000000	.017820	.088947
29	.000000	.000300	.000075	.000050	.000100	.000000	.018642	.087471
30	.000000	.000300	.000075	.000050	.000100	.000000	.019751	.086022
31	.000000	.000400	.000075	.000050	.000100	.000000	.020642	.081972
32	.000000	.000400	.000075	.000063	.000125	.000000	.021453	.078084
33	.000000	.000400	.000075	.000072	.000142	.000000	.022127	.074196
34	.000000	.000400	.000075	.000094	.000187	.000000	.022641	.070470
35	.000000	.000500	.000075	.000141	.000281	.000000	.022938	.066825
36	.000000	.000500	.000075	.000162	.000323	.000000	.021060	.063261
37	.000000	.000500	.000075	.000195	.000390	.000000	.021195	.059778
38	.000000	.000500	.000075	.000215	.000430	.000000	.020988	.055890
39	.000000	.000600	.000075	.000260	.000519	.000000	.020583	.052083
40	.000000	.000600	.000150	.000335	.000446	.000000	.020520	.050616
41	.000000	.000600	.000150	.000387	.000516	.000000	.020322	.049077
42	.000000	.000600	.000150	.000424	.000565	.000000	.020250	.046683
43	.000000	.000700	.000150	.000475	.000633	.000000	.020115	.044370
44	.000000	.000700	.000150	.000541	.000721	.000000	.019710	.041634
45	.000000	.000700	.000225	.000606	.000808	.000000	.019170	.038907
46	.000000	.000800	.000225	.000671	.000894	.000000	.018837	.036675
47	.000000	.000800	.000300	.000735	.000980	.000000	.018432	.034542
48	.000000	.000800	.000375	.000814	.001086	.000000	.018225	.032922
49	.000000	.000800	.000450	.000893	.001190	.000000	.017883	.032112
50	.000000	.000800	.000600	.000971	.001295	.047500	.023490	.031320
51	.000000	.000800	.000750	.001064	.001418	.028500	.023040	.029700
52	.000000	.000800	.000900	.001157	.001542	.028500	.022500	.028080
53	.000000	.000800	.001050	.001249	.001665	.028500	.021870	.026550
54	.000000	.000900	.001125	.001371	.001827	.042750	.021240	.025020
55	.000000	.000900	.001275	.001492	.001990	.047500	.020520	.023490
56	.000000	.000900	.001425	.001614	.002151	.047500	.019800	.021960
57	.000000	.001000	.001575	.001735	.002312	.057000	.018900	.020430
58	.000000	.001000	.001725	.001855	.002474	.066500	.018000	.018990
59	.000000	.001000	.001875	.001976	.002634	.085500	.017640	.018090
60	.000000	.001100	.002100	.002096	.002794	.095000	.017190	.017190
61	.000000	.001200	.002325	.002201	.002934	.161500	.008100	.008100
62	.000000	.001300	.002625	.002306	.003074	.332500	.008100	.008100
63	.000000	.001400	.002850	.002411	.003214	.237500	.008100	.008100
64	.000000	.001500	.003075	.002516	.003354	.237500	.008100	.008100
65	.000000	.001700	.003225	.000000	.000000	.380000	.000000	.000000
66	.000000	.001900	.003525	.000000	.000000	.285000	.000000	.000000
67	.000000	.002100	.003750	.000000	.000000	.332500	.000000	.000000
68	.000000	.002300	.003975	.000000	.000000	.380000	.000000	.000000
69	.000000	.002500	.004200	.000000	.000000	.475000	.000000	.000000
70	.000000	.000000	.000000	.000000	.000000	1.000000	.000000	.000000

**SCHEDULE 2**  
**PROBABILITIES OF SEPARATION FROM ACTIVE SERVICE**  
**SAFETY MEMBERS**  
**RECOMMENDED ASSUMPTIONS**

Age	Duty Death	Ordinary Death	Death While Eligible	Duty Disability	Ordinary Disability	Service	Terminated Vested	Withdraw
20	0.000150	0.000151	0.000000	0.001012	0.000173	0.000000	0.000000	0.094900
21	0.000156	0.000157	0.000000	0.001322	0.000219	0.000000	0.004356	0.088400
22	0.000164	0.000164	0.000000	0.001620	0.000263	0.000000	0.008118	0.082500
23	0.000171	0.000172	0.000000	0.001907	0.000305	0.000000	0.011484	0.077300
24	0.000180	0.000181	0.000000	0.002184	0.000345	0.000000	0.014454	0.072500
25	0.000189	0.000190	0.000130	0.002576	0.000409	0.000000	0.018414	0.074700
26	0.000200	0.000201	0.000130	0.002886	0.000446	0.000000	0.021186	0.071300
27	0.000211	0.000212	0.000130	0.003238	0.000481	0.000000	0.023562	0.068100
28	0.000224	0.000225	0.000130	0.003556	0.000541	0.000000	0.025542	0.064600
29	0.000238	0.000239	0.000130	0.003918	0.000599	0.000000	0.027126	0.060700
30	0.000254	0.000254	0.000130	0.004609	0.000421	0.000000	0.027918	0.056300
31	0.000271	0.000271	0.000130	0.005094	0.000442	0.000000	0.028116	0.051500
32	0.000290	0.000290	0.000130	0.005573	0.000462	0.000000	0.027126	0.045600
33	0.000317	0.000318	0.000130	0.006030	0.000498	0.000000	0.025542	0.039800
34	0.000335	0.000335	0.000130	0.006582	0.000533	0.000000	0.023760	0.034200
35	0.000357	0.000357	0.000130	0.007079	0.000568	0.000000	0.022176	0.029800
36	0.000384	0.000384	0.000130	0.007571	0.000603	0.000000	0.020592	0.026100
37	0.000417	0.000417	0.000130	0.008043	0.000653	0.000000	0.019800	0.023600
38	0.000457	0.000458	0.000130	0.008476	0.000687	0.000000	0.018810	0.021200
39	0.000506	0.000506	0.000130	0.008873	0.000753	0.000000	0.017820	0.018900
40	0.000564	0.000564	0.000260	0.009283	0.000802	0.000000	0.016434	0.016600
41	0.000577	0.000690	0.000260	0.009672	0.000868	0.000000	0.014850	0.014300
42	0.000612	0.000816	0.000260	0.010041	0.000950	0.000000	0.013266	0.012100
43	0.000691	0.000922	0.000390	0.010408	0.001031	0.000000	0.011286	0.009900
44	0.000783	0.001043	0.000390	0.010804	0.001129	0.000000	0.009306	0.007800
45	0.000885	0.001178	0.000520	0.011297	0.001227	0.005000	0.007722	0.006200
46	0.000994	0.001325	0.000650	0.011872	0.001340	0.007500	0.006138	0.004700
47	0.001113	0.001483	0.000780	0.012543	0.001454	0.011250	0.004356	0.003200
48	0.001238	0.001651	0.000910	0.013362	0.001567	0.016880	0.003366	0.002400
49	0.001369	0.001826	0.001170	0.014228	0.001680	0.025310	0.002970	0.002100
50	0.000703	0.000937	0.001300	0.015092	0.001793	0.090000	0.002772	0.001900
51	0.000769	0.001025	0.001560	0.015837	0.001922	0.060000	0.002574	0.001700
52	0.000836	0.001115	0.001820	0.016580	0.002051	0.060000	0.002376	0.001500
53	0.000906	0.001208	0.002080	0.017271	0.002180	0.075000	0.002178	0.001300
54	0.000978	0.001304	0.002340	0.018060	0.002308	0.225000	0.001782	0.001100
55	0.001055	0.001406	0.002990	0.017230	0.002453	0.333300	0.001782	0.001000
56	0.001141	0.001521	0.003380	0.018165	0.002631	0.160000	0.001386	0.000800
57	0.001239	0.001652	0.003770	0.019365	0.002792	0.250000	0.001188	0.000700
58	0.001354	0.001805	0.003900	0.020563	0.002953	0.300000	0.000990	0.000500
59	0.001487	0.001983	0.004550	0.021759	0.003114	0.350000	0.000792	0.000400
60	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000



### SCHEDULE 3

#### YEARS OF LIFE EXPECTANCY AFTER SERVICE RETIREMENT

Age	General Male	General Female	Safety	Age	General Male	General Female	Safety
50	30.69	34.89	30.69	81	7.89	9.71	7.89
51	29.77	33.94	29.77	82	7.44	9.14	7.44
52	28.85	32.99	28.85	83	7.00	8.58	7.00
53	27.95	32.05	27.95	84	6.59	8.05	6.59
54	27.04	31.11	27.04	85	6.19	7.54	6.19
55	26.15	30.17	26.15	86	5.80	7.06	5.80
56	25.27	29.24	25.27	87	5.43	6.59	5.43
57	24.39	28.31	24.39	88	5.07	6.15	5.07
58	23.52	27.40	23.52	89	4.73	5.73	4.73
59	22.67	26.49	22.67	90	4.42	5.34	4.42
60	21.83	25.59	21.83	91	4.13	4.98	4.13
61	21.00	24.70	21.00	92	3.86	4.64	3.86
62	20.18	23.82	20.18	93	3.61	4.33	3.61
63	19.39	22.96	19.39	94	3.37	4.04	3.37
64	18.60	22.11	18.60	95	3.16	3.76	3.16
65	17.84	21.28	17.84	96	2.98	3.51	2.98
66	17.10	20.46	17.10	97	2.81	3.28	2.81
67	16.37	19.65	16.37	98	2.66	3.06	2.66
68	15.66	18.86	15.66	99	2.52	2.86	2.52
69	14.97	18.08	14.97	100	2.39	2.67	2.39
70	14.29	17.31	14.29	101	2.26	2.50	2.26
71	13.63	16.54	13.63	102	2.15	2.34	2.15
72	12.98	15.78	12.98	103	2.04	2.19	2.04
73	12.34	15.04	12.34	104	1.93	2.06	1.93
74	11.72	14.31	11.72	105	1.84	1.94	1.84
75	11.12	13.60	11.12	106	1.75	1.83	1.75
76	10.53	12.90	10.53	107	1.68	1.74	1.68
77	9.96	12.22	9.96	108	1.62	1.66	1.62
78	9.40	11.57	9.40	109	1.57	1.59	1.57
79	8.88	10.93	8.88	110	1.52	1.54	1.52
80	8.37	10.31	8.37				

1994 Group Annuity Male and Female Tables for General Members

1994 Group Annuity Male Table for Safety Members

**SCHEDULE 3**  
**YEARS OF LIFE EXPECTANCY AFTER DISABILITY RETIREMENT**  
**GENERAL MEMBERS**

Age	Years of Life Expectancy	Age	Years of Life Expectancy	Age	Years of Life Expectancy
20	38.73	51	20.59	81	6.63
21	37.98	52	20.11	82	6.27
22	37.26	53	19.63	83	5.94
23	36.56	54	19.16	84	5.63
24	35.87	55	18.68	85	5.34
25	35.19	56	18.22	86	5.06
26	34.53	57	17.75	87	4.80
27	33.87	58	17.29	88	4.55
28	33.23	59	16.83	89	4.31
29	32.60	60	16.37	90	4.09
30	31.98	61	15.91	91	3.87
31	31.37	62	15.45	92	3.66
32	30.76	63	14.99	93	3.46
33	30.17	64	14.53	94	3.26
34	29.58	65	14.07	95	3.07
35	29.00	66	13.60	96	2.89
36	28.43	67	13.13	97	2.71
37	27.87	68	12.66	98	2.54
38	27.31	69	12.18	99	2.37
39	26.76	70	11.70	100	2.20
40	26.21	71	11.21	101	2.04
41	25.67	72	10.72	102	1.88
42	25.14	73	10.22	103	1.72
43	24.61	74	9.73	104	1.55
44	24.09	75	9.24	105	1.38
45	23.57	76	8.76	106	1.21
46	23.06	77	8.28	107	1.04
47	22.56	78	7.83	108	.88
48	22.06	79	7.41	109	.72
49	21.57	80	7.00	110	.50
50	21.08				

1981 Disability Mortality Table (General)

### SCHEDULE 3

#### YEARS OF LIFE EXPECTANCY AFTER DISABILITY RETIREMENT SAFETY MEMBERS

Age	Years of Life Expectancy	Age	Years of Life Expectancy	Age	Years of Life Expectancy
20	49.29	51	22.80	81	6.63
21	48.39	52	22.03	82	6.27
22	47.48	53	21.26	83	5.94
23	46.58	54	20.50	84	5.63
24	45.68	55	19.77	85	5.34
25	44.79	56	19.06	86	5.06
26	43.89	57	18.40	87	4.80
27	43.01	58	17.78	88	4.55
28	42.12	59	17.20	89	4.31
29	41.24	60	16.64	90	4.09
30	40.36	61	16.11	91	3.87
31	39.48	62	15.59	92	3.66
32	38.61	63	15.08	93	3.46
33	37.74	64	14.58	94	3.26
34	36.88	65	14.09	95	3.07
35	36.02	66	13.61	96	2.89
36	35.16	67	13.13	97	2.71
37	34.31	68	12.66	98	2.54
38	33.46	69	12.18	99	2.37
39	32.61	70	11.70	100	2.20
40	31.77	71	11.21	101	2.04
41	30.93	72	10.72	102	1.88
42	30.09	73	10.22	103	1.72
43	29.26	74	9.73	104	1.55
44	28.43	75	9.24	105	1.38
45	27.61	76	8.75	106	1.21
46	26.80	77	8.28	107	1.04
47	25.99	78	7.83	108	.88
48	25.18	79	7.41	109	.72
49	24.38	80	7.00	110	.50
50	23.59				

1981 Disability Mortality Table (Safety)

## SCHEDULE 4

— *Sample Rates* —

<b>Age</b>	<b>GENERAL MEMBERS</b>		<b>SAFETY MEMBERS</b>	
	<b>Merit and Longevity</b>	<b>Total*</b>	<b>Merit and Longevity</b>	<b>Total*</b>
20	4.64%	8.83%	2.88%	7.00%
25	3.50	7.64	2.13	6.22
30	2.22	6.29	1.58	5.64
35	0.48	4.50	0.45	4.47
40	0.46	4.48	0.55	4.57
45	0.45	4.47	0.54	4.56
50	0.55	4.57	0.53	4.55
55	0.54	4.56	0.51	4.53
60	0.53	4.55	—	—

\* Salary scale of merit and longevity increases plus 4.00% for inflation.