

March 16, 1995

Board of Retirement  
Fresno County  
Employees' Retirement Association  
P.O. Box 1247  
Fresno, California 93715-1247

Members of the Board:

We are pleased to present our report on the experience analysis and actuarial valuation of your retirement system as of June 30, 1994.

We hereby certify that the valuation 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,



Krystyna H. Upstill, E.A., M.A.A.A.  
Principal



Anita L. Zlatev, F.S.A., E.A.  
Associate Consulting Actuary

DATE: May 1, 1995

TO: Board of Retirement

FROM: Clyde J. Francone, Assistant Auditor-Controller/Treasurer-Tax Collector

SUBJECT: Adoption by Your Board and Recommendation to the Board of Supervisors to Adopt the Actuary Report, Study 2, for the Period Ended June 30, 1994

Adoption by your Board and recommendation to the Board of Supervisors to adopt the Actuary Report, Study 2, the distribution of undistributed earnings at December 31, 1994, and an increase in contribution rates of approximately 10% for both the employer and employee. This is based upon a long term interest rate assumption of 8.25% and a 5.75% salary scale reflecting merit, longevity and long term inflation. This information was discussed at the special meeting of the Retirement Board on March 24, 1995. Also discussed at this meeting was the distribution of undistributed earnings remaining at December 31, 1994.

The following schedule details this distribution:

Retirement System Undistributed earnings available at 12-31-94 are approximately \$48 million and will be distributed as follows:

Distribution on behalf of employer	\$17,765,500
Distribution on behalf of employees	4,722,500
Distribution on behalf of retirees	8,000,000
Distribution to fund current Early Retirement Option	<u>2,000,000</u>
Subtotal	\$32,488,000
Balance to be held in reserve *	<u>\$15,512,000</u>
Total	<u>\$48,000,000</u>

\* The amount to be held in reserve will be utilized to offset the potential impact to the retirement system of any changes in status at Valley Medical Center as well as supplement the return on investment, if less than the assumption rate, for the retirement fund assets for the periods ending 6-30-95 and 12-31-95.

In accordance with Government Code 32454.1, employee group meet and confer sessions have been completed by the Personnel Division of General Services.

#### RECOMMENDATION

Adopt Actuary Report, Study 2, along with the distribution of undistributed earnings at December 31, 1994. Recommend to the Board of Supervisors adoption of the Actuary Report, Study 2, along with the distribution of undistributed earnings remaining at December 31, 1994, and an increase in contribution rates of approximately 10% for both the employer and employees.

GWP:icm

**FRESNO COUNTY  
EMPLOYEES' RETIREMENT ASSOCIATION**

**REPORT ON THE  
ACTUARIAL VALUATION  
AS OF JUNE 30, 1994**

001:11306-195

BUCK  
CONSULTANTS



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## **SECTION I: EXECUTIVE SUMMARY**

We were commissioned by the Board to perform an experience analysis and actuarial valuation of the retirement system as of June 30, 1994, using the statistical information available for the active, inactive and retired membership, and the financial statements as of June 30, 1994.

The results presented herein are based upon the unaudited data supplied by the Retirement Office and the benefits for General and Safety members under Sections 31676.12 and 31664, respectively, of the County Employees Retirement Law of 1937.

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

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

Total Association membership increased from 9,719 to 10,165. Active membership increased by 3.7% while total covered payroll increased by 11.7%.

The number of retired members went up by 5.4% and the retired pension roll increased by 13.9%.

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

#### *Noneconomic Assumptions*

We have examined the experience of the members of your Plan during the two year period from July 1, 1992 through June 30, 1994. We analyzed the data for these two years regarding service retirements, deaths, disabilities and terminations of employment, and compared the number of actual terminations to the incidence expected using the current actuarial assumptions. When the results differed materially, we recommend modifying the assumptions. The findings and adjustments made with regard to these rates are discussed in Section III.

### Economic Assumptions

In order to insure that the same inflationary expectations are consistently included in all of the economic assumptions, we have 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 two components: inflation and real rate of return.

In addition, we have assumed that future salary increases are comprised of the following components: inflation and merit and longevity increases.

In our report we calculated the contribution rates based on the current 5.00% long term level of inflation as well as on inflation rates of 4.75% and 4.50%. In addition, based upon future anticipated returns on the system's targeted asset mixes, we recommend that the current 3.50% future real rate of return be continued. Combining the inflation with the real rate of return results in long-term investment return assumptions of 8.50%, 8.25% and 8.00%, respectively.

We incorporated the same inflation assumption levels into the long term salary increase assumption.

### **Section IV - Contribution Rates**

A comparison between the current employer and employee contribution rates and the rates recalculated in this study utilizing the recommended actuarial assumptions is shown on the following page. In addition, we show the employer and employee contribution rates that would result from using the lower interest and inflation rate assumptions.

	EMPLOYER			EMPLOYEE		
	% of Payroll		Annual Amount*	% of Payroll		Annual Amount*
<b>Current Rates</b>						
<i>8.50% interest, 5.00% inflation</i>						
Before Transfer	13.49	%	\$ 29,327,000	4.29	%	\$ 9,337,000
After Transfer	10.23	%	\$ 22,238,000	2.86	%	\$ 6,228,000
<b>Recalculated Rates</b>						
<b>Study 1 - Based on:</b>						
<i>8.50% interest, 5.00% inflation</i>						
Before Transfer	16.37	%	\$ 35,615,000	4.58	%	\$ 9,967,000
After Transfer	13.11	%	\$ 28,526,000	3.15	%	\$ 6,858,000
<b>Study 2 - Based on:</b>						
<i>8.25% interest, 4.75% inflation</i>						
Before Transfer	17.31	%	\$ 37,638,000	4.72	%	\$ 10,261,000
After Transfer	14.05	%	\$ 30,549,000	3.29	%	\$ 7,152,000
<b>Study 3 - Based on:</b>						
<i>8.00% interest, 4.50% inflation</i>						
Before Transfer	18.35	%	\$ 39,889,000	4.86	%	\$ 10,576,000
After Transfer	15.09	%	\$ 32,800,000	3.43	%	\$ 7,467,000

\* Based on June 30, 1994 payroll.

The overall increase in employer contribution rates before the change in economic assumptions (Study 1) was primarily attributable to unfavorable plan experience. Lowering the interest and inflation



assumptions increases the required contributions even more because of the lower future expected earnings.

## **Section V - Assets and Liabilities**

### Actuarial Value of Assets

A book value of assets is used for purposes of determining employer contribution rates. As of June 30, 1994 the net value of the assets was \$783,116,000. The net market value of assets was \$783,165,000. The return on investments, net of expenses, was 14.2% as of June 30, 1993 and 11.6% as of June 30, 1994, on a book value basis. On a market value basis these returns were 12.3% as of June 30, 1993 and 1.9% as of June 30, 1994.

### Actuarial Balance Sheet

The actuarial balance sheet compares the present value of all future benefits anticipated to be paid for the current membership with the sources of funds to be used to provide these benefits. It illustrates that if recommended contribution levels made in the future prove out over time, current assets plus future employer and member contributions will be adequate to meet future benefit payments for the current membership.

### Funding Ratio - GASB 5

In order to judge the funding progress of the system a comparison was made of the ratio of the system's liabilities for benefits earned to date to the current value of assets. For this purpose, liabilities were calculated in accordance with Governmental Accounting Standards Board Statement No. 5 (GASB 5). GASB 5 liabilities include all liabilities for current retired and inactive members, including future automatic cost-of-living increases. For current active members, the liability reflects the projected retirement benefits earned through the valuation date.

	8.50% Interest, 5.00% Inflation June 30, 1992	8.50% Interest, 5.00% Inflation June 30, 1994	8.25% Interest, 4.75% Inflation June 30, 1994	8.00% Interest, 4.50% Inflation June 30, 1994
1. GASB 5 Pension Benefit Obligation	\$ 661,138,000	\$ 808,058,000	\$ 825,663,000	\$ 844,749,000
2. Net Book Value of Assets	\$ 625,724,000	\$ 783,116,000	\$ 783,116,000	\$ 783,116,000
3. Funding Ratio	95%	97%	95%	93%

The increase in funding ratio based on the 8.50% interest and 5.00% inflation assumptions is primarily attributable to higher than expected earnings on book value of assets during the two-year period ending June 30, 1994. The funding ratio decreases by about 2% for each 0.25% decrease in the interest and inflation assumption.

#### Section VI - Appendix

A summary of the major provisions of the Plan is included in the Appendix, together with detailed information on the actuarial assumptions, demographic information and plan assets. General and Safety member contribution rates, by entry age, are shown in Schedule 5.

## SECTION II: STATISTICAL HIGHLIGHTS

Our June 30, 1994 actuarial valuation of your Association was based on the following data. For comparison, we also show a summary of the June 30, 1992 statistical information found in the prior actuary's report.

SUMMARY OF ACTIVE MEMBERSHIP				
	June 30, 1992		June 30, 1994	
				Percentage Change During the Period
<b>GENERAL</b>				
Number		5,871	6,091	3.7 %
Annual Payroll*	\$	170,183,000	\$ 189,354,000	11.3 %
Average Monthly Salary	\$	2,416	\$ 2,591	7.2 %
Average Age		41.25	42.25	2.4 %
Average Service		8.50	9.00	5.9 %
<b>SAFETY</b>				
Number		716	743	3.8 %
Annual Payroll*	\$	24,458,000	\$ 28,085,000	14.8 %
Average Monthly Salary	\$	2,847	\$ 3,150	10.6 %
Average Age		38.50	39.00	1.3 %
Average Service		9.25	9.75	5.4 %
<b>TOTAL</b>				
Number		6,587	6,834	3.7 %
Annual Payroll*	\$	194,641,000	\$ 217,439,000	11.7 %
Average Monthly Salary	\$	2,462	\$ 2,651	7.7 %
Average Age		41.00	42.00	2.4 %
Average Service		8.50	9.00	5.9 %

\* Represents the annualization of active members' pay rates on June 30.



SUMMARY OF INACTIVE MEMBERSHIP			
	June 30, 1992	June 30, 1994	Percentage Change During the Period
<b>GENERAL</b>			
Number	612	664	8.5 %
<b>SAFETY</b>			
Number	48	62	29.2 %
<b>TOTAL</b>			
Number	660	726*	10.0 %

\* Excludes pending withdrawals.

SUMMARY OF RETIRED MEMBERSHIP			
	June 30, 1992	June 30, 1994	Percentage Change During the Period
<b>TOTAL</b>			
Number	2,472	2,605	5.4 %
Annual Allowance	\$ 25,681,000	\$ 29,258,000	13.9 %
Avg. Monthly Allowance	\$ 866	\$ 936	8.1 %

### SECTION III: SUMMARY OF ACTUARIAL ASSUMPTIONS

To carry out an actuarial valuation of the assets and liabilities of your Association, 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, retirement for service, death, and disability, and
- The mortality rates to be experienced among retired persons.

#### *Economic assumptions*

- Interest earnings to be realized on the funds over many years in the future, and
- The relative increases in a 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, 1994 actuarial valuation, we compared the expected number of terminations from active service to the number that actually terminated during the two year period beginning July 1, 1992 and ending June 30, 1994. Based on this comparison, we recommend

adjusting the probabilities of separation accordingly. The results of the investigation with respect to each rate of separation from active service are summarized in this section.

The actual separations due to ordinary and duty death were lower than the expected separations for Safety members. Therefore, we recommend lowering the rates of ordinary and duty death for these members.

Observed rates of death while eligible over the two-year and four-year periods were lower than those currently in use for Safety and General female members. Adjustments were made to reflect the lower incidence of death while eligible.

During the two-year experience period, the incidence of withdrawal was lower than expected for General male and female members. Adjustments were made to the withdrawal rates for General males to more accurately reflect the actual experience of this group. Specifically, rates at the early ages were decreased while rates at ages 49-64 were increased. In addition, withdrawal rates for General females were decreased at ages 20-39.

Observed rates of service retirement over the two-year and four-year periods were lower than those currently in use for Safety members. Adjustments were made to the rates to reflect the lower incidence of service retirement, particularly at ages 45 through 49. The actual separations due to service and deferred retirement were lower than expected for General members. However, we made no adjustments to these probabilities because of the impact of the "Golden Handshake."

None of the other types of separation deviated sufficiently to allow for statistically significant conclusions; hence, we recommend continuing the existing assumptions for the remaining types of separation.

The purpose of the table below is to provide the reader with a shorthand summary of the experience compared with the existing assumptions. A complete listing of the current and recommended rates of separation from active service can be found in Schedule 6 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 separation" below 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.

<b>SUMMARY OF ACTUARIAL INVESTIGATION WITH RESPECT TO RATES OF SEPARATION FROM ACTIVE SERVICE</b>		
	<b>Actual Separations</b>	<b>Expected Separations</b>
<b>Withdrawal</b>		
General Male	200	204
General Female	415	533
Safety	54	45
<b>Ordinary Death</b>		
General Male	4	4
General Female	4	5
Safety	0	1
<b>Duty Death</b>		
General Male	1	1
General Female	0	0
Safety	0	1
<b>Death While Eligible</b>		
General Male	5*	2
General Female	0	1
Safety	0	0**

\* Average for a 4-year period is 2.5.

\*\* Less than one person.



SUMMARY OF ACTUARIAL INVESTIGATION WITH RESPECT TO RATES OF SEPARATION FROM ACTIVE SERVICE		
	Actual Separations	Expected Separations
<b>Ordinary Disability</b>		
General Male	7	5
General Female	3	4
Safety	0	1
<b>Duty Disability</b>		
General Male	1	3
General Female	0	3
Safety	4	6
<b>Service Retirement</b>		
General Male	62	79
General Female	88	114
Safety	21	37
<b>Deferred Retirement</b>		
General Male	32	62
General Female	61	96
Safety	14	16

On the following pages, we show the number of members expected to eventually separate from active service for each of the various causes of termination based on both the current and recommended assumptions. We also show the percentage of members expected to eventually separate from the system, in pie chart format. For purposes of the chart, we have grouped the following:

- service retirement and terminated vested into Service,
- ordinary and duty disability into Disability, and
- ordinary death, duty death, and death while eligible into Death.

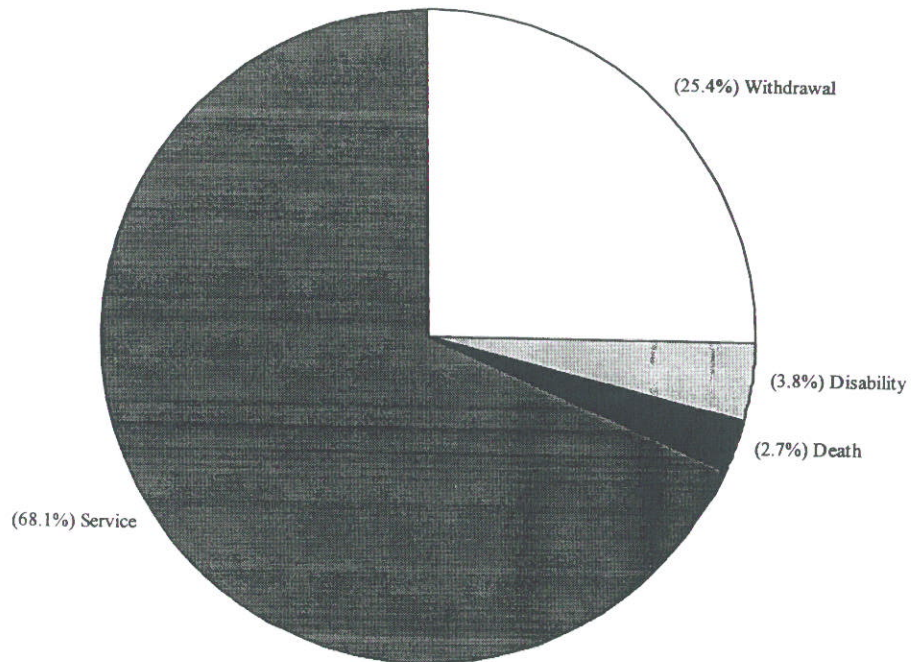
## GENERAL MALE MEMBERS

### Current Assumptions

Expected Number to Eventually Separate for Indicated Cause

Age	Number of Actives	Withdrawal	Service	Terminated Vested	Ordinary Death	Death While Eligible	Duty Death	Ordinary Disability	Duty Disability
20-24	56	49	3	4	0	0	0	0	0
25-29	153	114	18	17	1	1	0	1	1
30-34	256	127	67	50	3	2	0	4	3
35-39	342	108	139	73	5	3	1	8	5
40-44	431	83	243	72	8	5	1	12	7
45-49	460	48	328	46	8	6	1	14	9
50-54	274	19	220	14	4	3	1	8	5
55-59	144	6	126	4	2	1	0	3	2
60-64	56	1	52	0	1	1	0	1	0
65 & OVER	13	0	13	0	0	0	0	0	0
TOTAL	2,185	555	1,209	280	32	22	4	51	32
		25.4%	55.3%	12.8%	1.5%	1.0%	0.2%	2.3%	1.5%

Expected Percentage to Eventually Separate for Indicated Cause





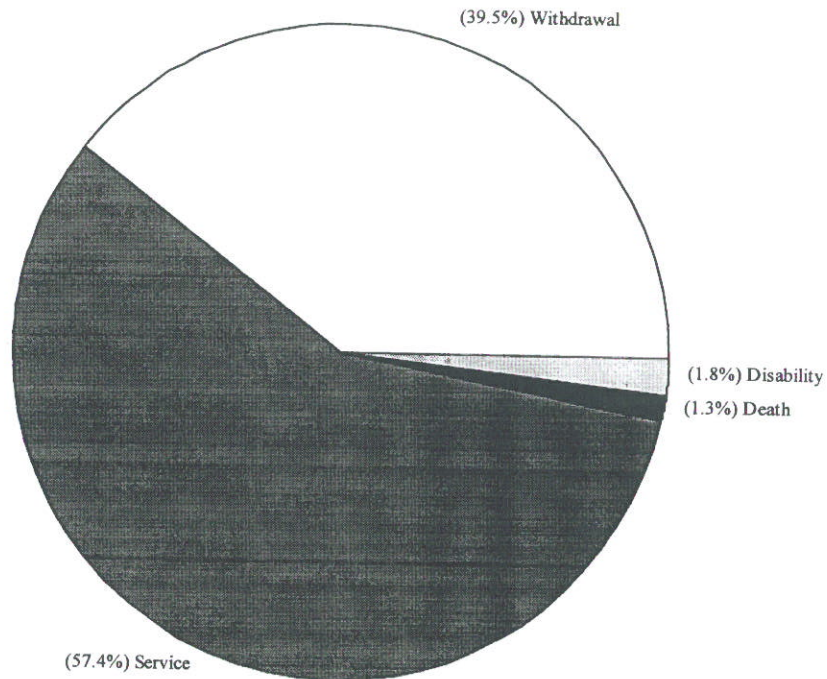
## GENERAL FEMALE MEMBERS

### Current Assumptions

Expected Number to Eventually Separate for Indicated Cause

Age	Number of Actives	Withdrawal	Service	Terminated Vested	Ordinary Death	Death While Eligible	Duty Death	Ordinary Disability	Duty Disability
20-24	112	102	4	6	0	0	0	0	0
25-29	338	279	28	28	1	0	0	1	1
30-34	555	364	98	81	4	1	0	4	3
35-39	689	319	227	121	8	2	0	7	5
40-44	769	248	377	113	10	3	0	11	7
45-49	691	155	441	67	9	3	0	10	6
50-54	400	56	309	19	5	2	0	5	4
55-59	230	16	200	6	2	1	0	3	2
60-64	100	3	94	1	1	0	0	1	0
65 & OVER	22	0	22	0	0	0	0	0	0
TOTAL	3,906	1,542	1,800	442	40	12	0	42	28
		39.5%	46.1%	11.3%	1.0%	0.3%	0.0%	1.1%	0.7%

Expected Percentage to Eventually Separate for Indicated Cause

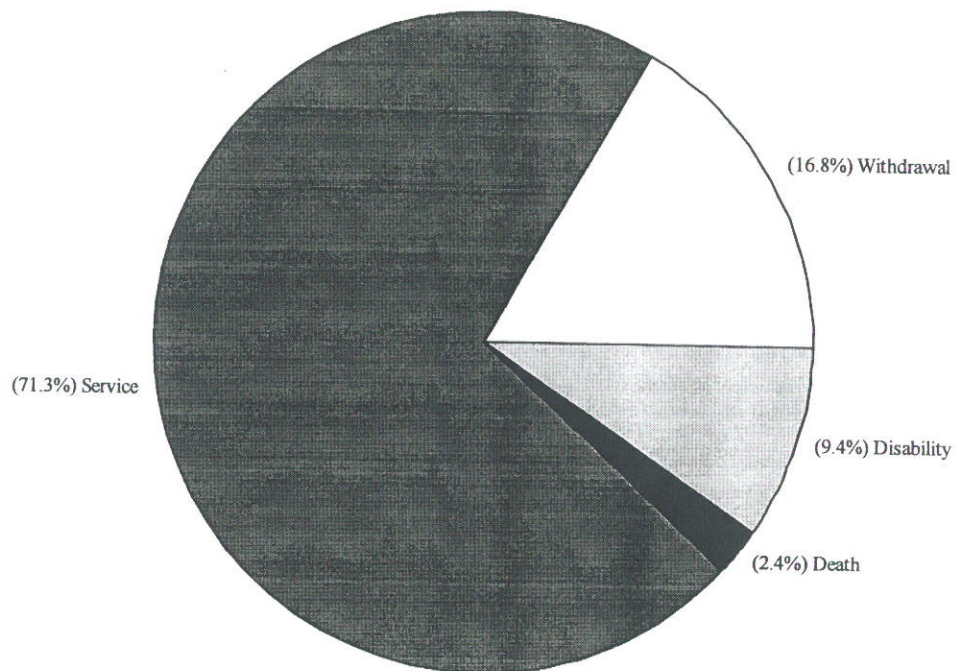


**SAFETY MEMBERS**  
**Current Assumptions**

Expected Number to Eventually Separate for Indicated Cause

Age	Number of Actives	Withdrawal	Service	Terminated Vested	Ordinary Death	Death While Eligible	Duty Death	Ordinary Disability	Duty Disability
20-24	24	15	5	3	0	0	0	0	1
25-29	112	50	32	20	1	1	1	1	6
30-34	134	37	61	21	1	1	1	2	10
35-39	125	16	81	10	1	1	2	2	12
40-44	137	5	108	3	2	1	2	2	14
45-49	139	2	120	0	1	1	1	2	12
50-54	54	0	49	0	0	0	0	1	4
55 & OVER	18	0	17	0	0	0	0	0	1
TOTAL	743	125	473	57	6	5	7	10	60
		16.8%	63.7%	7.7%	0.8%	0.7%	0.9%	1.3%	8.1%

Expected Percentage to Eventually Separate for Indicated Cause



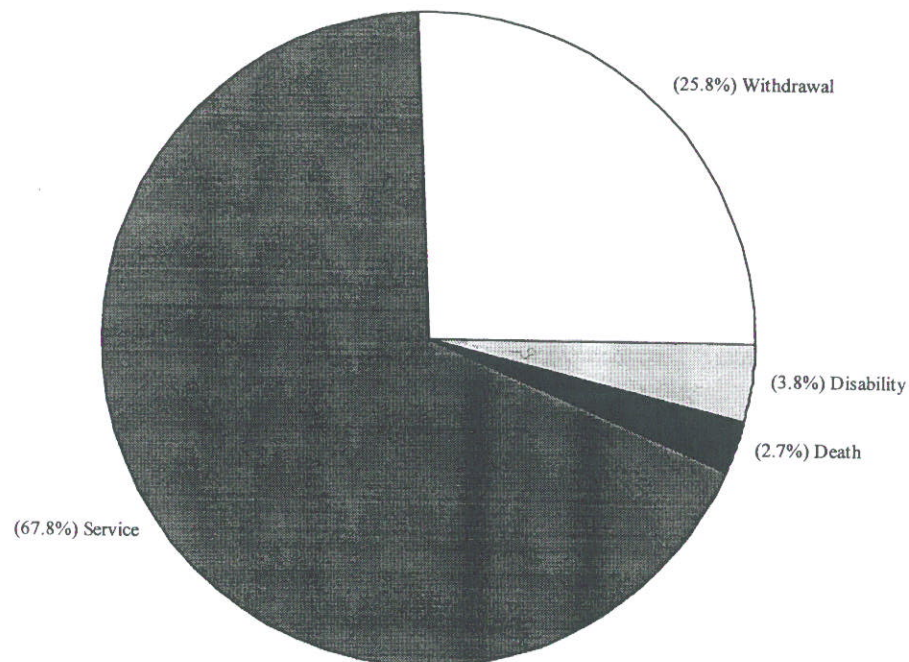
## GENERAL MALE MEMBERS

### Recommended Assumptions

Expected Number to Eventually Separate for Indicated Cause

Age	Number of Actives	Withdrawal	Service	Terminated Vested	Ordinary Death	Death While Eligible	Duty Death	Ordinary Disability	Duty Disability
20-24	56	48	4	4	0	0	0	0	0
25-29	153	112	19	18	1	1	0	1	1
30-34	256	127	67	50	3	2	0	4	3
35-39	342	110	137	73	5	3	1	8	5
40-44	431	86	240	72	8	5	1	12	7
45-49	460	52	324	46	8	6	1	14	9
50-54	274	21	218	14	4	3	1	8	5
55-59	144	6	126	4	2	1	0	3	2
60-64	56	1	52	0	1	1	0	1	0
65 & OVER	13	0	13	0	0	0	0	0	0
<b>TOTAL</b>	<b>2,185</b>	<b>563</b>	<b>1,200</b>	<b>281</b>	<b>32</b>	<b>22</b>	<b>4</b>	<b>51</b>	<b>32</b>
		25.8%	54.9%	12.9%	1.5%	1.0%	0.2%	2.3%	1.5%

Expected Percentage to Eventually Separate for Indicated Cause





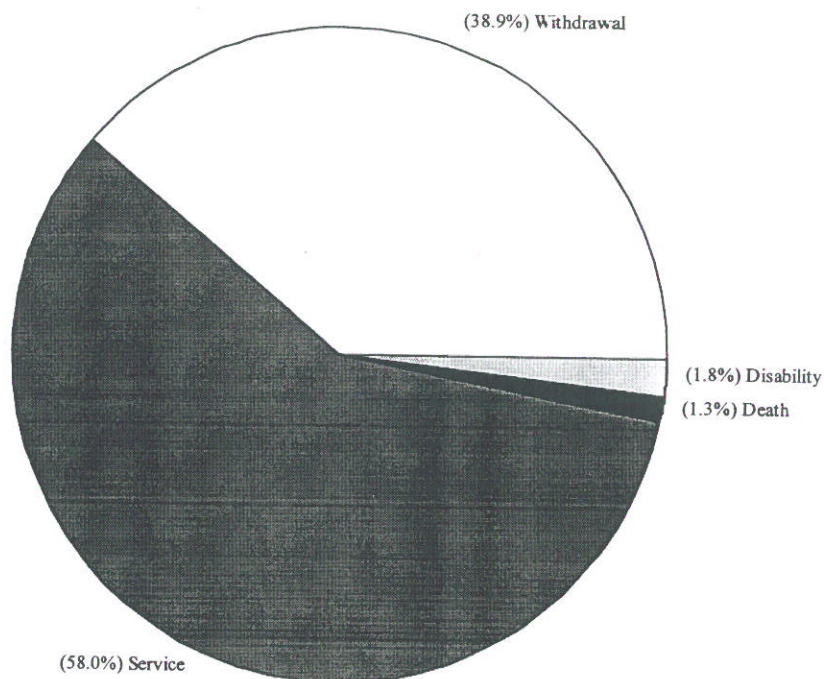
## GENERAL FEMALE MEMBERS

### Recommended Assumptions

Expected Number to Eventually Separate for Indicated Cause

Age	Number of Actives	Withdrawal	Service	Terminated Vested	Ordinary Death	Death While Eligible	Duty Death	Ordinary Disability	Duty Disability
20-24	112	101	5	6	0	0	0	0	0
25-29	338	275	29	30	2	0	0	1	1
30-34	555	352	106	85	4	1	0	4	3
35-39	689	313	231	123	8	2	0	7	5
40-44	769	248	378	113	10	2	0	11	7
45-49	691	156	441	67	9	2	0	10	6
50-54	400	56	310	19	5	1	0	5	4
55-59	230	16	200	6	2	1	0	3	2
60-64	100	3	93	1	1	0	0	1	1
65 & OVER	22	0	22	0	0	0	0	0	0
TOTAL	3,906	1,520	1,815	450	41	9	0	42	29
		38.9%	46.5%	11.5%	1.0%	0.2%	0.0%	1.1%	0.7%

Expected Percentage to Eventually Separate for Indicated Cause

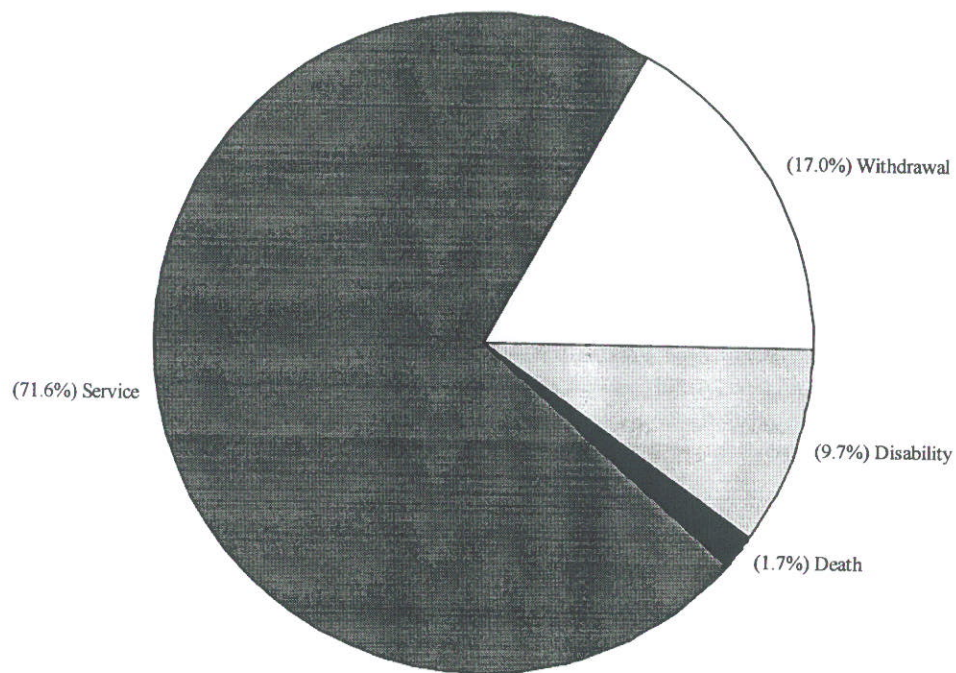


# **SAFETY MEMBERS** **Recommended Assumptions**

Expected Number to Eventually Separate for Indicated Cause

Age	Number of Actives	Withdrawal	Service	Terminated Vested	Ordinary Death	Death While Eligible	Duty Death	Ordinary Disability	Duty Disability
20-24	24	15	5	3	0	0	0	0	1
25-29	112	50	33	20	1	0	1	1	6
30-34	134	36	62	21	1	0	1	2	11
35-39	125	16	81	10	1	1	1	2	13
40-44	137	7	108	3	1	1	1	2	14
45-49	139	2	120	0	1	1	1	2	12
50-54	54	0	49	0	0	0	0	1	4
55 & OVER	18	0	17	0	0	0	0	0	1
TOTAL	743	126	475	57	5	3	5	10	62
		17.0%	63.9%	7.7%	0.7%	0.4%	0.7%	1.3%	8.3%

Expected Percentage to Eventually Separate for Indicated Cause



### *Mortality After Service Retirement*

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

#### *Current Service Retirement Mortality Tables*

General Males	1983 Group Annuity Mortality Table for Males, set back 1 year
General Females	1983 Group Annuity Mortality Table for Females, set forward 1 year
Safety	1983 Group Annuity Mortality Table for Males, set back 1 year

The results of the experience analysis are as follows:

NUMBER OF DEATHS AFTER SERVICE RETIREMENT		
	Actual	Expected
General Males and Male Beneficiaries	48	53
General Females and Female Beneficiaries	63	76
Safety Members	7	6

When beneficiaries were excluded, the actual and expected numbers of deaths for General males were the same. For General female members the actual and expected were 55 and 61, respectively. Based on these results, we recommend that the mortality table used for General females be adjusted to reflect the longer life expectancies observed for this group.



### *Recommended Service Retirement Mortality Tables*

General Males	1983 Group Annuity Mortality Table for Males, set back 1 year
General Females	1983 Group Annuity Mortality Table for Females, with no setback
Safety	1983 Group Annuity Mortality Table for Males, set back 1 year

The expected number of deaths using the recommended General female table and excluding beneficiaries is 54, which compares favorably to the actual number of 55.

A full listing of the life expectancies based on the current and recommended tables is shown in Schedule 7 of the Appendix. The costs developed for this report (Studies 1-3) are based upon the recommended tables.

### *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
General Members	13	14
Safety Members	1	2

We recommend that the current disability mortality tables continue to be used to determine life expectancy after disability retirement. A full listing of the life expectancies based on these tables is shown in Schedule 7 of the Appendix.

### **ECONOMIC ASSUMPTIONS**

In setting the economic assumptions, we take a building block approach. Specifically, we first look at the rate of inflation which underlies both the total rate of return and the salary scale assumptions. To aid us in determining an appropriate inflation rate for your Association, 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 which 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 Association's funds. To develop the individual real rates of return we utilize various empirical studies. By applying the results of these studies to the Association'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 scale assumption.

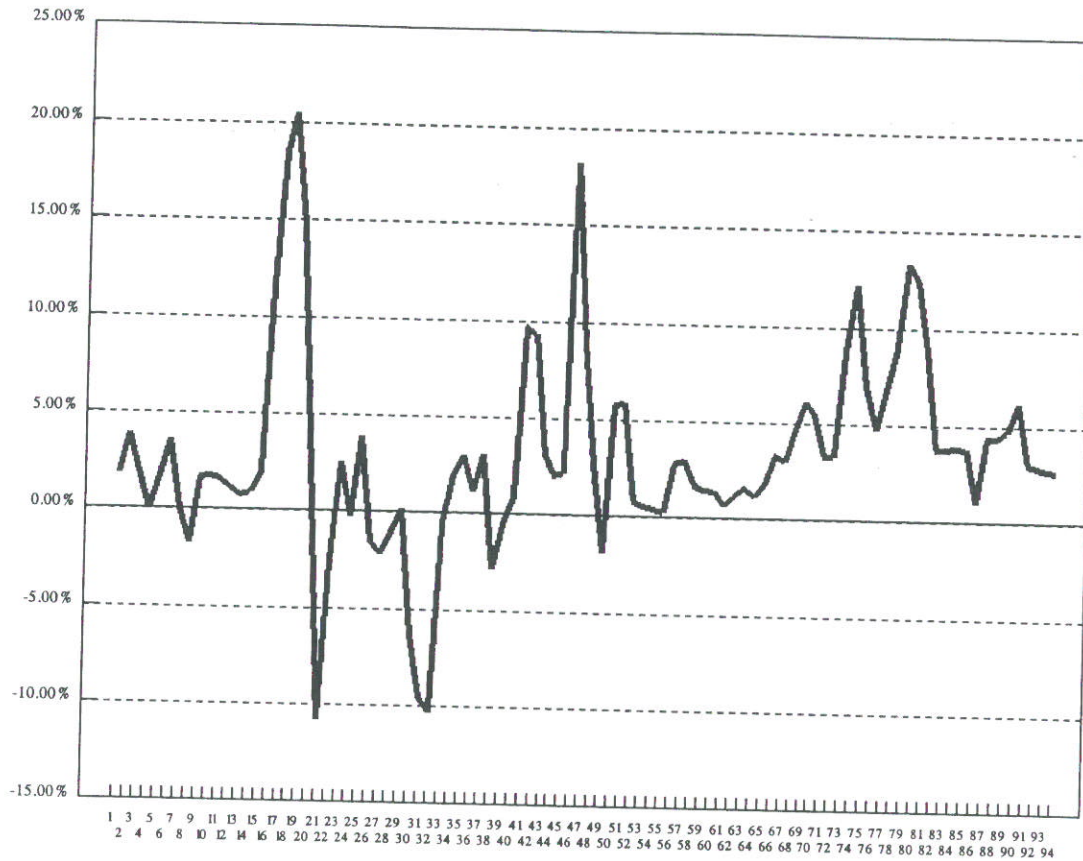
## *Inflation*

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

For the most recent three years the annual inflation rates have averaged 2.9% per year, for the three years prior to that, the average was 5.1%. 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 graph on the following page. Currently, we seem to be near the bottom of the most recent downturn.



## HISTORICAL INFLATION RATES \*



\* US city average (December index)

From		To	Years	Average
1985	-	1994	10	3.61%
1975	-	1994	20	5.49%
1965	-	1994	30	5.41%
1955	-	1994	40	4.45%
1945	-	1994	50	4.44%
1935	-	1994	60	4.19%
1925	-	1994	70	3.23%
1915	-	1994	80	3.56%
1905	-	1994	90	3.30%

Because of the cyclical nature of inflation and the long term nature of the Association'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 Association) will be between 4.50% and 5.50%.

The current long term inflation assumptions adopted by the other 1937 act counties are shown in the following chart. The average inflation assumption for these systems is currently 4.86%.

**Current Long Term Inflation Assumptions  
Adopted by Other 1937 Act Counties**

<u>Retirement System</u>	<u>Assumed Inflation Rate</u>	<u>Retirement System</u>	<u>Assumed Inflation Rate</u>
Alameda	4.75 %	Sacramento	4.50 %
Contra Costa	4.75 %	San Bernardino	5.00 %
Fresno	5.00 %	San Diego	5.00 %
Imperial	5.00 %	San Joaquin	4.50 %
Kern	4.00 %	San Mateo	5.00 %
Los Angeles	5.00 %	Santa Barbara	5.00 %
Marin	5.00 %	Sonoma	5.00 %
Mendocino	5.00 %	Stanislaus	5.00 %
Merced	5.25 %	Tulare	5.00 %
Orange	5.00 %	Ventura	4.50 %

We believe that it is appropriate to lower the inflation rate assumption to 4.75% at this time.

***Real Rate of Return***

The first step in developing a real rate of return is to analyze how the Association'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 Association has adopted the following target asset allocation:

**Asset Allocation as of June 30, 1994  
(Market Value)**

	Target	Actual
Equity	45 %	47 %
Fixed Income/Bonds	37 %	36 %
Real Estate	10 %	8 %
Cash and Short Term	3 %	9 %
Alternative Investments	5 %	0 %

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 such a study for the period 1926-1992 called Stocks, Bonds and Inflation: Simulations of the Future. The results of this study are presented below.

**Ibbotson-Sinquefeld  
Real Rates of Return  
(1926 - 1992)**

Stocks	7.0%
Long-term government bonds	1.7%
Long-term corporate bonds	2.3%
Treasury bills	0.5%

Applying the Association's target asset allocation to the real rates of return in the table above produces a real rate of return of approximately 4.7% (assuming an equal proportion of government and corporate bonds, a 4.0% return on real estate, and a 7.0% return on alternative investments). This rate, however, should be adjusted to reflect administrative expenses as well as potential adverse future experience.

After making these adjustments, we believe that a real rate of return of 3.50% provides a reasonable degree of conservatism when used with a 4.75% inflation rate. This leads to an 8.25% investment return assumption.

The return on assets, net of expenses, experienced by the Fund since 1982 is shown below. The increase in the Consumer Price Index is also shown for comparative purposes.



**Net Return on Assets  
vs.  
Increase in Consumer Price Index**

Year Ended	Net Return @ Book Value	Net Return @ Market Value	Increase in Consumer Price Index *
June 30, 1982	9.8 %		7.1 %
June 30, 1983	10.4 %		2.6 %
June 30, 1984	10.2 %		4.2 %
June 30, 1985	9.8 %		3.8 %
June 30, 1986	12.9 %		1.8 %
June 30, 1987	14.7 %		3.7 %
June 30, 1988	12.2 %		4.0 %
June 30, 1989	8.4 %		5.2 %
June 30, 1990	10.8 %		4.7 %
June 30, 1991	9.0 %		4.7 %
June 30, 1992	12.0 %	12.8 %	3.1 %
June 30, 1993	14.2 %	12.3 %	3.0 %
June 30, 1994	11.6 %	1.9 %	2.5 %
13 Year Average	11.2 %	N/A	3.9 %
3 Year Average	12.6 %	9.0 %	2.9 %

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

***Recommendation***

Based on the information provided in this section, we recommend that the inflation assumption be lowered to 4.75%. This will lower the long term interest rate assumption to 8.25%.

### *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 graded downward as members age.

The overall effect of the merit and longevity increases is to add approximately 1.0% to the total salary scale assumption. Combined with the 4.75% inflation rate, the total recommended salary scale assumption amounts to 5.75%.

## SECTION IV: CONTRIBUTION RATES

Below we show a comparison between the current contribution rates, the rates recalculated as of June 30, 1994 based on the same economic actuarial assumptions and new noneconomic actuarial assumptions (Study 1), and the rates developed for this valuation (Studies 2 and 3) based on alternative economic actuarial assumptions.

	EMPLOYER			EMPLOYEE		
	% of Payroll		Annual Amount*	% of Payroll		Annual Amount*
<b>Current Rates</b>						
<i>8.50% interest, 5.00% inflation</i>						
Before Transfer	13.49	%	\$ 29,327,000	4.29	%	\$ 9,337,000
After Transfer	10.23	%	\$ 22,238,000	2.86	%	\$ 6,228,000
<b>Recalculated Rates</b>						
<b>Study 1 - Based on:</b> <i>8.50% interest, 5.00% inflation</i>						
Before Transfer	16.37	%	\$ 35,615,000	4.58	%	\$ 9,967,000
After Transfer	13.11	%	\$ 28,526,000	3.15	%	\$ 6,858,000
<b>Study 2 - Based on:</b> <i>8.25% interest, 4.75% inflation</i>						
Before Transfer	17.31	%	\$ 37,638,000	4.72	%	\$ 10,261,000
After Transfer	14.05	%	\$ 30,549,000	3.29	%	\$ 7,152,000
<b>Study 3 - Based on:</b> <i>8.00% interest, 4.50% inflation</i>						
Before Transfer	18.35	%	\$ 39,889,000	4.86	%	\$ 10,576,000
After Transfer	15.09	%	\$ 32,800,000	3.43	%	\$ 7,467,000

\* Based on June 30, 1994 payroll.



## **MEMBER CONTRIBUTION RATES**

### ***Member Basic Contributions***

Section 31621.5 sets forth the basis for the determination of the normal rates of contribution for General members. Section 31639.5 sets forth the basis for the normal rates of contribution for Safety members.

The law further provides that the contribution rates of members will be based on the age nearest birthday at the time of entrance into the Retirement Association. Section 31453 states that no adjustment will be included in the rates of contribution for time prior to the effective date of any revisions. Note that the law was changed in 1976 to remove the sex differential in member contribution rates.

The basic employee contribution rates for General members were calculated on a unisex basis using the 1983 Group Annuity Mortality Table for Males with a 4 year setback. The Safety basic employee rates are based upon the 1983 Group Annuity Mortality Table for Males set back 1 year. These are the same as the assumptions currently in use.

Employee basic contribution rates for Studies 2 and 3 have increased for General and Safety members due to a lower future interest rate assumption. This increase was partially offset by the lower future inflation assumption.

### ***Cost of Living Contributions***

The employee portion of the cost-of-living provision is expressed as a percentage of the employees' normal contribution rates. The current cost of living percentage, before any transfers, is 38.19% for all members. These cost of living percentages increase to 47.58% for Study 1, 49.06% for Study 2, and 50.67% for Study 3. The increase in the cost of living percentage is due to the older entry age for the new hires, longer life expectancy for General female members, and lower interest rate assumptions (Study 2 and 3).

A summary of the average employee contribution rates based on Study 1, Study 2, and Study 3 is provided below. Rates at sample ages are also shown.

AVERAGE MEMBER BASIC AND COST OF LIVING CONTRIBUTION RATES*				
	GENERAL		SAFETY	
<b>Current Rates</b>				
Before Transfer	4.19	%	5.01	%
After Transfer	2.77	%	3.52	%
<b>Recalculated Rates</b>				
<b>Study 1</b>				
Before Transfer	4.47	%	5.35	%
After Transfer	3.05	%	3.86	%
<b>Study 2</b>				
Before Transfer	4.60	%	5.52	%
After Transfer	3.18	%	4.03	%
<b>Study 3</b>				
Before Transfer	4.74	%	5.70	%
After Transfer	3.32	%	4.21	%

SAMPLE GENERAL MEMBER CONTRIBUTION RATES* BEFORE TRANSFERS			
Entry Age	Study 1		Study 2
			Study 3
25	4.27	%	4.38 %
35	4.91	%	5.05 %
59	6.98	%	7.18 %

\* These are half rates payable by the member. Contribution rates for the first \$350.00 of monthly salary are one-third lower for members covered by Social Security.



SAMPLE SAFETY MEMBER CONTRIBUTION RATES* BEFORE TRANSFERS			
Entry Age	Study 1	Study 2	Study 3
25	5.42 %	5.57 %	5.77 %
35	6.17 %	6.36 %	6.58 %
49	7.54 %	7.78 %	8.06 %

\* These are the half rates payable by the member. Contribution rates for the first \$350.00 of monthly salary are one-third lower for members covered by Social Security.

Schedule 5 in the Appendix contains the complete set of recommended members' basic and cost-of-living contribution rates. The interest rate, mortality table, inflation rate, and cost-of-living benefit are indicated on the bottom of the schedules.

#### **EMPLOYER CONTRIBUTION RATES**

Employer contributions have been determined under the Entry Age Normal Actuarial Cost Method, permitted by Section 31453.5. The Entry Age Normal method defines the Normal Cost as the level percentage of salary necessary to fund the projected future benefit over the period from the date of entry to the date of separation from active service. The Actuarial Accrued Liability is the cost allocated to years prior to the actuarial valuation date; it is the excess of the total value of benefits over the value of future member contributions and the value of future Normal Costs. The difference between the Actuarial Accrued Liability and the plan assets is called the Unfunded Actuarial Accrued Liability and is funded (amortized) as a level percentage of projected future payroll over 16 years from June 30, 1994.

The average amortization period for the 1937 Act Counties is approximately 20 years as of July 1, 1994. The actual amortization periods vary between 5 and 28 years.



The following chart specifies the employer contributions and components thereof (expressed as a level percentage of payroll) for the last valuation based on the prior actuary's report and the rates recommended in this valuation (Study 2). It shows a breakdown between basic and cost of living benefits as well as the transfer scheduled for fiscal years 1994/95 and 1995/96. Unless additional transfers are made, the contribution rates will increase to the "Before Transfer" levels effective July 1, 1996.

### **TOTAL EMPLOYER CONTRIBUTION RATES**

Current and Recommended (Study 2)

<b>BREAKDOWN BETWEEN BASIC AND COST OF LIVING BENEFITS</b>						
	<b>General Members</b>		<b>Safety Members</b>		<b>All Members*</b>	
	<b>Current</b>	<b>Recommended</b>	<b>Current</b>	<b>Recommended</b>	<b>Current</b>	<b>Recommended</b>
Basic Benefits	9.77 %	12.26 %	13.62 %	17.91 %	10.27 %	12.99 %
Cost of Living Benefits	3.22 %	4.32 %	3.22 %	4.32 %	3.22 %	4.32 %
Total Before Transfer Cost	12.99 %	16.58 %	16.84 %	22.23 %	13.49 %	17.31 %
Less Transfer	-3.26 %	-3.26 %	-3.25 %	-3.25 %	-3.26 %	-3.26 %
Total Cost After Transfer	9.73 %	13.32 %	13.59 %	18.98 %	10.23 %	14.05 %

\* Weighted by June 30, 1994 payroll.

The overall increase in employer contribution rates was primarily attributable to unfavorable plan experience and changes recommended in the economic and noneconomic assumptions.

Specifically, the average entry age of the new hires was significantly higher than anticipated. For new members, the average entry age was 35. This compares to an average entry age of 32 for existing members. We anticipated that the average age for new entrants would remain constant over time. The impact of this trend is significant on the employer contribution rates because of the relative size of the new entrant group; for this study 15% of the total population are new entrants.

Also contributing to the increase in employer contributions is a lower than expected number of withdrawals from the Association. This withdrawal pattern alone caused the liabilities to increase by approximately \$12 million. In addition, the liabilities increased by \$6 million due to unfavorable service retirement and deferred vested experience.

For retired members, longer than expected life expectancies and data corrections resulted in \$8 of million additional liabilities.

### **RECOMMENDATIONS**

We recommend that the Board adopt the Study 2 contribution rates as of June 30, 1994 as shown in this section. These rates reflect the recommended economic and noneconomic assumptions, are based on the Entry Age Normal Actuarial Cost Method with an unfunded actuarial accrued liability amortized as a level percentage of payroll over 16 years from June 30, 1994, and utilize a book value of assets. This combination of assumptions and methods reflects our best judgment of future long term experience for the Association.

Employer contribution rates at the recommended level expressed as a percentage of payroll are as follows:

	<b>GENERAL</b>		<b>SAFETY</b>	
Basic	12.26	%	17.91	%
Cost of Living	4.32	%	4.32	%
Total Before Transfer	16.58	%	22.23	%
Less Transfer	- 3.26	%	- 3.25	%
Total After Transfer	13.32	%	18.98	%

The recommended employee contribution rates are shown in Schedule 5 of the Appendix.



## **RETIREE HEALTH INSURANCE BENEFITS**

As requested, we have calculated the liabilities associated with the current monthly retiree supplemental health benefits (\$45 plus \$1.25 per year of service up to an \$82.50 maximum for employees hired before 1/1/90 and \$2.75 per year of service up to an \$82.50 maximum for employees hired on or after 1/1/90). Our results are based upon the current retirees and members retiring in the future from the current active and inactive group.

The present values determined as of July 1, 1994 are shown below. These amounts reflect the new recommended economic and noneconomic actuarial assumptions. Note that new employees hired after July 1, 1994 are excluded from this analysis.

<b>RETIREE HEALTH INSURANCE BENEFITS</b>	
Present Value of Benefits	
Current Actives and Inactives	\$ 15,952,000
Current Retirees	\$ 19,127,000
Total Present Value	\$ 35,079,000
Less: Retiree Health Insurance Reserve	\$ 29,106,000
Net Present Value	\$ 5,973,000

Presently, the assets supporting the supplemental benefits are held in a health insurance reserve. As of June 30, 1994 (the valuation date of the present value of benefits), the health insurance reserve amounted to \$29,106,000. Thus, as of that date, the reserve was not sufficient to provide for the continuation of the benefits for current retirees and for current employees when they retire.



## SECTION 31874.3(b) SUPPLEMENTAL BENEFITS

Section 31874.3(b) of the Government Code authorizes the Board to provide supplemental benefit increases to retirees whose accumulated unused COLA equals, or exceeds, 25%. In Table 1 below, we show the unused cost-of-living accumulations for retirees that meet the 25% eligibility criteria defined by Section 31874.3(b).

Table 1	
Retirement Date	Accumulated Unused COLA Through April 1, 1994 (Section 31870.1)
On or Before 4/1/73	71.5%
4/2/73 to 4/1/74	71.0%
4/2/74 to 4/1/75	68.0%
4/2/75 to 4/1/76	61.0%
4/2/76 to 4/1/77	54.0%
4/2/77 to 4/1/78	51.5%
4/2/78 to 4/1/79	47.0%
4/2/79 to 4/1/80	40.5%
4/2/80 to 4/1/81	35.0%
4/2/81 and after	not eligible

As shown in Table 1 above, all retirees with effective retirement dates on or before April 1, 1981 would be eligible to receive a supplemental COL benefit based on the unused COLA through April 1, 1994.

### *Supplemental Benefit Formula*

In Table 2 on the following page, we show the percentage increase in benefits for the eligible retirees.

Table 2		
Retired on or Before	Accumulated Unused COLA through April 1, 1994	Percentage Increase Based on the 25% Floor
4/1/73	71.5%	46.5%
4/1/74	71.0%	46.0%
4/1/75	68.0%	43.0%
4/1/76	61.0%	36.0%
4/1/77	54.0%	29.0%
4/1/78	51.5%	26.5%
4/1/79	47.0%	22.0%
4/1/80	40.5%	15.5%
4/1/81	35.0%	10.0%

To illustrate the amount of supplemental benefits, we take for example, a member who retired January 1, 1973 and is currently receiving \$1,000.00 per month in basic and COL benefits. This member's unused COLA is 71.5%.

This member would receive a 46.5% (71.5% - 25.0%) increase, or \$465.00 ( $\$1,000.00 \times 46.5\%$ ) per month.

### *Summary of Costs*

The annual benefits and corresponding lump sum costs needed to prefund these benefits on an ongoing basis (i.e., the lifetimes of the member and beneficiary) for members retired on 4/1/81 and earlier are shown below. For purposes of our calculations, we have assumed the following:

- the annual supplemental benefits will not increase, (i.e., the benefit will not be revised to reflect future inflation nor future losses in purchasing power nor COLA increases);
- the eligibility will remain the same (i.e., no new retirees will be included in the future);
- the supplemental health benefit will be continued to the eligible spouse based on the option chosen at retirement; and
- the new recommended economic and noneconomic assumptions.

	Number Eligible	Annual Benefit	Present Value of Benefits
25% Floor	1,068	\$2,252,000	\$15,959,000

A reserve to fund this benefit amounted to \$7,671,000 as of June 30, 1994. Based on the current retiree population eligible for this benefit, the additional amount needed to prefund this benefit is \$8,288,000 (\$15,959,000 - \$7,671,000), as of June 30, 1994.

The costs shown will increase if future Board actions are taken to provide any additional cost-of-living supplements to affected individuals or to extend this supplement to other retired members.



## SECTION V: ASSETS AND LIABILITIES

### ACTUARIAL VALUE OF ASSETS

Book value of assets are currently used for accounting purposes and for purposes of determining employer contribution rates.

The reserves to be used for determining the employer contribution rates are developed as follows:

Reserves for Valuation Purposes		
Members' Accumulated Contributions	\$	162,315,000
Current Service Reserve		132,044,000
Annuity Pension Reserve		36,189,000
Current Service Pension Reserve		182,848,000
Survivors' Death Benefit Reserve		2,519,000
Cost of Living Reserve		159,068,000
Reserves for Valuation Purposes	\$	674,983,000

For contribution rate purposes, these reserves have been reduced by about \$25 million to reflect the balance of past transfers made to the Cost of Living Reserve. Of this amount, approximately \$19 million is set aside for fiscal year 1994/95 and 1995/96 employer and employee contribution offsets, and \$6 million is the remaining balance of the 1989 on-going COL transfer for employees.

#### *Reserve Certifications*

Certain reserves are excluded from the actuarial valuation of assets for purposes of determining contribution rates (i.e., Supplemental COLA, Retiree Health Insurance, Reserve for Interest Fluctuation and Undistributed Earnings). The following section clarifies the purpose of the Special

Reserve for Interest Fluctuation in supporting the liabilities of the Fresno County Employees' Retirement Association.

### Special Reserve for Interest Fluctuation

The Special Reserve for Interest Fluctuation of \$7,831,000 as of June 30, 1994 has been funded by investment income that has exceeded the interest crediting benchmark over the years. It will be utilized to supplement investment income in shortfall periods. The following describes its importance in the operation of the 1937 Act and the setting of actuarial interest rates.

There are two aspects to the application of the actuarial interest rate in 1937 Act retirement systems: (1) The expected long-term total rate of return on the funds, and (2) a short-term benchmark for the semiannual crediting of interest on the fund's reserves.

With respect to the second application, six-month returns on the fund are volatile, due to the short measuring period. In some six-month periods, the returns will exceed the benchmark, and in others they will fall short. Given that the actuarial rate serves as a benchmark, there is a natural tendency to minimize the probability of a shortfall by setting a lower benchmark. The restricted balance counteracts this tendency by serving as a stabilizing mechanism which allows the county retirement systems to consistently maintain a higher level of interest crediting on reserve accounts that are used to determine employer contribution rates.

Thus, the restricted balance mechanism is a factor in the actuarial interest rate setting process. We can focus on the expected long-term total rate of return in setting the interest rate assumption rather than on the short-term downside risks.

## **LIABILITIES**

In this report we present two different perspectives of the system's funding. Our first view of the funding of the Association is given by an Actuarial Balance Sheet. The Actuarial Balance Sheet



provides insight into the ongoing employer and employee financial commitment necessary to fund the benefits provided by the Association. The other perspective is a snapshot of assets and liabilities. This provides insight into the funding status of the Association by comparing current assets against a different measure of the current accumulated liability.

### *Actuarial Balance Sheet*

In this approach, we first determine the amount and timing of all future payments that will be made by the Association. We then discount these payments at 8.25% per annum to June 30, 1994, the date of the valuation, thereby determining their present value. We see from the lower portion of the Balance Sheet that the total present value of benefits to be paid to current members or their beneficiaries equals \$1,245.1 million (including \$120.8 million in reserves used for other purposes). We title this present value the "liability" of the Association.

Second, in the upper portion, we determine how this liability will be met. Item 1 in the Balance Sheet represents the amount of assets (\$795.7 million) already accumulated by the Association at Book Value. Item 2 is the present value of the contributions (\$78.3 million) anticipated to be received in the future from the current members. Item 3 is the present value of future employer normal costs with respect to current members, using the Entry Age Normal Cost method. The employer is budgeting a percentage of payroll on behalf of each member. The Entry Age Normal Cost percentage is, simply stated, the employer's level percentage of payroll needed to fund benefits for new entrants to the Association. The present value of these contributions amounts to \$158.1 million.

Finally, we compare the existing assets plus the present value of the future normal costs and future member contributions to the present value of the benefits to be paid from the Association. We see that we are "short" by \$212.9 million (\$1,245.1 million - \$795.7 million - \$78.3 million - \$158.1 million).

This shortfall (or balancing item) of \$212.9 million is known as the Unfunded Actuarial Accrued Liability of your Association. In the text we will abbreviate it as UAAL. To bring the Association



into actuarial balance, we then need to budget a pattern of contributions in respect to the UAAL which has a present value of \$212.9 million. The UAAL is amortized as a level percentage of payroll for the next 16 years from June 30, 1994.

ACTUARIAL BALANCE SHEET AS OF JUNE 30, 1994		
ASSETS		
1.	Book value of assets	\$ 795,748,000
2.	Present value of future contributions by members	78,329,000
3.	Present value of future employer contributions for normal cost	158,078,000
4.	Present value of other future employer contributions (UAAL)	212,910,000
5.	Total actuarial assets	\$ 1,245,065,000
LIABILITIES		
6.	Present value of retirement allowances payable to retired members and their survivors	\$ 338,652,000
7.	Present value of service retirement allowances payable to presently active members and their survivors	613,833,000
8.	Present value of allowances payable to vested terminated members and their survivors	82,283,000
9.	Present value of disability retirement allowances payable to presently active members and their survivors	44,704,000
10.	Present value of death benefits payable on behalf of presently active members	9,294,000
11.	Present value of members' contributions to be returned upon withdrawal	35,534,000
12.	Reserves for interest fluctuation	7,831,000
13.	Accounts Payable	1,036,000
14.	Trades Payable	11,596,000
15.	Undistributed Earnings	63,525,000
16.	Retiree Health Insurance Reserve	29,106,000
17.	Supplemental COLA Reserve	7,671,000
18.	Total actuarial liabilities	\$ 1,245,065,000

### *Funding Ratio -- GASB 5*

The second view of the funding of your Association is the standardized pension obligation measurement promulgated by GASB 5. This measurement assumes an ongoing plan, that is, it includes future withdrawals, deaths and service and disability retirements. It is the actuarial present value of credited projected benefits. This view focuses on benefits based on projected salaries and current service; unlike the balance sheet value, it does not take into account future service.

The following example demonstrates how the calculation is prepared. In a plan that provides 2% of final average pay at age 60 for each year of service, a person who entered the plan at age 30 and is now age 50 is two-thirds of the way to retirement and therefore has earned two-thirds of the projected benefit expected at age 60. If the member's current average monthly salary was \$1,000, projected final salary would be about \$1,800, and total GASB obligation would be based on a monthly benefit of \$720 ( $\$1,800 \times 2\% \times 30 \text{ years} \times 2/3$ ). We then determine the present value of \$720 per month taking into account the probability the member will receive the benefit, the likely duration of the benefit, and expected cost-of-living increases.

Applying the above methodology to all assumption and benefit combinations being considered, we have determined the following:



**GOVERNMENTAL ACCOUNTING STANDARDS BOARD STATEMENT NO. 5**

	<b>8.50% Interest 5.00% Inflation 6/30/92</b>	<b>8.50% Interest 5.00% Inflation 6/30/94</b>	<b>8.25% Interest 4.75% Inflation 6/30/94</b>	<b>8.00% Interest 4.50% Inflation 6/30/94</b>
1. Pension Benefit Obligation (PBO)				
a. Current Retirees and Beneficiaries	\$ 287,480,000	\$ 331,447,000	\$ 338,652,000	\$ 346,147,000
b. Terminated Vested Participants	26,622,000	31,082,000	31,800,000	32,582,000
c. Active Participants' Accumulated Contributions	134,117,000	124,131,000	124,131,000	124,131,000
d. Active Participants' Employer Financed Portion	184,244,000	284,621,000	294,303,000	305,112,000
e. Total Pension Benefit Obligation	\$ 632,463,000	\$ 771,281,000	\$ 788,886,000	\$ 807,972,000
f. Supplemental Retiree Benefit Reserve	22,685,000	29,106,000	29,106,000	29,106,000
g. Supplemental COLA Reserve	5,990,000	7,671,000	7,671,000	7,671,000
h. Total Benefit Obligations	\$ 661,138,000	\$ 808,058,000	\$ 825,663,000	\$ 844,749,000
2. Book Value of Assets	\$ 625,724,000	\$ 783,116,000	\$ 783,116,000	\$ 783,116,000
3. Funding Ratio	95 %	97 %	95 %	93 %

The increase in funding ratio based on the 8.50% interest and 5.00% inflation assumptions is primarily attributable to higher than expected earnings on book value of assets during the two-year period ending June 30, 1994. The funding ratio decreases by about 2% for each 0.25% decrease in the interest and inflation assumption.

For comparative purposes, we have provided below a summary of the current GASB 5 ratios and the underlying interest rate assumptions for all of the 1937 Act counties.



County	Valuation Date	Interest Rate	GASB #5 Ratio
Alameda	01/01/94	8.00%	75%
Contra Costa	01/01/94	8.00%	70%
<b>Fresno</b>	<b>07/01/94</b>	<b>8.25%</b>	<b>95%</b>
Imperial	07/01/94	8.00%	78%
Kern	07/01/92	8.25%	77%
Los Angeles	07/01/92	8.00%	98%
Marin	07/01/94	8.00%	70%
Mendocino	07/01/94	8.25%	69%
Merced	07/01/93	8.25%	76%
Orange	01/01/93	8.00%	101%
Sacramento	07/01/94	8.00%	74%
San Bernardino	07/01/94	8.00%	78%
San Diego	07/01/94	8.00%	104%
San Joaquin	01/01/94	8.25%	105%
San Mateo	07/01/93	8.25%	73%
Santa Barbara	01/01/93	8.25%	89%
Sonoma	01/01/94	8.25%	103%
Stanislaus	07/01/93	8.25%	71%
Tulare	07/01/94	8.00%	94%
Ventura	07/01/94	8.25%	86%
Average		8.13%	84%

Note: All of the GASB #5 ratios are based on assets at cost value except for Sacramento (accounting value), San Bernardino (actuarial value), and Tulare (market value).

## **SECTION VI - APPENDIX**

## SCHEDULE 1

### SUMMARY OF ACTUARIAL ASSUMPTIONS

The Entry Age Normal Actuarial Cost Method was used in conjunction with the following actuarial assumptions. The UAAL is being funded over 16 years from the June 30, 1994 valuation date.

- |     |                                                                          |                                                                                                                                        |
|-----|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Interest:                                                                | 8.25% per annum.                                                                                                                       |
| 2.  | Interest Credited to Employee Accounts:                                  | 8.25% per annum.                                                                                                                       |
| 3.  | Inflation:                                                               | 4.75% per annum.                                                                                                                       |
| 4.  | Asset Valuation:                                                         | Book value.                                                                                                                            |
| 5.  | Salary Scale:                                                            | See Schedule 9                                                                                                                         |
| 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 6                                                                                                                         |
| 8.  | Years of Life Expectancy After Retirement:                               | See Schedule 7                                                                                                                         |
| 9.  | Years of Life Expectancy After Disability:                               | See Schedule 7                                                                                                                         |
| 10. | Life Expectancy After Retirement for Employee Contribution Rate Purposes |                                                                                                                                        |
|     | - General Members:                                                       | 1983 Group Annuity Table for Males, set back four years.                                                                               |
|     | - Safety Members:                                                        | 1983 Group Annuity Table for Males set back one year.                                                                                  |



**SCHEDULE 2**  
**SUMMARY OF MAJOR PLAN PROVISIONS**

1. ELIGIBILITY

First of month following date of employment.

2. DEFINITION OF SALARY

Highest 12 consecutive months of compensation earnable.

3. SERVICE RETIREMENT

- Normal retirement age - 57 and 50 for Section 31676.12 and Section 31664, respectively.

- Early retirement

Age 50 and 10 years, or any age with 30 years for General, and any age with 20 years for Safety.

- Benefit

1/50 times final average salary per year of service.

- Benefit Adjustments

Reduced for retirement before 57 and 50 for Section 31676.12 and Section 31664, respectively.

Increased for retirement after 57 and 50 for Section 31676.12 and Section 31664, respectively.

4. DISABILITY RETIREMENT

- Non-service connected

1.8% of final average salary per year of service, with a maximum of 33-1/3% if projected service is used (age 62 for General, age 55 for Safety), or 90% of the accrued service retirement benefit without a benefit adjustment.

- Service-connected

Greater of 50% of final average salary or service retirement benefit (if eligible).

5. DEATH BEFORE RETIREMENT

- Refund of contributions plus 1/12 of salary per year of service up to 6 years.
- If eligible for disability or service retirement
  - 60% of member's accrued allowance.
- If service-connected
  - 50% of salary.

6. DEATH AFTER RETIREMENT

- Service retirement or ordinary disability
  - 60% of member's allowance payable to an eligible spouse.
- Service disability
  - 100% of member's allowance payable to an eligible spouse.

7. VESTING

- After five years of service.
- Must leave contributions on deposit.

8. MEMBERS' CONTRIBUTIONS

- Based on entry age.

9. COST-OF-LIVING

- "Automatic" 3% COLA for all members.



# SCHEDULE 3

## AGE AND SERVICE DISTRIBUTION WITH ANNUAL SALARY as of June 30, 1994

### ACTIVE GENERAL MALE MEMBERS

SERVICE AGE	1	5	10	15	20	25	30	35	40	45	50	TOTAL
15	0	0	0	0	0	0	0	0	0	0	0	0
20	56	0	0	0	0	0	0	0	0	0	0	56
25	1077336	0	0	0	0	0	0	0	0	0	0	1077336
30	130	22	1	0	0	0	0	0	0	0	0	153
35	3180832	557291	18021	0	0	0	0	0	0	0	0	3756144
40	4539585	2612007	430236	15	0	0	0	0	0	0	0	256
45	4639460	3648233	2019399	773334	24236	0	0	0	0	0	0	7581828
50	4486681	3155611	3350009	3715417	1034524	0	0	0	0	0	0	342
55	116	72	63	91	102	16	0	0	0	0	0	431
60	4080520	2599495	2429913	3770616	4225857	776374	0	0	0	0	0	15742242
65	1326684	1915396	1617208	2202525	2179423	1905627	137824	0	0	0	0	460
70	26	20	5	21	21	28	16	7	0	0	0	274
75	1138767	671192	241595	938894	718602	1193326	739350	280946	0	0	0	11284687
80	6	13	10	7	10	5	3	2	0	0	0	144
85	236143	462978	365798	214196	356282	182883	134727	96760	0	0	0	5922672
90	4	0	4	2	1	1	0	0	0	0	0	56
95	170717	0	128506	91994	100037	44337	0	0	0	0	0	2049767
100	0	0	1	0	0	0	0	0	0	0	0	12
105	0	0	33493	0	0	0	0	0	0	0	0	535591
110	0	0	0	0	0	0	0	0	0	0	0	1
115	0	0	0	0	0	0	0	0	0	0	0	33493
TOTAL	813	278	24876725	10634178	8638961	4102547	1011901	377706	0	0	0	2185
	455	15622203	11706976	295	8638961	4102547	1011901	377706	0	0	0	76971197

# SCHEDULE 3

## AGE AND SERVICE DISTRIBUTION WITH ANNUAL SALARY as of June 30, 1994

ACTIVE GENERAL FEMALE MEMBERS															
SERVICE AGE	1	5	10	15	20	25	30	35	40	45	50	TOTAL			
15	35651	0	0	0	0	0	0	0	0	0	0	0	0	2	NUMBER SALARY
20	106	4	0	0	0	0	0	0	0	0	0	0	0	35651	NUMBER SALARY
	2095797	74995	0	0	0	0	0	0	0	0	0	0	0	110	NUMBER SALARY
25	271	66	1	0	0	0	0	0	0	0	0	0	0	2170792	NUMBER SALARY
	6525268	1570703	20621	0	0	0	0	0	0	0	0	0	0	338	NUMBER SALARY
30	304	196	50	5	0	0	0	0	0	0	0	0	0	8116592	NUMBER SALARY
	7708734	5735342	1418918	136625	0	0	0	0	0	0	0	0	0	555	NUMBER SALARY
35	304	185	138	60	2	0	0	0	0	0	0	0	0	14999619	NUMBER SALARY
	8806401	5857302	4486111	1790531	59040	0	0	0	0	0	0	0	0	689	NUMBER SALARY
40	268	230	134	94	43	0	0	0	0	0	0	0	0	20999385	NUMBER SALARY
	7182926	6657715	4371043	3134012	1472271	0	0	0	0	0	0	0	0	769	NUMBER SALARY
45	208	168	124	89	76	24	2	0	0	0	0	0	0	22817967	NUMBER SALARY
	5508106	5105916	4157181	3123411	2594631	841517	61759	0	0	0	0	0	0	691	NUMBER SALARY
50	94	99	77	55	36	27	12	0	0	0	0	0	0	21392521	NUMBER SALARY
	2576591	2786019	2165586	1748360	1164464	997356	355370	0	0	0	0	0	0	400	NUMBER SALARY
55	50	57	39	37	22	11	9	4	1	0	0	0	0	11793746	NUMBER SALARY
	1398843	1491868	1085484	1152185	643963	353187	319382	116393	20621	0	0	0	0	230	NUMBER SALARY
60	11	23	20	19	11	9	2	3	2	0	0	0	0	6581926	NUMBER SALARY
	410240	559601	545850	470250	321749	292650	59861	68000	51488	0	0	0	0	100	NUMBER SALARY
65	1	7	5	5	1	1	0	0	0	0	0	0	0	2779689	NUMBER SALARY
	85553	188465	115704	147043	27512	33857	0	0	0	0	0	0	0	20	NUMBER SALARY
70	1	0	1	0	0	0	0	0	0	0	0	0	0	598134	NUMBER SALARY
	76265	0	20881	0	0	0	0	0	0	0	0	0	0	2	NUMBER SALARY
TOTAL	1620	589	191	6283630	25	796372	7	72109	3	0	0	0	0	97146	NUMBER SALARY
42410375	1035	18387379	364	11702417	72	2518567	184393	0	0	0	0	0	0	3906	NUMBER SALARY
30027926														112383168	NUMBER SALARY



# SCHEDULE 3

## AGE AND SERVICE DISTRIBUTION WITH ANNUAL SALARY as of June 30, 1994

### ACTIVE SAFETY MEMBERS

SERVICE AGE	1	5	10	15	20	25	30	35	40	45	50	TOTAL	NUMBER SALARY
15	0	0	0	0	0	0	0	0	0	0	0	0	0
20	24	0	0	0	0	0	0	0	0	0	0	0	0
25	598818	0	0	0	0	0	0	0	0	0	0	24	598818
30	2893365	14	0	0	0	0	0	0	0	0	0	112	3374751
35	69	54	10	1	0	0	0	0	0	0	0	134	4675579
40	2192445	2021007	418908	43219	0	0	0	0	0	0	0	125	4894056
45	31	35	42	17	0	0	0	0	0	0	0	137	5505283
50	1048154	1321136	1754943	769823	0	0	0	0	0	0	0	139	5948123
55	36	20	21	48	12	12	0	0	0	0	0	54	2422622
60	1131773	689290	875984	2233068	575168	0	0	0	0	0	0	16	607305
65	22	17	10	34	44	12	0	0	0	0	0	1	25224
70	659231	620041	393926	1572850	2081136	620939	0	0	0	0	0	1	32817
75	7	8	1	12	13	13	0	0	0	0	0	0	0
80	234687	310229	65868	508128	574041	729669	0	0	0	0	0	0	0
85	6	2	2	29775	54526	194625	0	0	0	0	0	0	0
90	177998	84747	65634	29775	54526	194625	0	0	0	0	0	0	0
95	0	1	0	0	0	0	0	0	0	0	0	0	0
100	0	25224	0	0	0	0	0	0	0	0	0	0	0
105	0	32817	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	293	86	3575263	113	70	29	0	0	0	0	0	743	28084578
	8936471	152	5585877	5156863	3284871	1545233							



**SCHEDULE 4****SUMMARY OF ANNUAL RETIREMENT ALLOWANCES**  
**as of June 30, 1994****GENERAL MEMBERS**

	<u>Number</u>	<u>Annual Allowance</u>
<b>Service</b>		
Males	791	\$ 11,739,709
Females	1,123	10,064,523
Total	<u>1,914</u>	<u>\$ 21,804,232</u>
<b>Disability</b>		
Males	70	659,839
Females	74	419,685
Total	<u>144</u>	<u>\$ 1,079,524</u>
<b>Beneficiaries</b>		
Males	51	231,521
Females	240	1,556,905
Total	<u>291</u>	<u>\$ 1,788,426</u>
<b>Total</b>	<u><u>2,349</u></u>	<u><u>\$ 24,672,182</u></u>

**SAFETY MEMBERS**

	<u>Number</u>	<u>Annual Allowance</u>
<b>Service</b>		
Males	164	\$ 3,302,889
Females	13	150,199
Total	<u>177</u>	<u>\$ 3,453,088</u>
<b>Disability</b>		
Males	41	\$ 740,937
Females	4	47,398
Total	<u>45</u>	<u>\$ 788,335</u>
<b>Beneficiaries</b>		
Males	2	\$ 8,431
Females	32	336,338
Total	<u>34</u>	<u>\$ 344,769</u>
<b>Total</b>	<u><u>256</u></u>	<u><u>\$ 4,586,192</u></u>

## SCHEDULE 5

### GENERAL MEMBERS' CONTRIBUTION RATES (expressed as a percentage of biweekly compensation)

(Current Rates - Before Transfers)

Entry Age	BASIC				COL				Entry Age	BASIC				COL			
	First \$350.00	Over \$350.00			First \$350.00	Over \$350.00				First \$350.00	Over \$350.00			First \$350.00	Over \$350.00		
16	1.79	%	2.69	%	.68	%	1.03	%	38	2.32	%	3.48	%	.89	%	1.33	%
17	1.81		2.71		.69		1.03		39	2.36		3.54		.90		1.35	
18	1.82		2.73		.70		1.04		40	2.39		3.59		.91		1.37	
19	1.83		2.75		.70		1.05		41	2.43		3.64		.93		1.39	
20	1.85		2.77		.71		1.06		42	2.47		3.70		.94		1.41	
21	1.86		2.79		.71		1.07		43	2.51		3.76		.96		1.44	
22	1.87		2.81		.71		1.07		44	2.54		3.81		.97		1.46	
23	1.89		2.83		.72		1.08		45	2.58		3.87		.99		1.48	
24	1.91		2.86		.73		1.09		46	2.62		3.93		1.00		1.50	
25	1.93		2.89		.74		1.10		47	2.66		3.99		1.02		1.52	
26	1.95		2.92		.74		1.12		48	2.70		4.05		1.03		1.55	
27	1.97		2.96		.75		1.13		49	2.73		4.10		1.04		1.57	
28	2.00		3.00		.76		1.15		50	2.77		4.16		1.06		1.59	
29	2.03		3.04		.78		1.16		51	2.81		4.22		1.07		1.61	
30	2.05		3.08		.78		1.18		52	2.86		4.29		1.09		1.64	
31	2.09		3.13		.80		1.20		53	2.90		4.35		1.11		1.66	
32	2.11		3.17		.81		1.21		54	2.94		4.41		1.12		1.68	
33	2.15		3.22		.82		1.23		55	2.98		4.47		1.14		1.71	
34	2.19		3.28		.84		1.25		56	3.03		4.54		1.16		1.73	
35	2.22		3.33		.85		1.27		57	3.07		4.60		1.17		1.76	
36	2.25		3.38		.86		1.29		58	3.11		4.67		1.19		1.78	
37	2.29		3.43		.87		1.31		59 +	3.15		4.73		1.20		1.81	
<p>INTEREST: 8.50%</p> <p>INFLATION: 5.00%</p> <p>COLA: 3.00%</p> <p>MORTALITY 83 GA (Male, -4)</p>																	

## SCHEDULE 5

### SAFETY MEMBERS' CONTRIBUTION RATES (expressed as a percentage of biweekly compensation)

(Current Rates - Before Transfers)

Entry Age	BASIC				COL				Entry Age	BASIC				COL			
	First \$350.00		Over \$350.00		First \$350.00		Over \$350.00			First \$350.00		Over \$350.00		First \$350.00		Over \$350.00	
18	2.28	%	3.42	%	.87	%	1.31	%	34	2.75	%	4.12	%	1.05	%	1.57	%
19	2.29		3.44		.87		1.31		35	2.79		4.18		1.07		1.60	
20	2.31		3.47		.88		1.33		36	2.83		4.24		1.08		1.62	
21	2.33		3.50		.89		1.34		37	2.87		4.30		1.10		1.64	
22	2.36		3.54		.90		1.35		38	2.91		4.37		1.11		1.67	
23	2.39		3.58		.91		1.37		39	2.95		4.43		1.13		1.69	
24	2.41		3.62		.92		1.38		40	3.00		4.50		1.15		1.72	
25	2.45		3.67		.94		1.40		41	3.04		4.56		1.16		1.74	
26	2.47		3.71		.94		1.42		42	3.09		4.63		1.18		1.77	
27	2.51		3.76		.96		1.44		43	3.13		4.70		1.20		1.79	
28	2.53		3.80		.97		1.45		44	3.17		4.76		1.21		1.82	
29	2.57		3.85		.98		1.47		45	3.22		4.83		1.23		1.84	
30	2.60		3.90		.99		1.49		46	3.27		4.90		1.25		1.87	
31	2.64		3.96		1.01		1.51		47	3.31		4.97		1.26		1.90	
32	2.67		4.01		1.02		1.53		48	3.36		5.04		1.28		1.92	
33	2.71		4.07		1.03		1.55		49 +	3.41		5.11		1.30		1.95	
<p>INTEREST: 8.50%</p> <p>INFLATION: 5.00%</p> <p>COLA: 3.00%</p> <p>MORTALITY: 83 GA (Male, - 1)</p>																	



## SCHEDULE 5

### GENERAL MEMBERS' CONTRIBUTION RATES (expressed as a percentage of biweekly compensation)

(Recommended Rates - Before Transfers)

Entry Age	BASIC				COL				Entry Age	BASIC				COL			
	First \$350.00		Over \$350.00		First \$350.00		Over \$350.00			First \$350.00		Over \$350.00		First \$350.00		Over \$350.00	
16	1.85	%	2.77	%	.91	%	1.36	%	38	2.37	%	3.55	%	1.16	%	1.74	%
17	1.85		2.78		.91		1.36		39	2.40		3.60		1.18		1.77	
18	1.86		2.79		.91		1.37		40	2.44		3.66		1.20		1.80	
19	1.87		2.80		.91		1.37		41	2.47		3.71		1.21		1.82	
20	1.88		2.82		.92		1.38		42	2.51		3.77		1.23		1.85	
21	1.89		2.84		.93		1.39		43	2.55		3.83		1.25		1.88	
22	1.91		2.86		.93		1.40		44	2.59		3.88		1.27		1.90	
23	1.92		2.88		.94		1.41		45	2.63		3.94		1.29		1.93	
24	1.94		2.91		.95		1.43		46	2.67		4.00		1.31		1.96	
25	1.96		2.94		.96		1.44		47	2.71		4.06		1.33		1.99	
26	1.99		2.98		.97		1.46		48	2.75		4.12		1.35		2.02	
27	2.01		3.01		.99		1.48		49	2.79		4.18		1.37		2.05	
28	2.03		3.05		1.00		1.50		50	2.83		4.24		1.39		2.08	
29	2.06		3.09		1.01		1.52		51	2.87		4.31		1.41		2.11	
30	2.09		3.14		1.03		1.54		52	2.91		4.37		1.43		2.14	
31	2.12		3.18		1.04		1.56		53	2.95		4.43		1.45		2.17	
32	2.15		3.23		1.05		1.58		54	2.99		4.49		1.47		2.20	
33	2.19		3.28		1.07		1.61		55	3.04		4.56		1.49		2.24	
34	2.22		3.33		1.09		1.63		56	3.08		4.62		1.51		2.27	
35	2.26		3.39		1.11		1.66		57	3.13		4.69		1.53		2.30	
36	2.29		3.44		1.13		1.69		58	3.17		4.76		1.56		2.34	
37	2.33		3.49		1.14		1.71		59 +	3.21		4.82		1.57		2.36	
<p>INTEREST: 8.25%</p> <p>INFLATION: 4.75%</p> <p>COLA: 3.00%</p> <p>MORTALITY 83 GA (Male, -4)</p>																	

## SCHEDULE 5

### SAFETY MEMBERS' CONTRIBUTION RATES (expressed as a percentage of biweekly compensation)

(Recommended Rates - Before Transfers)

Entry Age	BASIC				COL				Entry Age	BASIC				COL			
	First		Over		First		Over			First		Over		First		Over	
	\$350.00		\$350.00		\$350.00		\$350.00			\$350.00		\$350.00		\$350.00		\$350.00	
18	2.32	%	3.48	%	1.14	%	1.71	%	34	2.81	%	4.21	%	1.38	%	2.07	%
19	2.34		3.51		1.15		1.72		35	2.85		4.27		1.39		2.09	
20	2.36		3.54		1.16		1.74		36	2.89		4.33		1.41		2.12	
21	2.39		3.58		1.17		1.76		37	2.93		4.40		1.44		2.16	
22	2.41		3.62		1.19		1.78		38	2.97		4.46		1.46		2.19	
23	2.44		3.66		1.20		1.80		39	3.02		4.53		1.48		2.22	
24	2.47		3.70		1.21		1.82		40	3.07		4.60		1.51		2.26	
25	2.49		3.74		1.22		1.83		41	3.11		4.66		1.53		2.29	
26	2.53		3.79		1.24		1.86		42	3.15		4.73		1.55		2.32	
27	2.56		3.84		1.25		1.88		43	3.20		4.80		1.57		2.35	
28	2.59		3.88		1.27		1.90		44	3.25		4.87		1.59		2.39	
29	2.62		3.93		1.29		1.93		45	3.29		4.94		1.61		2.42	
30	2.66		3.99		1.31		1.96		46	3.34		5.01		1.64		2.46	
31	2.69		4.04		1.32		1.98		47	3.39		5.08		1.66		2.49	
32	2.73		4.10		1.34		2.01		48	3.43		5.15		1.69		2.53	
33	2.77		4.15		1.36		2.04		49 +	3.48		5.22		1.71		2.56	
INTEREST: 8.25%																	
INFLATION: 4.75%																	
COLA: 3.00%																	
MORTALITY: 83 GA (Male, - 1)																	

## SCHEDULE 6

### 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.

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 .1600, then we are assuming that 16.00% of the active members at age 25 will terminate without vested rights during the next year.



**SCHEDULE 6**  
**PROBABILITIES OF SEPARATION FROM ACTIVE SERVICE**  
**(Current Assumptions)**  
**GENERAL MEMBERS -- MALES**

Age	Withdrawal	Ordinary Death	Ordinary Disability	Service	Death While Eligible	Duty Death	Duty Disability	Terminated - Vested
20	.1600	.0002	.0000	.0000	.0000	.0001	.0001	.0005
21	.1600	.0002	.0000	.0000	.0000	.0001	.0001	.0005
22	.1600	.0002	.0000	.0000	.0000	.0001	.0001	.0010
23	.1600	.0002	.0000	.0000	.0000	.0001	.0001	.0015
24	.1600	.0002	.0000	.0000	.0000	.0001	.0001	.0020
25	.1600	.0003	.0001	.0000	.0001	.0001	.0002	.0025
26	.1600	.0003	.0001	.0000	.0001	.0001	.0002	.0030
27	.1600	.0003	.0001	.0000	.0001	.0001	.0002	.0040
28	.1600	.0003	.0001	.0000	.0001	.0001	.0002	.0050
29	.1600	.0003	.0001	.0000	.0001	.0001	.0002	.0060
30	.1600	.0004	.0001	.0000	.0001	.0001	.0002	.0070
31	.1300	.0004	.0001	.0000	.0001	.0001	.0002	.0080
32	.1000	.0004	.0001	.0000	.0001	.0001	.0002	.0090
33	.0800	.0004	.0002	.0000	.0002	.0001	.0002	.0100
34	.0700	.0004	.0002	.0000	.0002	.0001	.0002	.0120
35	.0600	.0005	.0002	.0000	.0002	.0001	.0003	.0150
36	.0550	.0005	.0002	.0000	.0002	.0001	.0003	.0175
37	.0500	.0005	.0003	.0000	.0002	.0001	.0003	.0190
38	.0460	.0005	.0003	.0000	.0002	.0001	.0003	.0215
39	.0420	.0006	.0004	.0000	.0002	.0001	.0003	.0225
40	.0390	.0006	.0005	.0000	.0003	.0001	.0004	.0230
41	.0360	.0006	.0006	.0000	.0003	.0001	.0004	.0230
42	.0330	.0007	.0007	.0000	.0003	.0001	.0004	.0230
43	.0300	.0007	.0008	.0000	.0004	.0001	.0005	.0220
44	.0270	.0008	.0009	.0000	.0004	.0001	.0005	.0210
45	.0230	.0008	.0011	.0000	.0005	.0001	.0006	.0200
46	.0190	.0009	.0013	.0000	.0005	.0001	.0007	.0190
47	.0150	.0010	.0015	.0000	.0006	.0001	.0008	.0180
48	.0120	.0011	.0017	.0000	.0006	.0001	.0009	.0160
49	.0090	.0012	.0019	.0000	.0007	.0001	.0010	.0140
50	.0090	.0013	.0021	.0400	.0008	.0001	.0011	.0120
51	.0090	.0014	.0023	.0300	.0009	.0001	.0013	.0100
52	.0090	.0015	.0026	.0200	.0010	.0002	.0015	.0080
53	.0090	.0016	.0029	.0200	.0011	.0002	.0017	.0070
54	.0090	.0017	.0032	.0400	.0012	.0002	.0019	.0065
55	.0090	.0018	.0035	.0600	.0013	.0002	.0021	.0065
56	.0090	.0019	.0038	.0700	.0014	.0002	.0023	.0065
57	.0090	.0020	.0040	.0850	.0015	.0002	.0025	.0065
58	.0090	.0021	.0042	.1000	.0016	.0002	.0027	.0065
59	.0090	.0022	.0043	.1300	.0017	.0003	.0029	.0065
60	.0090	.0024	.0044	.1500	.0018	.0003	.0031	.0060
61	.0090	.0026	.0045	.1800	.0019	.0003	.0032	.0050
62	.0090	.0028	.0046	.4000	.0020	.0003	.0033	.0040
63	.0090	.0030	.0047	.2400	.0022	.0003	.0034	.0030
64	.0090	.0032	.0048	.2500	.0024	.0004	.0035	.0020
65	.0000	.0034	.0000	.3500	.0027	.0004	.0000	.0000
66	.0000	.0036	.0000	.3000	.0030	.0004	.0000	.0000
67	.0000	.0038	.0000	.3000	.0034	.0004	.0000	.0000
68	.0000	.0040	.0000	.4500	.0039	.0004	.0000	.0000
69	.0000	.0042	.0000	.6000	.0045	.0004	.0000	.0000
70	.0000	.0000	.0000	1.0000	.0000	.0000	.0000	.0000

**SCHEDULE 6**  
**PROBABILITIES OF SEPARATION FROM ACTIVE SERVICE**  
**(Current Assumptions)**  
**GENERAL MEMBERS – FEMALES**

Age	Withdrawal	Ordinary Death	Ordinary Disability	Service	Death While Eligible	Duty Death	Duty Disability	Terminated Vested
20	.1800	.0001	.0000	.0000	.0000	.0000	.0001	.0030
21	.1800	.0001	.0000	.0000	.0000	.0000	.0001	.0030
22	.1800	.0001	.0000	.0000	.0000	.0000	.0001	.0030
23	.1800	.0001	.0000	.0000	.0000	.0000	.0001	.0030
24	.1800	.0001	.0000	.0000	.0000	.0000	.0001	.0030
25	.1700	.0002	.0001	.0000	.0001	.0000	.0002	.0050
26	.1700	.0002	.0001	.0000	.0001	.0000	.0002	.0050
27	.1700	.0002	.0001	.0000	.0001	.0000	.0002	.0050
28	.1600	.0002	.0001	.0000	.0001	.0000	.0002	.0050
29	.1600	.0003	.0001	.0000	.0001	.0000	.0002	.0050
30	.1500	.0003	.0001	.0000	.0001	.0000	.0002	.0050
31	.1400	.0003	.0001	.0000	.0001	.0000	.0002	.0050
32	.1300	.0003	.0001	.0000	.0001	.0000	.0002	.0050
33	.1200	.0004	.0001	.0000	.0001	.0000	.0002	.0050
34	.1100	.0004	.0001	.0000	.0001	.0000	.0002	.0100
35	.1000	.0004	.0002	.0000	.0001	.0000	.0003	.0180
36	.0900	.0005	.0002	.0000	.0001	.0000	.0003	.0220
37	.0800	.0005	.0002	.0000	.0001	.0000	.0003	.0220
38	.0700	.0005	.0003	.0000	.0001	.0000	.0003	.0200
39	.0650	.0005	.0003	.0000	.0001	.0000	.0003	.0190
40	.0550	.0006	.0003	.0000	.0001	.0000	.0003	.0185
41	.0480	.0006	.0004	.0000	.0001	.0000	.0003	.0180
42	.0420	.0006	.0004	.0000	.0001	.0000	.0003	.0175
43	.0380	.0007	.0005	.0000	.0001	.0000	.0004	.0175
44	.0350	.0007	.0005	.0000	.0001	.0000	.0004	.0170
45	.0320	.0007	.0006	.0000	.0002	.0000	.0004	.0170
46	.0300	.0008	.0007	.0000	.0002	.0000	.0004	.0165
47	.0290	.0008	.0008	.0000	.0002	.0000	.0005	.0160
48	.0280	.0009	.0009	.0000	.0002	.0000	.0005	.0155
49	.0270	.0009	.0010	.0000	.0003	.0000	.0005	.0145
50	.0260	.0010	.0011	.0400	.0003	.0000	.0006	.0130
51	.0250	.0010	.0012	.0300	.0003	.0000	.0006	.0110
52	.0240	.0011	.0013	.0300	.0004	.0000	.0007	.0090
53	.0230	.0011	.0014	.0300	.0004	.0000	.0008	.0070
54	.0220	.0012	.0015	.0300	.0004	.0000	.0009	.0050
55	.0210	.0012	.0016	.0800	.0004	.0000	.0010	.0050
56	.0190	.0013	.0017	.0300	.0005	.0000	.0011	.0080
57	.0170	.0014	.0018	.0800	.0005	.0000	.0012	.0070
58	.0150	.0015	.0019	.1000	.0005	.0000	.0013	.0060
59	.0140	.0016	.0021	.1200	.0006	.0000	.0015	.0050
60	.0130	.0018	.0023	.1400	.0006	.0000	.0017	.0050
61	.0130	.0019	.0025	.1000	.0006	.0000	.0019	.0050
62	.0130	.0020	.0027	.3000	.0007	.0000	.0021	.0050
63	.0130	.0021	.0029	.1250	.0007	.0000	.0023	.0050
64	.0130	.0022	.0031	.1250	.0007	.0000	.0025	.0050
65	.0000	.0024	.0000	.4500	.0008	.0000	.0000	.0000
66	.0000	.0025	.0000	.2000	.0008	.0000	.0000	.0000
67	.0000	.0026	.0000	.3000	.0008	.0000	.0000	.0000
68	.0000	.0027	.0000	.3000	.0009	.0000	.0000	.0000
69	.0000	.0028	.0000	.3000	.0009	.0000	.0000	.0000
70	.0000	.0000	.0000	1.0000	.0000	.0000	.0000	.0000



**SCHEDULE 6**  
**PROBABILITIES OF SEPARATION FROM ACTIVE SERVICE**  
**(Current Assumptions)**  
**SAFETY MEMBERS**

Age	Withdrawal	Ordinary Death	Ordinary Disability	Service	Death While Eligible	Duty Death	Duty Disability	Terminated Vested
20	.0950	.0002	.0000	.0000	.0000	.0002	.0006	.0010
21	.0920	.0002	.0000	.0000	.0000	.0002	.0006	.0011
22	.0890	.0002	.0000	.0000	.0000	.0002	.0006	.0012
23	.0860	.0002	.0000	.0000	.0000	.0002	.0007	.0013
24	.0830	.0002	.0000	.0000	.0000	.0002	.0007	.0014
25	.0800	.0003	.0002	.0000	.0001	.0003	.0008	.0020
26	.0770	.0003	.0002	.0000	.0001	.0003	.0009	.0030
27	.0740	.0003	.0003	.0000	.0002	.0003	.0010	.0050
28	.0710	.0003	.0003	.0000	.0002	.0003	.0011	.0100
29	.0680	.0003	.0003	.0000	.0002	.0003	.0012	.0170
30	.0640	.0004	.0003	.0000	.0002	.0004	.0013	.0250
31	.0600	.0004	.0004	.0000	.0002	.0004	.0014	.0340
32	.0560	.0004	.0004	.0000	.0002	.0004	.0016	.0300
33	.0510	.0004	.0004	.0000	.0002	.0004	.0018	.0270
34	.0460	.0004	.0005	.0000	.0002	.0004	.0021	.0240
35	.0410	.0005	.0006	.0000	.0002	.0005	.0023	.0220
36	.0360	.0005	.0006	.0000	.0002	.0005	.0025	.0200
37	.0310	.0005	.0007	.0000	.0002	.0005	.0028	.0180
38	.0260	.0005	.0008	.0000	.0002	.0005	.0031	.0160
39	.0210	.0005	.0009	.0000	.0002	.0005	.0035	.0140
40	.0170	.0006	.0010	.0000	.0003	.0006	.0039	.0120
41	.0140	.0006	.0010	.0000	.0003	.0006	.0043	.0100
42	.0120	.0006	.0011	.0000	.0003	.0006	.0047	.0080
43	.0100	.0007	.0012	.0000	.0003	.0007	.0052	.0060
44	.0080	.0007	.0012	.0000	.0003	.0007	.0058	.0040
45	.0070	.0008	.0013	.0450	.0004	.0008	.0064	.0030
46	.0060	.0008	.0014	.0350	.0004	.0008	.0071	.0020
47	.0050	.0009	.0014	.0400	.0005	.0009	.0079	.0010
48	.0040	.0009	.0015	.0450	.0006	.0009	.0088	.0008
49	.0030	.0010	.0016	.0500	.0007	.0010	.0097	.0005
50	.0000	.0010	.0016	.1000	.0008	.0010	.0106	.0000
51	.0000	.0011	.0017	.0700	.0009	.0011	.0115	.0000
52	.0000	.0011	.0018	.0700	.0010	.0012	.0125	.0000
53	.0000	.0012	.0019	.0800	.0011	.0013	.0135	.0000
54	.0000	.0012	.0020	.1000	.0012	.0013	.0145	.0000
55	.0000	.0013	.0020	.2700	.0013	.0014	.0155	.0000
56	.0000	.0013	.0021	.2700	.0014	.0015	.0165	.0000
57	.0000	.0014	.0022	.2500	.0015	.0016	.0175	.0000
58	.0000	.0014	.0022	.3000	.0016	.0017	.0185	.0000
59	.0000	.0015	.0023	.7000	.0017	.0018	.0195	.0000
60	.0000	.0000	.0000	1.0000	.0000	.0000	.0000	.0000



**SCHEDULE 6**  
**PROBABILITIES OF SEPARATION FROM ACTIVE SERVICE**  
**(Recommended Assumptions)**  
**GENERAL MEMBERS -- MALES**

Age	Withdrawal	Ordinary Death	Ordinary Disability	Service	Death While Eligible	Duty Death	Duty Disability	Terminated Vested
20	.1600	.0002	.0000	.0000	.0000	.0001	.0001	.0005
21	.1600	.0002	.0000	.0000	.0000	.0001	.0001	.0005
22	.1600	.0002	.0000	.0000	.0000	.0001	.0001	.0010
23	.1550	.0002	.0000	.0000	.0000	.0001	.0001	.0015
24	.1550	.0002	.0000	.0000	.0000	.0001	.0001	.0020
25	.1550	.0003	.0001	.0000	.0001	.0001	.0002	.0025
26	.1550	.0003	.0001	.0000	.0001	.0001	.0002	.0030
27	.1500	.0003	.0001	.0000	.0001	.0001	.0002	.0040
28	.1500	.0003	.0001	.0000	.0001	.0001	.0002	.0050
29	.1450	.0003	.0001	.0000	.0001	.0001	.0002	.0060
30	.1350	.0004	.0001	.0000	.0001	.0001	.0002	.0070
31	.1200	.0004	.0001	.0000	.0001	.0001	.0002	.0080
32	.1000	.0004	.0001	.0000	.0001	.0001	.0002	.0090
33	.0800	.0004	.0002	.0000	.0002	.0001	.0002	.0100
34	.0700	.0004	.0002	.0000	.0002	.0001	.0002	.0120
35	.0600	.0005	.0002	.0000	.0002	.0001	.0003	.0150
36	.0550	.0005	.0002	.0000	.0002	.0001	.0003	.0175
37	.0500	.0005	.0003	.0000	.0002	.0001	.0003	.0190
38	.0460	.0005	.0003	.0000	.0002	.0001	.0003	.0215
39	.0420	.0006	.0004	.0000	.0002	.0001	.0003	.0225
40	.0390	.0006	.0005	.0000	.0003	.0001	.0004	.0230
41	.0360	.0006	.0006	.0000	.0003	.0001	.0004	.0230
42	.0330	.0007	.0007	.0000	.0003	.0001	.0004	.0230
43	.0300	.0007	.0008	.0000	.0004	.0001	.0005	.0220
44	.0270	.0008	.0009	.0000	.0004	.0001	.0005	.0210
45	.0230	.0008	.0011	.0000	.0005	.0001	.0006	.0200
46	.0190	.0009	.0013	.0000	.0005	.0001	.0007	.0190
47	.0150	.0010	.0015	.0000	.0006	.0001	.0008	.0180
48	.0120	.0011	.0017	.0000	.0006	.0001	.0009	.0160
49	.0100	.0012	.0019	.0000	.0007	.0001	.0010	.0140
50	.0100	.0013	.0021	.0400	.0008	.0001	.0011	.0120
51	.0100	.0014	.0023	.0300	.0009	.0001	.0013	.0100
52	.0100	.0015	.0026	.0200	.0010	.0002	.0015	.0080
53	.0100	.0016	.0029	.0200	.0011	.0002	.0017	.0070
54	.0100	.0017	.0032	.0400	.0012	.0002	.0019	.0065
55	.0100	.0018	.0035	.0600	.0013	.0002	.0021	.0065
56	.0100	.0019	.0038	.0700	.0014	.0002	.0023	.0065
57	.0100	.0020	.0040	.0850	.0015	.0002	.0025	.0065
58	.0100	.0021	.0042	.1000	.0016	.0002	.0027	.0065
59	.0100	.0022	.0043	.1300	.0017	.0003	.0029	.0065
60	.0100	.0024	.0044	.1500	.0018	.0003	.0031	.0060
61	.0100	.0026	.0045	.1800	.0019	.0003	.0032	.0050
62	.0100	.0028	.0046	.4000	.0020	.0003	.0033	.0040
63	.0100	.0030	.0047	.2400	.0022	.0003	.0034	.0030
64	.0100	.0032	.0048	.2500	.0024	.0004	.0035	.0020
65	.0000	.0034	.0000	.3500	.0027	.0004	.0000	.0000
66	.0000	.0036	.0000	.3000	.0030	.0004	.0000	.0000
67	.0000	.0038	.0000	.3000	.0034	.0004	.0000	.0000
68	.0000	.0040	.0000	.4500	.0039	.0004	.0000	.0000
69	.0000	.0042	.0000	.6000	.0045	.0004	.0000	.0000
70	.0000	.0000	.0000	1.0000	.0000	.0000	.0000	.0000

**SCHEDULE 6**  
**PROBABILITIES OF SEPARATION FROM ACTIVE SERVICE**  
**(Recommended Assumptions)**  
**GENERAL MEMBERS -- FEMALES**

Age	Withdrawal	Ordinary Death	Ordinary Disability	Service	Death While Eligible	Duty Death	Duty Disability	Terminated Vested
20	.1700	.0001	.0000	.0000	.00000	.0000	.0001	.0030
21	.1700	.0001	.0000	.0000	.00000	.0000	.0001	.0030
22	.1650	.0001	.0000	.0000	.00000	.0000	.0001	.0030
23	.1650	.0001	.0000	.0000	.00000	.0000	.0001	.0030
24	.1650	.0001	.0000	.0000	.00000	.0000	.0001	.0030
25	.1650	.0002	.0001	.0000	.00008	.0000	.0002	.0050
26	.1650	.0002	.0001	.0000	.00008	.0000	.0002	.0050
27	.1600	.0002	.0001	.0000	.00008	.0000	.0002	.0050
28	.1600	.0002	.0001	.0000	.00008	.0000	.0002	.0050
29	.1600	.0003	.0001	.0000	.00008	.0000	.0002	.0050
30	.1500	.0003	.0001	.0000	.00008	.0000	.0002	.0050
31	.1350	.0003	.0001	.0000	.00008	.0000	.0002	.0050
32	.1200	.0003	.0001	.0000	.00008	.0000	.0002	.0050
33	.1100	.0004	.0001	.0000	.00008	.0000	.0002	.0050
34	.1000	.0004	.0001	.0000	.00008	.0000	.0002	.0100
35	.0900	.0004	.0002	.0000	.00008	.0000	.0003	.0180
36	.0800	.0005	.0002	.0000	.00008	.0000	.0003	.0220
37	.0700	.0005	.0002	.0000	.00008	.0000	.0003	.0220
38	.0650	.0005	.0003	.0000	.00008	.0000	.0003	.0200
39	.0600	.0005	.0003	.0000	.00008	.0000	.0003	.0190
40	.0550	.0006	.0003	.0000	.00008	.0000	.0003	.0185
41	.0480	.0006	.0004	.0000	.00008	.0000	.0003	.0180
42	.0420	.0006	.0004	.0000	.00008	.0000	.0003	.0175
43	.0380	.0007	.0005	.0000	.00008	.0000	.0004	.0175
44	.0350	.0007	.0005	.0000	.00008	.0000	.0004	.0170
45	.0320	.0007	.0006	.0000	.00015	.0000	.0004	.0170
46	.0300	.0008	.0007	.0000	.00015	.0000	.0004	.0165
47	.0290	.0008	.0008	.0000	.00015	.0000	.0005	.0160
48	.0280	.0009	.0009	.0000	.00015	.0000	.0005	.0155
49	.0270	.0009	.0010	.0000	.00022	.0000	.0005	.0145
50	.0260	.0010	.0011	.0400	.00022	.0000	.0006	.0130
51	.0250	.0010	.0012	.0300	.00022	.0000	.0006	.0110
52	.0240	.0011	.0013	.0300	.00030	.0000	.0007	.0090
53	.0230	.0011	.0014	.0300	.00030	.0000	.0008	.0070
54	.0220	.0012	.0015	.0300	.00030	.0000	.0009	.0050
55	.0210	.0012	.0016	.0800	.00030	.0000	.0010	.0050
56	.0190	.0013	.0017	.0300	.00038	.0000	.0011	.0080
57	.0170	.0014	.0018	.0800	.00038	.0000	.0012	.0070
58	.0150	.0015	.0019	.1000	.00038	.0000	.0013	.0060
59	.0140	.0016	.0021	.1200	.00045	.0000	.0015	.0050
60	.0130	.0018	.0023	.1400	.00045	.0000	.0017	.0050
61	.0130	.0019	.0025	.1000	.00045	.0000	.0019	.0050
62	.0130	.0020	.0027	.3000	.00052	.0000	.0021	.0050
63	.0130	.0021	.0029	.1250	.00052	.0000	.0023	.0050
64	.0130	.0022	.0031	.1250	.00052	.0000	.0025	.0050
65	.0000	.0024	.0000	.4500	.00060	.0000	.0000	.0000
66	.0000	.0025	.0000	.2000	.00060	.0000	.0000	.0000
67	.0000	.0026	.0000	.3000	.00060	.0000	.0000	.0000
68	.0000	.0027	.0000	.3000	.00068	.0000	.0000	.0000
69	.0000	.0028	.0000	.3000	.00068	.0000	.0000	.0000
70	.0000	.0000	.0000	1.0000	.00000	.0000	.0000	.0000



**SCHEDULE 6**  
**PROBABILITIES OF SEPARATION FROM ACTIVE SERVICE**  
**(Recommended Assumptions)**  
**SAFETY MEMBERS**

Age	Withdrawal	Ordinary Death	Ordinary Disability	Service	Death While Eligible	Duty Death	Duty Disability	Terminated Vested
20	.0950	.00015	.0000	.0000	.00000	.00015	.0006	.0010
21	.0920	.00015	.0000	.0000	.00000	.00015	.0006	.0011
22	.0890	.00015	.0000	.0000	.00000	.00015	.0006	.0012
23	.0860	.00015	.0000	.0000	.00000	.00015	.0007	.0013
24	.0830	.00015	.0000	.0000	.00000	.00015	.0007	.0014
25	.0800	.00022	.0002	.0000	.00008	.00022	.0008	.0020
26	.0770	.00022	.0002	.0000	.00008	.00022	.0009	.0030
27	.0740	.00022	.0003	.0000	.00015	.00022	.0010	.0050
28	.0710	.00022	.0003	.0000	.00015	.00022	.0011	.0100
29	.0680	.00022	.0003	.0000	.00015	.00022	.0012	.0170
30	.0640	.00030	.0003	.0000	.00015	.00030	.0013	.0250
31	.0600	.00030	.0004	.0000	.00015	.00030	.0014	.0340
32	.0560	.00030	.0004	.0000	.00015	.00030	.0016	.0300
33	.0510	.00030	.0004	.0000	.00015	.00030	.0018	.0270
34	.0460	.00030	.0005	.0000	.00015	.00030	.0021	.0240
35	.0410	.00038	.0006	.0000	.00015	.00038	.0023	.0220
36	.0360	.00038	.0006	.0000	.00015	.00038	.0025	.0200
37	.0310	.00038	.0007	.0000	.00015	.00038	.0028	.0180
38	.0260	.00038	.0008	.0000	.00015	.00038	.0031	.0160
39	.0210	.00038	.0009	.0000	.00015	.00038	.0035	.0140
40	.0170	.00045	.0010	.0000	.00022	.00045	.0039	.0120
41	.0140	.00045	.0010	.0000	.00022	.00045	.0043	.0100
42	.0120	.00045	.0011	.0000	.00022	.00045	.0047	.0080
43	.0100	.00052	.0012	.0000	.00022	.00052	.0052	.0060
44	.0080	.00052	.0012	.0000	.00022	.00052	.0058	.0040
45	.0070	.00060	.0013	.0400	.00030	.00060	.0064	.0030
46	.0060	.00060	.0014	.0300	.00030	.00060	.0071	.0020
47	.0050	.00068	.0014	.0300	.00038	.00068	.0079	.0010
48	.0040	.00068	.0015	.0300	.00045	.00068	.0088	.0008
49	.0030	.00075	.0016	.0400	.00052	.00075	.0097	.0005
50	.0000	.00075	.0016	.1000	.00060	.00075	.0106	.0000
51	.0000	.00082	.0017	.0700	.00068	.00082	.0115	.0000
52	.0000	.00082	.0018	.0700	.00075	.00090	.0125	.0000
53	.0000	.00090	.0019	.0800	.00082	.00097	.0135	.0000
54	.0000	.00090	.0020	.1000	.00090	.00097	.0145	.0000
55	.0000	.00097	.0020	.2700	.00097	.00105	.0155	.0000
56	.0000	.00097	.0021	.2700	.00105	.00112	.0165	.0000
57	.0000	.00105	.0022	.2500	.00112	.00120	.0175	.0000
58	.0000	.00105	.0022	.3000	.00120	.00127	.0185	.0000
59	.0000	.00112	.0023	.5000	.00127	.00135	.0195	.0000
60	.0000	.00000	.0000	1.0000	.00000	.00000	.0000	.0000



# SCHEDULE 7

## YEARS OF LIFE EXPECTANCY AFTER SERVICE RETIREMENT

(Current Assumptions)

Age	General		Safety	Age	General		Safety
	Male	Female			Male	Female	
50	30.08	33.97	30.08	81	7.64	9.09	7.64
51	29.18	33.03	29.18	82	7.21	8.57	7.21
52	28.30	32.10	28.30	83	6.81	8.07	6.81
53	27.42	31.16	27.42	84	6.43	7.58	6.43
54	26.55	30.23	26.55	85	6.07	7.11	6.07
55	25.68	29.31	25.68	86	5.73	6.66	5.73
56	24.83	28.39	24.83	87	5.41	6.23	5.41
57	23.98	27.48	23.98	88	5.10	5.81	5.10
58	23.13	26.57	23.13	89	4.82	5.41	4.82
59	22.29	25.67	22.29	90	4.54	5.02	4.54
60	21.46	24.78	21.46	91	4.28	4.66	4.28
61	20.64	23.89	20.64	92	4.04	4.31	4.04
62	19.83	23.02	19.83	93	3.80	3.98	3.80
63	19.02	22.15	19.02	94	3.58	3.67	3.58
64	18.23	21.29	18.23	95	3.37	3.37	3.37
65	17.45	20.43	17.45	96	3.16	3.10	3.16
66	16.69	19.59	16.69	97	2.98	2.84	2.98
67	15.95	18.76	15.95	98	2.80	2.60	2.80
68	15.23	17.94	15.23	99	2.62	2.36	2.62
69	14.52	17.13	14.52	100	2.45	2.14	2.45
70	13.84	16.34	13.84	101	2.28	1.94	2.28
71	13.18	15.57	13.18	102	2.11	1.74	2.11
72	12.54	14.81	12.54	103	1.95	1.55	1.95
73	11.92	14.08	11.92	104	1.78	1.37	1.78
74	11.31	13.38	11.31	105	1.61	1.19	1.61
75	10.72	12.69	10.72	106	1.43	1.03	1.43
76	10.15	12.03	10.15	107	1.26	.87	1.26
77	9.60	11.40	9.60	108	1.09	.71	1.09
78	9.08	10.79	9.08	109	.92	.50	.92
79	8.57	10.20	8.57	110	--	--	--
80	8.10	9.63	8.10	111	--	--	--

1983 GA (x - 1, y + 1) for General Members

1983 GA (x - 1) for Safety Members

# SCHEDULE 7

## YEARS OF LIFE EXPECTANCY AFTER SERVICE RETIREMENT

(Recommended Assumptions)

Age	General		Safety	Age	General		Safety
	Male	Female			Male	Female	
50	30.08	34.92	30.08	81	7.64	9.63	7.64
51	29.18	33.97	29.18	82	7.21	9.09	7.21
52	28.30	33.03	28.30	83	6.81	8.57	6.81
53	27.42	32.10	27.42	84	6.43	8.07	6.43
54	26.55	31.16	26.55	85	6.07	7.58	6.07
55	25.68	30.23	25.68	86	5.73	7.11	5.73
56	24.83	29.31	24.83	87	5.41	6.66	5.41
57	23.98	28.39	23.98	88	5.10	6.23	5.10
58	23.13	27.48	23.13	89	4.82	5.81	4.82
59	22.29	26.57	22.29	90	4.54	5.41	4.54
60	21.46	25.67	21.46	91	4.28	5.02	4.28
61	20.64	24.78	20.64	92	4.04	4.66	4.04
62	19.83	23.89	19.83	93	3.80	4.31	3.80
63	19.02	23.02	19.02	94	3.58	3.98	3.58
64	18.23	22.15	18.23	95	3.37	3.67	3.37
65	17.45	21.29	17.45	96	3.16	3.37	3.16
66	16.69	20.43	16.69	97	2.98	3.10	2.98
67	15.95	19.59	15.95	98	2.80	2.84	2.80
68	15.23	18.76	15.23	99	2.62	2.60	2.62
69	14.52	17.94	14.52	100	2.45	2.36	2.45
70	13.84	17.13	13.84	101	2.28	2.14	2.28
71	13.18	16.34	13.18	102	2.11	1.94	2.11
72	12.54	15.57	12.54	103	1.95	1.74	1.95
73	11.92	14.81	11.92	104	1.78	1.55	1.78
74	11.31	14.08	11.31	105	1.61	1.37	1.61
75	10.72	13.38	10.72	106	1.43	1.19	1.43
76	10.15	12.69	10.15	107	1.26	1.03	1.26
77	9.60	12.03	9.60	108	1.09	.87	1.09
78	9.08	11.40	9.08	109	.92	.71	.92
79	8.57	10.79	8.57	110	--	.50	--
80	8.10	10.20		111	--	--	--

1983 GA (x - 1, y) for General Members

1983 GA (x - 1) for Safety Members

## SCHEDULE 7

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

1981 Disability (General)



## SCHEDULE 7

### 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 (Safety)

## SCHEDULE 8

### GLOSSARY OF TERMS

Following is a glossary of some of the commonly used actuarial terms.

*Actuarial Accrued Liability*

The portion, as determined by a particular cost method, of the total present value of benefits that is attributable to past service credit

*Actuarial Gain (Loss)*

A measure of the difference between actual and expected experience based upon a set of actuarial assumptions. Examples include higher than expected salary increases (loss) and a higher return on fund assets than anticipated (gain).

*Actuarial Present Value*

Also referred to as the present value of benefits. It is the value, as of a specified date, of an amount payable in the future, where the amount has been adjusted to reflect both the time value of money and the probability that the payment is actually made.

*Amortization or UAAL Payment*

That portion of the pension plan contribution which is designed to pay off (amortize) the unfunded actuarial accrued liability in a systematic fashion. Equivalently, it is a series of periodic payments required to pay off a debt.

*Annual Amount*

Estimated contributions due for the year in order to ensure the orderly funding of the pension plan (equal to the contribution rate multiplied by the annual payroll). The annual amount is comprised of normal cost and UAAL payments.

*Entry Age Actuarial Cost Method*

This method assumes that the annual costs are the level premiums needed from entry age until retirement age to fund the ultimate retirement benefit. These premiums are expressed as a percentage of salary. The portion of this actuarial present value allocated to a valuation year is called the normal cost.

*Final Average Salary*

The average amount of compensation earned over a specified number of consecutive months preceding retirement during which compensation was highest.

*Funding Policy*

The policy for the amounts and timing of contributions to be made by the employer, members, and any other sources to provide the benefits promised by the pension plan.

*Noneconomic Actuarial Assumptions*

Probabilities that members will separate from active service for causes such as retirement, disability, death and withdrawal, as well as rates of post-retirement mortality. The probabilities reflect the experience of the Association membership.

*Normal Cost*

The ongoing annual cost allocated to the system by a particular actuarial cost method for providing benefits (future cost). Normal cost payments are made during the working lifetime of the member.

*Projected Unit Credit Method  
Actuarial Cost Method*

This method assumes that the benefit for a new is zero. Each year that an employee works a portion of the ultimate retirement benefit is accrued, based on a service ratio. These actuarial accrued liability under this method is the present value of the benefit earned to date

*Unfunded Actuarial Accrued Liability*

The excess of the actuarial accrued liability over the actuarial value of assets.

*Vested Benefit*

The benefit an employee is entitled to even if the employee separates from active service prior to normal retirement age.



## SCHEDULE 9

### RATIO OF CURRENT COMPENSATION TO COMPENSATION ANTICIPATED AT RETIREMENT

Age	General			Safety			Age	General			Safety		
	Study 1	Study 2	Study 3	Study 1	Study 2	Study 3		Study 1	Study 2	Study 3	Study 1	Study 2	Study 3
20	.049	.055	.062	.098	.108	.118	46	.275	.291	.308	.471	.487	.503
21	.055	.061	.069	.106	.117	.128	47	.290	.306	.323	.497	.513	.529
22	.060	.067	.076	.114	.125	.137	48	.306	.322	.339	.524	.539	.555
23	.066	.074	.083	.123	.134	.146	49	.322	.338	.356	.553	.568	.583
24	.072	.080	.090	.131	.143	.156	50	.340	.357	.374	.583	.597	.612
25	.078	.087	.097	.140	.153	.166	51	.360	.376	.394	.616	.629	.643
26	.085	.094	.105	.150	.162	.176	52	.379	.395	.413	.650	.662	.675
27	.091	.101	.112	.159	.173	.187	53	.400	.416	.433	.686	.697	.709
28	.098	.109	.120	.170	.183	.198	54	.422	.438	.455	.724	.734	.745
29	.106	.117	.128	.181	.195	.210	55	.446	.462	.479	.764	.773	.782
30	.113	.124	.137	.192	.207	.222	56	.470	.486	.503	.806	.814	.822
31	.121	.133	.146	.204	.219	.235	57	.496	.512	.528	.852	.858	.864
32	.129	.141	.155	.217	.232	.248	58	.523	.539	.554	.898	.902	.907
33	.136	.149	.163	.230	.246	.262	59	.553	.568	.583	.948	.950	.952
34	.144	.157	.171	.244	.260	.277	60	.583	.597	.612	1.000	1.000	1.000
35	.152	.165	.179	.259	.275	.292	61	.615	.628	.642			
36	.160	.173	.188	.274	.290	.307	62	.650	.662	.675			
37	.169	.183	.198	.290	.306	.323	63	.686	.697	.709			
38	.178	.193	.208	.306	.322	.340	64	.724	.734	.745			
39	.188	.203	.218	.323	.339	.357	65	.764	.773	.782			
40	.199	.213	.229	.340	.357	.374	66	.806	.814	.822			
41	.210	.225	.241	.359	.376	.393	67	.851	.857	.863			
42	.221	.237	.253	.379	.396	.413	68	.898	.902	.907			
43	.233	.249	.265	.400	.417	.434	69	.948	.950	.952			
44	.247	.262	.279	.423	.439	.456	70	1.000	1.000	1.000			
45	.260	.276	.293	.445	.461	.478							

Study 1: Salary scale assumption reflects 5.00% for inflation and graded merit and longevity.

Study 2: Salary scale assumption reflects 4.75% for inflation and graded merit and longevity.

Study 3: Salary scale assumption reflects 4.50% for inflation and graded merit and longevity.

# SCHEDULE 10

## ASSET STATEMENT

### FRESNO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

#### STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS JUNE 30, 1994 AND 1993

	<u>1994</u>	<u>1993</u>
<b>ASSETS:</b>		
Investments, at cost; market value of \$689,020,000 in 1994 and \$621,833,000 in 1993 (Note 3)	\$688,971,000	\$554,550,000
Cash and cash equivalents (Note 4)	64,487,000	181,079,000
Investment trades receivable (Note 5)	34,614,000	35,817,000
Interest and dividends receivable	4,983,000	5,046,000
Contributions and other receivables	2,628,000	2,225,000
Other assets	65,000	9,000
<b>Total assets</b>	<b>795,748,000</b>	<b>778,726,000</b>
<b>LIABILITIES:</b>		
Investment trades payable (Note 5)	11,596,000	69,722,000
Accounts payable	1,036,000	1,225,000
<b>Total liabilities</b>	<b>12,632,000</b>	<b>70,947,000</b>
<b>NET ASSETS AVAILABLE FOR BENEFITS (Note 6)</b>	<b><u>\$783,116,000</u></b>	<b><u>\$707,779,000</u></b>

See notes to financial statements.

	<u>Balance July 1, 1993</u>	<u>Increase In Net Plan Assets</u>	<u>Net Transfers</u>	<u>Balance June 30, 1994</u>
Members' accumulated contributions	\$150,338	\$ 4,896	\$ 7,081	\$162,315
Current service reserve	111,425	19,650	969	132,044
Annuity pension reserve	34,795	(4,356)	5,750	36,189
Current service pension reserve	176,130	(17,325)	24,043	182,848
Survivors' death benefit reserve	2,543	(240)	216	2,519
Cost of living adjustment reserve	149,872	(4,809)	14,005	159,068
Supplemental cost of living reserve	9,189	(2,267)	749	7,671
Contingency reserve	7,078		753	7,831
Retiree health insurance reserve	28,727	(2,071)	2,450	29,106
Undistributed earnings	37,682	81,859	(56,016)	63,525
<b>Net assets available for benefits</b>	<b><u>\$707,779</u></b>	<b><u>\$ 75,337</u></b>	<b><u>\$ -</u></b>	<b><u>\$783,116</u></b>