June 2002

Actuarial Valuation Report
Contra Costa County Employees' Retirement Association

As of December 31, 2001

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4 June 2002

Board of Retirement
Contra Costa County Employees' Retirement Association
1335 Willow Way, Suite 221
Concord, CA 94520

Dear Members of the Board:

We are pleased to present the actuarial valuation for the Contra Costa County Employees' Retirement Association prepared as of December 31, 2001 by Mercer Human Resource Consulting.

The report includes:

(1) the recommended employer contribution rates to be effective January 1, 2003 through December 31, 2003;

(2) a determination of the recommended member contribution rates, also to be effective for January 1, 2003 through December 31, 2003;

(3) a determination of the funded status as of December 31, 2001; and

(4) financial reporting and disclosure information pursuant to applicable accounting standards.

San Ramon Fire Protection District has adopted improved benefits for their General and Safety members under 2% at 55 and 3% at 50 formulas, respectively. The County is also negotiating similar improvements for its employees. Since there are still some outstanding issues on the design and how cost will be shared between employers and employees, we have not reflected the cost of the benefit improvements in our study.

The change in funding status and employer and member contributions from retirement benefit improvements will be reflected in a future study once the above issues can be resolved.

The final employer rates (after the transfers of excess earnings) are provided in the Special Study Section of this report.

MERCER
Human Resource Consulting

This report conforms with the requirements of the governing state and local statutes, accounting rules, and generally accepted actuarial principles and practices. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Sincerely,

Marcia L. Chapman

Marcia L. Chapman, FSA, EA, MAAA

Andy Yeung

Andy Yeung, ASA, EA, MAAA

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Actuarial Certification

Contra Costa County Employees' Retirement Association's basic financial goal is to establish contributions which fully fund the system's liabilities, and which, as a percentage of payroll, remain level for each generation of active members. Annual actuarial valuations measure the progress toward this goal, as well as test the adequacy of the contribution rates.

The actuarial valuation required for the Contra Costa County Employees' Retirement Association has been prepared as of December 31, 2001 by Mercer Human Resource Consulting. In preparing this valuation, we have employed generally accepted actuarial methods and assumptions to evaluate the Association's assets, liabilities and future contribution requirements. Our calculations are based upon member data and unaudited financial information provided to us by the Association's staff. This information has not been audited by us, but it has been reviewed and found to be consistent, both internally and with prior year's information.

The contribution requirements are determined as a percentage of payroll. The Association's employer rates provide for both normal cost and a contribution to amortize any unfunded or overfunded actuarial accrued liabilities. At its June 9, 1998 meeting, the Board of Retirement elected to amortize the Association's unfunded actuarial accrued liability over a decreasing 20-year period.

The rates calculated in this report may be adopted by the Board for January 1, 2003 through December 31, 2003.

The ratio of actuarial value of assets to actuarial accrued liabilities decreased from 89% to 88% as a result of this valuation.

Paulson Court Settlement

As a result of the Paulson Court Settlement, the Retirement Board has begun to recognize additional pay elements as Earnable Compensation. The additional pay elements recognized as Earnable Compensation includes items which are not known until a member retires ("terminal pay" items). As a result, it is necessary to include an assumption to anticipate terminal pay for members who have not yet retired.

At its November 2, 1999 meeting, the Board adopted terminal pay assumptions for active members and took the following actions with respect to the associated contribution rate increases:

(1) To avoid creating an inequity among members, there will be no change in member basic benefit contribution rates as a result of the new terminal pay assumptions. The inequities could occur as a result of the considerable differences in terminal pay policies among participating employers, as well as the likelihood of considerable variation in terminal pay that will be received by individual members.

(2) The increase in the employer contribution rates resulting from the application of the terminal pay assumptions will be phased in over 3 years, effective with the December 31, 1998 valuation. The contribution increase was fully phased in with the December 31, 2000 valuation.

A further impact of the Paulson Settlement is the additional benefits to be paid to members of the Association who were retired at the time the decision was rendered. These retired members would receive the following additional benefits, based on a litigation settlement agreement between the Association's sponsoring employers and retirees who were party to the litigation:

- Retroactive benefits to (September 1, 1994); plus
- Increased future benefits

In order to determine the amount of these additional benefits, the Association has undertaken to determine the amounts that retired members had received in additional pay elements now recognizable as Earnable Compensation. This is a lengthy process and is not yet completed. As part of the settlement, the Board designated $90 million of assets to provide for the resulting additional liabilities. As the revised benefits were calculated, the funds to cover the increased benefits were transferred from the designated funds. At the time of this valuation, we determined that the $90 million would not be sufficient to pay the lump sum retroactive payments plus the present value of future payments due after December 31, 2001.

However, the liability shortfall has not been included in determining the employer's contribution rates in this valuation. According to the settlement agreement, individual employers will pay for their share of liability shortfall. We will calculate the additional contribution requirement for each employer once the total liability of the settlement is available.

Experience Analysis

The results of this study are based on actuarial assumptions and procedures reviewed in our experience analysis as of December 31, 2000.

In that study, we reviewed and recommended the demographic assumptions and procedures for our annual actuarial valuations.

The Retirement Board adopted all of our recommendations except:

(a) Service from unused sick leave conversion – members are allowed to convert unused sick leave to service credit at retirement. Currently, such service is not recognized in the actuarial valuation until it is actually converted at retirement.

We recommended that "sick leave service" be pre-funded during a member's active working years. The Board decided not to pre-fund but to continue the current practice of funding the conversions at retirement.

(b) Post-Retirement Mortality – We recommended the mortality tables for retired female General and Safety members reflect lower than expected deaths over the experience study period. The Board decided not to use the recommended mortality tables.

(b) Post-Retirement Mortality – We recommended the mortality tables for retired female General and Safety members reflect lower than expected deaths over the experience study period. The Board decided not to use the recommended mortality tables.

In our report dated April 2, 2002, we reviewed the economic actuarial assumptions we would recommend for this valuation.

In that report, we derived an interest rate assumption of 8.35% per annum using the Building Block Approach, and we recommended an interest rate assumption of 8.25%. However, we pointed out the interest rate assumption of 8.50% would pose no unsound risk for CCCERA.

After further discussions at the April Board meeting, the Board decided to adopt an 8.35% investment return assumption.

The contribution rates provided in this report are based on the 8.35% investment return assumption adopted by the Board.

Benefit Changes

The following is a list of benefit Plan changes since our December 31, 2000 valuation:

San Ramon Fire Protection District has adopted improved benefits for their General and Safety members under 2% at 55 and 3% at 50 formulas, respectively.

The County is also negotiating similar improvements for its employees. Since there are still some outstanding issues on the design and how cost will be shared between employers and employees, we have not yet reflected the cost of the benefit improvements in our study.

The assumptions and methods, when applied in combination, fairly represent past and anticipated future experience of the Association and meet the parameters required by GASB Statement 25. However, the Board's decision not to adopt all the recommended assumptions in our December 31, 2000 experience study leads us to believe future assumption changes will be required.

Future contribution requirements may differ from those determined in the valuation because of:

(1) differences between actual experience and anticipated experience;

(2) changes in actuarial assumptions or methods;

(3) changes in statutory provisions; and

(4) differences between the contribution rates determined by the valuation and those adopted by the Board.

The Solvency Test required for the Association's CAFR report is in the Funding History section of this report.

This report conforms with the requirements of the governing state and local statutes, accounting rules, and generally accepted actuarial principles and practices. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Mercer Human Resource Consulting

Marcia L. Chapman

Marcia L. Chapman, FSA, EA, MAAA

6/4/02

Andy Yeung

Andy Yeung, ASA, EA, MAAA

6/4/02

Board Member Summary of Valuation Results

SUMMARY OF RECOMMENDATIONS

Employer Contribution Rates*	December 31, 2001**	December 31, 2000***	Increase/(Decrease)
Normal Cost Rate:	13.09%	12.64%	0.45%
Rate of Contribution to Unfunded Actuarial Accrued Liability:	5.92%	4.77%	1.15%
Total Employer Rate:	19.01%	17.41%	1.60%
Estimated Annual Amount****:	$103,776,000	$95,030,000	$8,746,000

Member Contribution Rates*	December 31, 2001**	December 31, 2000***	Increase/(Decrease)
General Members (Tier 1)*****			
25	6.16%	5.98%	0.18%
35	6.72%	6.58%	0.14%
45	7.60%	7.49%	0.11%
Average Entry Age (Age 33)	6.58%	6.42%	0.16%
General Members (Tier 2)			
25	2.34%	2.28%	0.06%
35	2.56%	2.50%	0.06%
45	2.89%	2.85%	0.04%
Average Entry Age (Age 38)	2.65%	2.60%	0.05%
General Members (Tier 3)*****			
25	4.83%	4.63%	0.20%
35	5.28%	5.09%	0.19%
45	5.97%	5.79%	0.18%
Average Entry Age (Age 36)	5.33%	5.15%	0.18%
Safety Members			
21	7.70%	7.49%	0.21%
25	7.83%	7.63%	0.20%
30	8.15%	7.97%	0.18%
Average Entry Age (Age 29)	8.07%	7.89%	0.18%
Estimated Annual Amount****:	$28,294,000	$26,920,000	$1,374,000

Actuarial Assumptions	December 31, 2001**	December 31, 2000***
Annual Inflation Rate:	4.25%	4.25%
Annual Investment Return:	8.35%	8.50%
Average Annual Salary Increase	5.71%	5.71%
Other Assumptions:	12/31/2000 Experience Study	12/31/2000 Experience Study

* Reflects 50% subvention of member basic contribution rates.
** Rates shown are to be applied from 1/1/2003 through 12/31/2003.
*** Rates shown are to be applied from 7/1/2002 through 12/31/2002.
**** Based on 12/31/2001 payroll projected with inflation to 12/31/2002.
***** Monthly contributions for the first $350 are based upon 2/3 of the above rates.

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Member Contribution Rates

Current Rates/Recommended for Year 2002
4.25% Inflation, 8.50% Interest and 5.71% salary scale assumption

	General Tier 1		General Tier 2		General Tier 3		Safety	
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount
Basic Without Subvention	5.31%	$ 5,627,000	2.54%	$ 4,019,000	6.20%	$ 9,593,000	7.24%	$ 9,189,000
Basic With 50% Subvention	2.65%	$ 2,813,000	1.27%	$ 2,009,000	3.10%	$ 4,796,000	3.62%	$ 4,594,000
Cost of Living	2.79%	$ 2,957,000	1.33%	$ 2,112,000	1.82%	$ 2,810,000	3.81%	$ 4,829,000
Total With 50% Subvention	5.44%	$ 5,770,000	2.60%	$ 4,121,000	4.92%	$ 7,606,000	7.43%	$ 9,423,000

Average Rate for Group with 50% Subvention= 4.93%
Annual Amount for the total group with 50% Subvention= $ 26,920,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

	General Tier 1	General Tier 2	General Tier 2	Safety
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403
District	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760
Total	$ 106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163

Recommended for Year 2003
4.25% Inflation, 8.35% Interest and 5.71% salary scale assumption

	General Tier 1		General Tier 2		General Tier 3		Safety	
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount
Basic Without Subvention	5.65%	$ 5,986,000	2.66%	$ 4,208,000	6.52%	$ 10,088,000	7.60%	$ 9,646,000
Basic With 50% Subvention	2.82%	$ 2,993,000	1.33%	$ 2,104,000	3.26%	$ 5,044,000	3.80%	$ 4,823,000
Cost of Living	2.93%	$ 3,108,000	1.38%	$ 2,185,000	1.96%	$ 3,029,000	3.95%	$ 5,008,000
Total With 50% Subvention	5.75%	$ 6,101,000	2.71%	$ 4,289,000	5.22%	$ 8,073,000	7.75%	$ 9,831,000

Average Rate for Group with 50% Subvention= 5.18%
Annual Amount for the total group with 50% Subvention= $ 28,294,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

	General Tier 1	General Tier 2	General Tier 3	Safety
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403
District	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760
Total	$ 106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163

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Employer Rates Under Current Assumptions For 7/1/2002 Through 12/31/2002 (Including 17 Year Amortization of UAAL)
4.25% Inflation, 8.50% Interest and 5.71% salary scale assumption

	General Tier 1		General Tier 2		General Tier 3		Safety		Aggregate	
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount
Normal Cost Without Subvention										
County	12.99%	$ 9,256,000	7.73%	$ 12,178,000	5.98%	$ 9,234,000	15.71%	$ 12,190,000	9.30%	$ 42,858,000
Districts	12.99%	$ 4,517,000	7.73%	$ 52,000	5.98%	$ 19,000	15.71%	$ 7,749,000	14.50%	$ 12,337,000
Normal Cost With 50% subvention										
County	15.62%	$ 11,130,000	8.86%	$ 13,958,000	9.05%	$ 13,974,000	19.25%	$ 14,937,000	11.72%	$ 53,999,000
Districts	15.62%	$ 5,431,000	8.86%	$ 60,000	9.05%	$ 28,000	19.25%	$ 9,495,000	17.65%	$ 15,014,000
UAAL										
County	2.99%	$ 2,131,000	4.62%	$ 7,278,000	4.41%	$ 6,809,000	1.18%	$ 916,000	3.72%	$ 17,134,000
Districts	9.96%	$ 3,463,000	10.62%	$ 72,000	11.58%	$ 36,000	10.77%	$ 5,312,000	10.44%	$ 8,883,000
Total With 50% subvention										
County	18.61%	$ 13,261,000	13.48%	$ 21,236,000	13.46%	$ 20,783,000	20.43%	$ 15,853,000	15.44%	$ 71,133,000
Districts	25.58%	$ 8,894,000	19.48%	$ 132,000	20.63%	$ 64,000	30.02%	$ 14,807,000	28.09%	$ 23,897,000
Aggregate	20.90%	$ 22,155,000	13.51%	$ 21,368,000	13.47%	$ 20,847,000	24.16%	$ 30,660,000	17.41%	$ 95,030,000

Average Rate for Group with 50% Subvention= 17.41%
Annual Amount for the total group with 50% Subvention= $ 95,030,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

	General Tier 1	General Tier 2	General Tier 3	Safety	Total
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403	$ 460,797,510
District	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760	$ 85,078,425
Total	$ 106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163	$ 545,875,935
Refundability Factor	0.9929	0.8938	0.9921	0.9785	

Employer Rates Under Recommended Assumptions For 1/1/2003 Through 12/31/2003 (Including 16 Year Amortization of UAAL)
4.25% Inflation, 8.35% Interest and 5.71% salary scale assumption

	General Tier 1		General Tier 2		General Tier 3		Safety		Aggregate	
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount
Normal Cost Without Subvention										
County	13.16%	$ 9,377,000	7.85%	$ 12,367,000	6.35%	$ 9,805,000	16.33%	$ 12,671,000	9.60%	$ 44,220,000
Districts	13.16%	$ 4,576,000	7.85%	$ 53,000	6.35%	$ 20,000	16.33%	$ 8,054,000	14.93%	$ 12,703,000
Normal Cost With 50% subvention										
County	15.96%	$ 11,372,000	9.04%	$ 14,241,000	9.58%	$ 14,792,000	20.05%	$ 15,558,000	12.14%	$ 55,963,000
Districts	15.96%	$ 5,549,000	9.04%	$ 61,000	9.58%	$ 30,000	20.05%	$ 9,889,000	18.25%	$ 15,529,000
UAAL										
County	4.10%	$ 2,921,000	5.55%	$ 8,743,000	5.34%	$ 8,245,000	2.99%	$ 2,320,000	4.82%	$ 22,229,000
Districts	11.01%	$ 3,828,000	11.49%	$ 77,000	12.37%	$ 39,000	12.39%	$ 6,111,000	11.62%	$ 10,055,000
Total With 50% subvention										
County	20.06%	$ 14,293,000	14.59%	$ 22,984,000	14.92%	$ 23,037,000	23.04%	$ 17,878,000	16.97%	$ 78,192,000
Districts	28.97%	$ 9,377,000	20.53%	$ 138,000	21.95%	$ 69,000	32.44%	$ 16,000,000	30.07%	$ 25,584,000
Aggregate	22.32%	$ 23,670,000	14.61%	$ 23,122,000	14.93%	$ 23,106,000	28.69%	$ 33,878,000	19.01%	$ 103,776,000

Average Rate for Group with 50% Subvention= 19.01%
Annual Amount for the total group with 50% Subvention= $ 103,776,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

	General Tier 1	General Tier 2	General Tier 3	Safety	Total
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403	$ 460,797,510
District	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760	$ 85,078,425
Total	$ 106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163	$ 545,875,935
Refundability Factor	0.9917	0.8968	0.9932	0.9791	

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SUMMARY OF SIGNIFICATION RESULTS

	December 31, 2001	December 31, 2000	Increase/(Decrease)
Association Membership			
Active Members			
1. Number of Members	9,229	8,884 ***	3.9%
2. Total Active Payroll	$523,621,000	$488,384,000 ***	7.2%
3. Average Monthly Salary	$4,728	$4,581	3.2%
Retired Members			
1. Number of Members:			
Service Retirement	4,078	3,838	6.3%
Disability Retirement	823	777	5.9%
Beneficiaries	994	943	5.4%
2. Total Retired Payroll	$132,093,000 ****	$110,348,000	19.7%
3. Average Monthly Pension	$1,867	$1,654	12.9%
Inactive Vested Members			
1. Number of Members *	955	877	8.9%
Asset Values (Net)			
Market Value	$2,704,729,000	$2,931,262,000	-7.7%
Return on Market Value	-4.23%	0.79%	
Actuarial Value	$3,090,177,000	$2,916,159,000	6.0%
Return on Actuarial Value	9.73%	13.75%	
Valuation Assets	$2,613,220,000	$2,355,179,000 **	11.0%
Return on Valuation Assets	7.92%	8.21%	
Liability Values			
Actuarial Accrued Liability**	$2,983,551,000	$2,643,526,000	12.9%
Unfunded Actuarial Accrued Liability (UAAL)**	$370,331,000	$288,347,000	28.4%
Funding Ratio			
GASB No. 25	88%	89%	-1%

* Only include members who are not active in any other tier.
** After adjusting for the withdrawal of the City of Pittsburg.
*** Excludes active members from the City of Pittsburg.
**** Includes dollar power benefit.

Explanation of Changes in Actuarial Values

Components of Employer Contribution Rate Change

	Employer Rate	Contribution Rate	Estimated Annual Dollar Cost*
1.	Employer Rate Determined in 12/31/00 Valuation	17.41%	$95,030,000
	Changes:		
2.	Investment return less than expected	0.24%	$1,294,000
3.	Change in terminal pay assumptions for active members	0.02%	$104,000
4.	More retirements than expected	0.04%	$205,000
5.	Change in interest rate assumption	1.19%	$6,496,000
6.	Paulson liabilities	1.05%	$5,732,000
7.	Transfers to offset Paulson liabilities	-1.05%	($5,732,000)
8.	Other actuarial (Gains)/Losses	0.11%	$647,000
9.	Subtotal of Changes	1.60%	$8,746,000
10.	Employer Rate Determined in 12/31/01 Valuation	19.01%	$103,776,000

*Based on payroll as of 12/31/2001 projected with inflation to 12/31/2002 of $545,875,000.

Explanations:

Investment return less than expected - The Association's valuation assets earned 0.58% below the assumed rate of 8.50%.

Change in terminal pay assumptions for active members - The liability increases slightly due to the higher level of benefits expected from conversion of terminal pay at retirement.

Retirees more than expected - There were more actual retirements than expected by the assumptions.

Change in interest rate assumption - Increase in liability and normal cost from reduction in interest rate assumption from 8.5% to 8.35%

Paulson liabilities - This represents the additional liabilities for Paulson retirees who received benefit adjustments before the end of 2001.

Transfers to offset Paulson liabilites - Rate impact of transferring $68.4m to offset Paulson liabilities.

Miscellaneous (gains)/ losses - Other rate changes with untraced sources including delay in the implementation of the higher employer and member contribution rates determined in the 12/31/00 valuation.

Components of Member Contribution Rate Change

	Member Rate	Rate Change	Estimated Annual Dollar Cost*
1.	Member Rate Determined in 12/31/00 Valuation	4.93%	$26,920,000
2.	Change in interest rate assumption	0.16%	$885,000
3.	Other changes in demographics	0.09%	$489,000
	Subtotal of Changes	0.25%	$1,374,000
4.	Member Rate Determined in 12/31/01 Valuation	5.18%	$28,294,000

*Based on payroll as of 12/31/2001 projected with inflation to 12/31/2002 of $545,875,000.

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Actuarial Assumptions

In our report of April 2, 2002, we provided extensive analysis of the economic actuarial assumptions and terminal pay assumptions that would be used for this report. In that letter, we recommended an 8.25% interest rate assumption based on capital market projections and the Association's target asset allocation. The Board adopted an interest rate assumption of 8.35%, which we do not believe poses an unsound risk to the Association's ability to pay benefits.

The following table summarizes the economic and terminal pay assumptions that the Board adopted for this actuarial valuation. Please see our April 2002 report for more information.

Economic Assumptions

Inflation	4.25%
Investment Return	8.35%
Merit and Longevity Salary Increase	Age related - See Appendix B for the ratio of current compensation to compensation anticipated at retirement age
Terminal Pay Assumptions	Applied to Employer rate only See our Appendix B for assumption summary

Actuarial Valuation Methods

Actuarial Funding Method

Responsibility of the Actuary

A retirement system is a long term proposition. It contains benefit promises that extend many decades into the future. The fiduciaries responsible for funding the system cannot wait until these promises become due before seeking out the money needed to pay for them. The actuary's primary responsibility is to assist the Board to structure a financial plan to advance fund the benefit promises of the system and to monitor its performance. This financial plan is more commonly referred to as an actuarial funding method.

Employer Contributions

The actuarial funding method which has been adopted by the Board, is called the Entry Age Normal Funding Method. Under this method, the employer contributions consist of two components:

(1) *Normal Cost* - That annual contribution rate which, if paid annually from a member's first year of membership through the year of retirement, would accumulate to the amount necessary to fully fund the member's retirement-related benefits. Accumulation includes annual crediting of interest at the assumed investment earnings rate. The contribution rate is expressed as a level percentage of the member's compensation.

(2) *Contribution to the Unfunded Actuarial Accrued Liability (UAAL)* - That annual contribution rate which, if paid annually over the UAAL amortization period, would accumulate to the amount necessary to fully fund the UAAL. This also includes the credits which result from an overfunded Actuarial Liability as a negative contribution rate. Accumulation includes annual crediting of interest at the assumed investment earnings rate. The contribution is calculated to remain as a level percentage of future active member payroll (including payroll of new members as they enter the Association) assuming a constant number of active members. In order to remain as a level percentage of payroll, amortization payments (or credits) are scheduled to increase at the annual inflation rate of 4.25% along with expected payroll. The UAAL is being funded over the 16-year period following December 31, 2001.

A more complete definition of the Unfunded Actuarial Accrued Liability and other actuarial terms is provided in the Glossary of Actuarial Terms which can be found in Appendix E.

Member Contributions

Articles 6 and 6.8 of the 1937 Act define the methodology to be used in the calculation of member basic contribution rates for General and Safety members, respectively. The basic

contribution rate is determined as that percentage of compensation which, if paid annually from a member's first year of membership through the prescribed retirement age would accumulate to the amount necessary to fund a prescribed annuity. The annuity is equal to 1/120 of one year Final Average Salary per year of service at age 55 for General Tier 1 and Tier 3 members; 40% of the Tier 1 members contribution rate (using three year Final Average Salary) for General Tier 2 members; and Safety members pay for an annuity at age 50 equal to 1/100 of one year Final Average Salary per year of service. Member contributions are credited with interest at a rate reviewed semiannually by the Board. The County is now paying 50% of the members' basic contributions on a nonrefundable basis. Members also pay 50% of the cost of living benefit.

Actuarial Value of Assets

Background

Under the Entry Age Normal Actuarial Funding Method, a determination is made of the target value of assets the Association would hold if current employer normal cost and member contribution rates had been paid from each member's entry age through the actuarial valuation date and credited with the current investment return assumption. This target value of assets is called the Actuarial Accrued Liability (AAL). The Unfunded Actuarial Accrued Liability (UAAL) is equal to the AAL less the Actuarial Value of Assets as of the actuarial valuation date.

Actuarial Standards

In 1993 the Actuarial Standards Board issued Standard of Practice (SOP) No. 4 entitled Measuring Pension Obligations. Section 5.2.6 of SOP No. 4 states, in part, that the Actuarial Value of Assets should generally reflect some function of market value; however, it may be appropriate to use methods which smooth out the effects of short-term volatility in market value.

In Mercer's opinion, the use of smoothing methods are especially important for employers with limited budgetary flexibility, such as governmental entities.

Determination of Actuarial Value of Assets

Effective December 31, 1995, the Board adopted a method for determining the actuarial value of assets that operates by smoothing over five years the difference between the Association's actual market return (net of expenses) from the actuarially expected return.

The Board also applies this smoothing method to value the Association's reserves for accounting purposes. Because reserves are valued each six months, the smoothing method is applied over six month periods rather than annual periods. As a result, we utilize the Association's financial accounting information as our sole source of the actuarial value of assets.

CONTRA COSTA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

MARKET STABILIZATION DESIGNATION (DEFERRED RETURN) AND ACTUARIAL VALUE OF ASSETS AS OF 12/31/2001

I. Deferred amounts:

From Period:	Remaining Amount	Amount to be applied to: 2002	2003	2004	2005	2006	Remaining Amount
Dec-97	$ 7,682,209	7,682,209					7,682,209
Jun-98	$ 28,591,606	28,591,606					28,591,606
Dec-98	$ (4,619,774)	(3,079,849)	(1,539,925)				(4,619,774)
Jun-99	$ 34,668,322	17,334,161	17,334,161				34,668,322
Dec-99	$ 38,553,830	15,421,532	15,421,532	7,710,766			38,553,830
Jun-00	$ (54,810,909)	(18,270,303)	(18,270,303)	(18,270,303)			(54,810,909)
Dec-00	$ (100,257,678)	(28,645,051)	(28,645,051)	(28,645,051)	(14,322,525)		(100,257,678)
Jun-01	$ (166,713,385)	(41,678,346)	(41,678,346)	(41,678,346)	(41,678,346)		(166,713,385)
Dec-01	$ (168,542,546)	(37,453,899)	(37,453,899)	(37,453,899)	(37,453,899)	(18,726,950)	(168,542,546)
	$ (385,448,325)	$ (60,097,941)	$ (94,831,831)	$ (118,336,833)	$ (93,454,771)	$ (18,726,950)	$ (385,448,325)

II. Unrestricted Designation

Per December 31, 2001 Financial Statement	$ 87,740,871

III. Current (Preliminary) Contingency Balances

Per December 31, 2001	
Statutory Contingency Designation (1%)	$ 27,683,923
Board Designated Contingency	
Board Designated (1%)	$ 27,683,923
Paulson Settlement Designation	$ 53,087,977
Excess Earnings from December 31, 1998, 1999 and 2000	$316,832,593
TOTAL	$397,604,493

IV. Actuarial Value of Assets

1. Market Value of Assets	$ 2,704,728,752
2. Deferred Return (from I)	$ (385,448,325)
3. Actuarial Value of Assets (1. - 2.)	$ 3,090,177,077
4. Non Valuation Reserves and Designations:	
a. Unrestricted Designation (from II)	$ 87,740,871
b. Statutory Contingency Reserve (from III)	$ 27,683,923
c. Board Designated Contingency (from III)	$ 397,604,493
d. Supplemental Reserves	$ 11,585,380
e. Fixed Assets, etc	$ -
f. Actuarial Transfer Designation	$ 16,100,498
g. Retiree Health Benefit Transfer Designation	$ 4,637,588
h. Subtotal	$ 545,352,753
5. Paulson Transfers	$ 68,395,941
6. Actuarial Value of Assets for Valuation and Funding Ratio (3.-4h.+5.)	$ 2,613,220,265

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Actuarial Valuation Results

Employer and Member Contribution Rates

The following Table 6 provides a comparison of the Employer and Member contribution rates and estimated annual contribution amounts under the current and recommended actuarial assumptions. The estimated annual contribution amounts are based upon annual payroll as of the actuarial valuation date.

Table 6
Contribution Rates and Estimated Annual Contributions

	Employer Contributions		Member Contributions	
Valuation Basis (Inflation/Investment Return/Salary Increase)	Rate*	Annual Amount**	Rate*	Annual Amount**
Current Rates - Year 2002 (4.25%/8.50%/5.71%)	17.41%	$95,030,000	4.93%	$26,920,000
Recommended Rates - Year 2003 (4.25%/8.35%/5.71%)	19.01%	$103,776,000	5.18%	$28,294,000

* Reflects 50% employer subvention of member basis contribution rates.
** Based on annual salaries as of 12/31/2001 projected with inflation to 12/31/2002 of $545,875,000.

Recommendation

The Recommended Rates are based on the economic actuarial assumptions previously adopted by the Board of Retirement upon the recommendation of Mercer Human Resource Consulting.

Component parts of the current and recommended member and employer contribution rates broken down among the various member categories can be found in Tables 7 and 8, respectively.

Explanation of Changes in Actuarial Values

Components of Employer Contribution Rate Change

	Employer Rate	Contribution Rate	Estimated Annual Dollar Cost*
1.	Employer Rate Determined in 12/31/00 Valuation	17.41%	$95,030,000
	Changes:		
2.	Investment return less than expected	0.24%	$1,294,000
3.	Change in terminal pay assumptions for active members	0.02%	$104,000
4.	More retirements than expected	0.04%	$205,000
5.	Change in interest rate assumption	1.19%	$6,496,000
6.	Paulson liabilities	1.05%	$5,732,000
7.	Transfers to offset Paulson liabilities	-1.05%	($5,732,000)
8.	Other actuarial (Gains)/Losses	0.11%	$647,000
9.	Subtotal of Changes	1.60%	$8,746,000
10.	Employer Rate Determined in 12/31/01 Valuation	19.01%	$103,776,000

*Based on payroll as of 12/31/2001 projected with inflation to 12/31/2002 of $545,875,000.

Explanations:

Investment return less than expected - The Association's valuation assets earned 0.58% below the assumed rate of 8.50%.

Change in terminal pay assumptions for active members - The liability increases slightly due to the higher level of benefits expected from conversion of terminal pay at retirement.

Retirees more than expected - There were more actual retirements than expected by the assumptions.

Change in interest rate assumption - Increase in liability and normal cost from reduction in interest rate assumption from 8.5% to 8.35%

Paulson liabilities - This represents the additional liabilities for Paulson retirees who received benefit adjustments before the end of 2001.

Transfers to offset Paulson liabilities - Rate impact of transferring $68.4m to offset Paulson liabilities.

Miscellaneous (gains)/ losses - Other rate changes with untraced sources including delay in the implementation of the higher employer and member contribution rates determined in the 12/31/00 valuation.

Components of Member Contribution Rate Change

	Member Rate	Rate Change	Estimated Annual Dollar Cost*
1.	Member Rate Determined in 12/31/00 Valuation	4.93%	$26,920,000
2.	Change in interest rate assumption	0.16%	$885,000
3.	Other changes in demographics	0.09%	$489,000
	Subtotal of Changes	0.25%	$1,374,000
4.	Member Rate Determined in 12/31/01 Valuation	5.18%	$28,294,000

*Based on payroll as of 12/31/2001 projected with inflation to 12/31/2002 of $545,875,000.

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Table 7
Comparison of Average Employee Contribution Rates

Current Rates/Recommended for Year 2002
4.25% Inflation, 8.50% Interest and 5.71% salary scale assumption

	General						Safety	
	Tier 1		Tier 2		Tier 3			
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount
Basic Without Subvention	5.31%	$ 5,627,000	2.54%	$ 4,019,000	6.20%	$ 9,593,000	7.24%	$ 9,189,000
Basic With 50% Subvention	2.65%	$ 2,813,000	1.27%	$ 2,009,000	3.10%	$ 4,796,000	3.62%	$ 4,594,000
Cost of Living	2.79%	$ 2,957,000	1.33%	$ 2,112,000	1.82%	$ 2,810,000	3.81%	$ 4,829,000
Total With 50% Subvention	5.44%	$ 5,770,000	2.60%	$ 4,121,000	4.92%	$ 7,606,000	7.43%	$ 9,423,000

Average Rate for Group with 50% Subvention= 4.93%
Annual Amount for the total group with 50% Subvention= $ 26,920,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

	General Tier 1	General Tier 2	General Tier 2	Safety
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403
District	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760
Total	$ 106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163

Recommended for Year 2003
4.25% Inflation, 8.35% Interest and 5.71% salary scale assumption

	General						Safety	
	Tier 1		Tier 2		Tier 3			
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount
Basic Without Subvention	5.65%	$ 5,986,000	2.66%	$ 4,208,000	6.52%	$ 10,088,000	7.60%	$ 9,646,000
Basic With 50% Subvention	2.82%	$ 2,993,000	1.33%	$ 2,104,000	3.26%	$ 5,044,000	3.80%	$ 4,823,000
Cost of Living	2.93%	$ 3,108,000	1.38%	$ 2,185,000	1.96%	$ 3,029,000	3.95%	$ 5,008,000
Total With 50% Subvention	5.75%	$ 6,101,000	2.71%	$ 4,289,000	5.22%	$ 8,073,000	7.75%	$ 9,831,000

Average Rate for Group with 50% Subvention= 5.18%
Annual Amount for the total group with 50% Subvention= $ 28,294,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

		General		Safety
	Tier 1	Tier 2	Tier 3	
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403
District	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760
Total	$ 106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163

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Table 8
Comparison of Average Employer Contribution Rates

Employer Rates Under Current Assumptions For 7/1/2002 Through 12/31/2002 (Including 17 Year Amortization of UAAL)
4.25% Inflation, 8.50% Interest and 5.71% salary scale assumption

	General Tier 1		General Tier 2		General Tier 3		Safety		Aggregate	
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount
Normal Cost Without Subvention										
County	12.99%	$ 9,256,000	7.73%	$ 12,178,000	5.98%	$ 9,234,000	15.71%	$ 12,190,000	9.30%	$ 42,858,000
Districts	12.99%	$ 4,517,000	7.73%	$ 52,000	5.98%	$ 19,000	15.71%	$ 7,749,000	14.50%	$ 12,337,000
Normal Cost With 50% subvention										
County	15.62%	$ 11,130,000	8.86%	$ 13,958,000	9.05%	$ 13,974,000	19.25%	$ 14,937,000	11.72%	$ 53,999,000
Districts	15.62%	$ 5,431,000	8.86%	$ 60,000	9.05%	$ 28,000	19.25%	$ 9,495,000	17.65%	$ 15,014,000
UAAL										
County	2.99%	$ 2,131,000	4.62%	$ 7,278,000	4.41%	$ 6,809,000	1.18%	$ 916,000	3.72%	$ 17,134,000
Districts	9.96%	$ 3,463,000	10.62%	$ 72,000	11.58%	$ 36,000	10.77%	$ 5,312,000	10.44%	$ 8,863,000
Total With 50% subvention										
County	18.61%	$ 13,261,000	13.48%	$ 21,236,000	13.46%	$ 20,783,000	20.43%	$ 15,853,000	15.44%	$ 71,133,000
Districts	25.58%	$ 8,894,000	19.48%	$ 132,000	20.63%	$ 64,000	30.02%	$ 14,807,000	28.09%	$ 23,897,000
Aggregate	20.90%	$ 22,155,000	13.51%	$ 21,368,000	13.47%	$ 20,847,000	24.16%	$ 30,660,000	17.41%	$ 95,030,000

Average Rate for Group with 50% Subvention= 17.41%
Annual Amount for the total group with 50% Subvention= $ 95,030,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

	General Tier 1	General Tier 2	General Tier 3	Safety	Total
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403	$ 460,797,510
District	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760	$ 85,078,425
Total	$ 106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163	$ 545,875,935
Refundability Factor	0.9929	0.8938	0.9921	0.9785	

Employer Rates Under Recommended Assumptions For 1/1/2003 Through 12/31/2003 (Including 16 Year Amortization of UAAL)
4.25% Inflation, 8.35% Interest and 5.71% salary scale assumption

	General Tier 1		General Tier 2		General Tier 3		Safety		Aggregate	
	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount	% of Payroll	Annual Amount
Normal Cost Without Subvention										
County	13.16%	$ 9,377,000	7.85%	$ 12,367,000	6.35%	$ 9,805,000	16.33%	$ 12,671,000	9.60%	$ 44,220,000
Districts	13.16%	$ 4,576,000	7.85%	$ 53,000	6.35%	$ 20,000	16.33%	$ 8,054,000	14.93%	$ 12,703,000
Normal Cost With 50% subvention										
County	15.96%	$ 11,372,000	9.04%	$ 14,241,000	9.58%	$ 14,792,000	20.05%	$ 15,558,000	12.14%	$ 55,963,000
Districts	15.96%	$ 5,549,000	9.04%	$ 61,000	9.58%	$ 30,000	20.05%	$ 9,889,000	18.25%	$ 15,529,000
UAAL										
County	4.10%	$ 2,921,000	5.55%	$ 8,743,000	5.34%	$ 8,245,000	2.99%	$ 2,320,000	4.82%	$ 22,229,000
Districts	11.01%	$ 3,828,000	11.49%	$ 77,000	12.37%	$ 39,000	12.39%	$ 6,111,000	11.82%	$ 10,055,000
Total With 50% subvention										
County	20.06%	$ 14,293,000	14.59%	$ 22,984,000	14.92%	$ 23,037,000	23.04%	$ 17,878,000	16.97%	$ 78,192,000
Districts	26.97%	$ 9,377,000	20.53%	$ 138,000	21.95%	$ 69,000	32.44%	$ 16,000,000	30.07%	$ 25,584,000
Aggregate	22.32%	$ 23,670,000	14.61%	$ 23,122,000	14.93%	$ 23,106,000	26.69%	$ 33,878,000	19.01%	$ 103,776,000

Average Rate for Group with 50% Subvention= 19.01%
Annual Amount for the total group with 50% Subvention= $ 103,776,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

	General Tier 1	General Tier 2	General Tier 3	Safety	Total
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403	$ 460,797,510
District	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760	$ 85,078,425
Total	$ 106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163	$ 545,875,935
Refundability Factor	0.9917	0.8968	0.9932	0.9791	

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Funding Status

Evaluation of Funding Status

Background

The Association's funding status is measured as the ratio of its actuarial value of assets to a target value of assets. Following are the components of the funding status measure:

Funding Status Measure	Target Assets	Actual Assets	Purpose
Funding Ratio (GASB No. 25)	Actuarial Accrued Liability	Actuarial Value of Assets	Progress toward funding UAAL and Financial Disclosure

Funding Ratio – GASB No. 25

The GASB has issued two statements; Accounting for Pensions by State and Local Government Employers (GASB Statement No. 27); and Financial Reporting for Defined Benefit and Note Disclosures for Defined Contribution Plans (GASB Statement No. 25). Both of these statements require funding status to be measured based upon the actuarial funding method adopted by the Board of Retirement, i.e., the Entry Age Normal Funding Method. The target value of assets is equal to the Actuarial Accrued Liability (AAL) and the actual value of assets is the Actuarial Value of Assets.

The Association elected early implementation of GASB Statement No. 25, effective December 31, 1995.

The following table provides the GASB Statement No. 25 liabilities calculated for the years 1994 through 2001.

Actuarial Valuation Date	Actuarial Value of Assets [i] (a)	Actuarial Accrued Liability (AAL) - Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
12/31/1994	$1,428,466,000	$1,496,280,000	$67,814,000	95.5%	$340,478,000	19.9%
12/31/1995	$1,522,796,000	$1,632,227,000	$109,431,000	93.3%	$351,831,000	31.1%
12/31/1996	$1,629,592,000	$1,730,879,000	$101,287,000	94.1%	$353,738,000	28.6%
12/31/1997	$1,742,014,000	$1,983,394,000	$241,380,000	87.8%	$385,412,000	62.6%
12/31/1998	$1,868,521,000	$2,320,315,000	$451,794,000	80.5%	$411,748,000	109.7%
12/31/1999[ii]	$2,137,554,000	$2,433,614,000	$296,060,000	87.8%	$463,279,000	63.9%
12/31/2000	$2,355,179,000	$2,643,526,000	$288,347,000	89.1%	$488,384,000	59.0%
12/31/2001	$2,613,220,000	$2,983,551,000	$370,331,000	87.6%	$523,621,000	70.7%

(i) Excludes accounts payable. Restated to exclude non-valuation reserves.

(ii) Adjusted to reflect the Board's action to change the annual investment return assumption to 8.50% in March 2001.

Note that effective 12/31/2000, both the Actuarial Value of Assets and the Actuarial Accrued Liabilities have been adjusted to reflect the present value of future benefits payable after the Paulson Settlement.

Association Assets

The market value of assets and related financial information was provided to us by the Association staff. We have not audited or verified the financial statements.

	December 31, 2001	December 31, 2000	Percent Change
Market Value	$2,704,728,752	$2,931,261,880	-7.70%
Smoothed Market (Actuarial Value)	$3,090,177,077	$2,916,159,015	6.00%

The approximate rates of return on plan assets are shown below, based on the following analysis

		Market Value	Actuarial Value	Valuation Assets
Value of Assets at 12/31/2000	(1)	$2,931,261,880	$2,916,159,015	**$2,363,182,627**
Contributions:				
Employer*		$55,182,505	$55,182,505	$223,760,360
Members		18,681,239	18,681,239	18,681,239
Benefits Paid to Participants		167,801,125	167,801,125	167,801,125
Amount Transferred to CALPERS**		10,791,085	10,791,085	10,791,085
Expenses Paid		3,745,158	3,745,158	3,745,158
Investment Earnings		(118,059,504)	282,491,686	189,933,407
Value of Assets at 12/31/2001	(2)	**$2,704,728,752**	**$3,090,177,077**	**$2,613,220,265**
NET RATE OF RETURN (Net of Expenses)		**-4.23%**	**9.73%**	**7.92%**

* For valuation assets, includes Board transfers to provide for COLA benefits, Paulson liabilities and the Supplemental Cost-of-living Benefit Program.
** On November 9, 2001, this amount was transferred to CALPERS pursuant to the withdrawal of the City of Pittsburg from the CCCERA.

The 9.73% rate of return on the actuarial value of assets is greater than the 8.50% rate assumed for the prior year. The return on the valuation assets of 7.92% is lower than the 8.50% rate assumed for the prior year.

(1) Net of current liabilities of $112,335,026
(2) Net of current liabilities of $63,663,499

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Association Accounting Assets, Reserves and Other Liabilities As of December 31 2001

Assets (Market Values)

Cash and short term investments	$	129,733,427
Securities owned		2,271,167,939
Real Estate		267,431,185
Accrued interest, dividends, installment and rental receivables		6,707,927
Alternative Investments		50,652,596
Other investment receivables		39,954,132
Contributions receivable		1,827,024
Other receivables		92,276
Prepaid Expenses		252,117
Leasehold improvements, equipment and furniture less depreciation		573,628
TOTAL ASSETS	$	2,768,392,251

Reserves and Liabilities

Current liabilities	$	63,663,499
Member deposits		226,946,787
Employers advance reserve		558,650,009
Retired members' reserve		868,375,917
Cost-of-living reserve		741,107,125
Smoothed Market Value - Valuation Portion		114,581,216
Post retirement death benefit reserve		11,585,380
$ Power COL Supplement and Prefund		35,163,270
Restricted		
a. Statutory reserve		27,683,923
b. Board designated		
i. Contingency reserve		27,683,923
ii. Paulson Settlement Designation		53,087,977
iii. Excess Earnings from December 31, 1998		30,133,228
iv. Excess Earnings from December 31, 1999		188,291,500
v. Excess Earnings from December 31, 2000		98,407,865
c. Actuarial Transfer Designation		16,100,498
d. Retiree Health Benefit Transfer Designation		4,637,588
e. Total Restricted		446,026,502
Investment in fixed assets		0
Unrestricted		87,740,871
Market Stabilization Reserve		-385,448,325
TOTAL LIABILITIES	$	2,768,392,251

Note: The Paulson Settlement Designation has not been adjusted for the Paulson transfers.

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Actuarial Balance Sheet

The purpose of the Actuarial Balance Sheet is to compare assets with liabilities in order to define the portion of the liabilities which need to be funded by the Employer and Members in the future.

Association liabilities equal the present value of all future benefits expected to be paid to current and future pensioners and beneficiaries of the Association.

Association assets are equal to the sum of:

- the assets currently available to pay benefits,
- the present value of future contributions expected to be made by current active members, and
- the present value of future contributions expected to be made by the employer.

The last item, the present value of future employer contributions, is made up of two parts:

(1) The Present Value of *Future* Employer Normal Costs: Using the Entry Age Normal Cost Method, the employer budgets a certain percentage of payroll which will be sufficient to fund benefits for members from their entry into the Association. The Normal Cost is the level percentage of salary each year that is necessary to fund Members' benefits under the current benefit provisions. Normal Cost is funded from a Member's date of employment to the expected retirement date. An adjustment is made for the deductions which will be made from the future salaries of Association members. For this valuation, the Normal Costs are:

Member Category	Contribution Rate	Annual Amount
County and Districts		
General Tier 1	15.96%	$16,921,000
General Tier 2	9.04%	$14,302,000
General Tier 3	9.58%	$14,822,000
Safety	20.05%	$25,447,000

The present value of these future Employer Normal Cost contributions represents one piece of the present value of future employer contributions.

(2) The Unfunded Actuarial Accrued Liability: The portion of the present value of future employer contributions which will not be funded by the future Entry Age Normal Cost contributions is the Unfunded Actuarial Accrued Liability (UAAL). The UAAL (which can be negative) arises from accumulated prior contributions that were either less or more than the current Normal Cost. This usually results from benefits and assumption changes and the net effect of prior gains and losses. If the employer had always contributed the current Normal Cost, if there were no prior benefit or assumption changes and if actual experience exactly matched the actuarial assumptions, the Normal Cost would be sufficient to fund all benefits and there would be no UAAL.

For the current year, we have determined that the appropriate amounts needed to fund the UAAL are:

Member Category	Contribution Rate	Annual Amount*
County		
General Tier 1	4.10%	$2,921,000
General Tier 2	5.55%	$8,743,000
General Tier 3	5.34%	$8,245,000
Safety	2.99%	$2,320,000
Districts		
General Tier 1	11.01%	$3,828,000
General Tier 2	11.49%	$77,000
General Tier 3	12.37%	$39,000
Safety	12.39%	$6,111,000

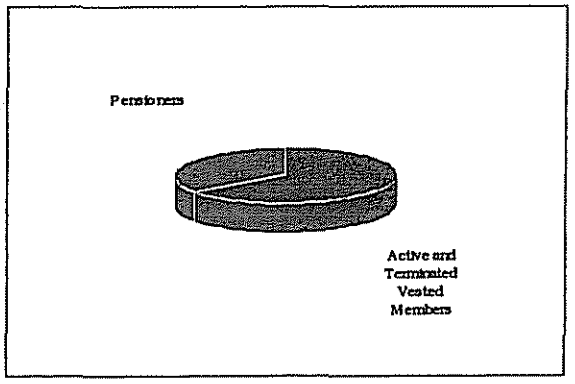
* Increases with inflation rate to remain as a level percentage of payroll for current and future members.

The following chart illustrates the breakdown of Balance Sheet assets and liabilities of the Association. It shows that 35% of the Association's liabilities are due to the retired members and their beneficiaries and 65% to active members. About 72% of Association assets consist of current available assets with 28% consisting of future contributions from the employer and the members.

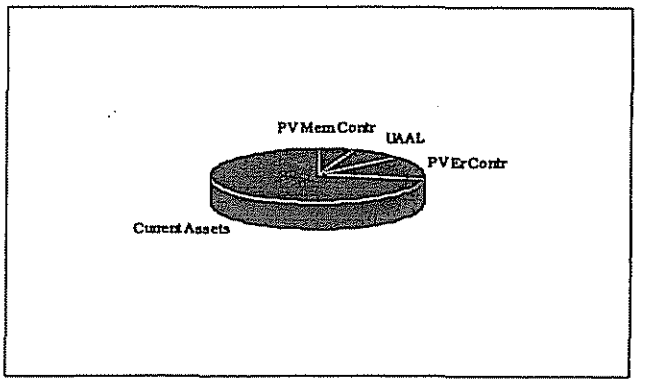
Chart 9

Actuarial Balance Sheet
As of December 31, 2001

LIABILITIES



ASSETS



Actuarial Balance Sheet*
(As Of December 31 2001)

ASSETS	Basic	COL	Total
1. Total Assets at Actuarial Value (gross of current liabilities)	$2,345,025,910	$808,814,666	$3,153,840,576
2. Present Value of Future Member Contributions	126,951,703	111,939,812	238,891,515
3. Present Value of Future Employer Contributions on Account of:			
a) Normal Cost	474,613,508	106,294,243	580,907,751
b) Contributions receivable from Employer to pay Paulson Liabilities	9,145,255	6,162,709	15,307,964
c) Unfunded Actuarial Accrued Liability	174,020,951	196,310,012	370,330,963
Total Actuarial Assets	$3,129,757,327	$1,229,521,442	$4,359,278,769
LIABILITIES			
5. Present Value of Retirement Allowances Payable	$898,275,493	$635,307,398	$1,533,582,891
6. Present Value of Retirement Allowances to be Granted for:			
a) Service Retirement	1,401,098,668	493,490,467	1,894,589,135
b) Disability Retirement	241,348,360	87,589,274	328,937,634
7. Present Value of Death Benefits to be Granted for:			
a) Lump Sum and Return of Contributions	0	0	0
b) Death While Eligible to Retire	22,012,606	7,960,557	29,973,163
c) Duty Death	3,961,723	1,474,701	5,436,424
8. Present Value of Members' Contributions to be Returned Upon Withdrawal Before Retirement	7,132,202	3,699,045	10,831,247
9. Post-Retirement Death Benefit	11,585,380	0	11,585,380
10. Unrestricted earnings	87,740,871	0	87,740,871
11. Miscellaneous liabilities and reserves			
a) Current liabilities	63,663,499	0	63,663,499
b) Statutory reserve	27,683,923	0	27,683,923
c) Board designated reserve:			
i) Contingency Reserve	27,683,923	0	27,683,923
ii) Excess Earnings from December 31, 1997, 1998 and 1999	316,832,593	0	316,832,593
iii) Facilities and System Enhancements	0	0	0
iv) Capital outlay reserve	0	0	0
v) Paulson Settlement Designation	0	0	0
d) Actuarial Transfer Designation	16,100,498	0	16,100,498
e) Retiree Health Benefit Transfer Designation	4,637,588	0	4,637,588
f) Fixed Assets	0	0	0
13. Total Actuarial Liabilities	$3,129,757,327	$1,229,521,442	$4,359,278,769

* *Based on 8.35% interest rate and an average 5.71% salary scale assumptions.*

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Funding History

It is informative to monitor the history of key actuarial and other financial results over time as a dynamic indicator of the Association's ongoing funding progress. The following exhibit provides a eleven-year history of the following items:

(1) Actuarial Accrued Liability (AAL)
(2) Actuarial Value of Assets
(3) Unfunded Actuarial Accrued Liability (UAAL)
(4) Funding Method Progress Ratio
(5) Investment Return Assumption
(6) Rate of Return on Actuarial Value of Assets
(7) Aggregate Employer Contribution Rate
(8) Aggregate Member Contribution Rate
(9) Total Contributions to the Association
(10) Benefit Payments
(11) Aggregate Contributions minus Benefit Payments
(12) Investment Income
(13) Aggregate Contributions plus Investment Income minus Benefit Payments

Contra Costa County Employees' Retirement Association Funding History

(All Dollars in 1,000's)

Actuarial Valuation Date	(1) AAL	(2) Actuarial Value of Assets	(3) UAAL	(4) (2)/(1) GASB 25 Funding Ratio	(5) Investment Return Assumption	(6) Net Return on Actuarial Value of Assets	(7) Employer Contribution Rate	(8) Average Member Contribution Rate	(9) Prior Year Total Contributions to Association	(10) Prior Year Benefit Payments	(11) Prior Year Free Cash Flow (9)-(10)	(12) Prior Year Cash Investment Income	(13) Prior Year Total Cash Flow (11)+(12)
12/31/1991	$1,224,534	$850,670	$373,864	69%	8.25%	12.31%	17.13%	4.71%	$55,947	$48,175	$7,772	$75,101	$82,873
12/31/1992	$1,362,694	$957,481	$405,213	70%	8.25%	12.67%	17.62%	4.66%	$60,588	$54,016	$6,572	$93,589	$100,161
12/31/1993[1]	$1,465,413	$1,343,113	$122,300	92%	8.00%	6.59%	11.40%[2]	4.61%	$55,831	$59,138	($3,307)	$113,909	$110,602
12/31/1994	$1,496,280	$1,428,466	$67,814	95%	8.00%	3.16%	12.62%	4.48%	$372,671[1]	$65,894	$306,777	$26,373	$333,150
12/31/1995	$1,632,227	$1,522,796	$109,431	93%	8.00%	11.28%	12.93%	4.53%	$49,062	$69,790	($20,728)	$119,579	$98,851
12/31/1996	$1,730,879	$1,629,592	$101,287	94%	8.00%	13.29%	12.76%	4.42%	$52,789	$80,264 [4]	($27,476)	$191,340	$163,865
12/31/1997	$1,983,394	$1,742,014	$241,380	88%	8.25%	16.14%	13.50%	4.54%	$46,063	$89,700 [4]	($43,637)	$230,978	$187,341
12/31/1998[3]	$2,320,315	$1,868,521	$451,794	81%	8.25%	17.84%	17.69%	5.20%	$52,630	$101,986 [4]	($49,356)	$337,754	$288,398
12/31/1999	$2,433,614	$2,137,554	$296,060	88%	8.50%	17.48%	17.41%	4.93%	$63,715	$110,002 [4]	($46,287)	$396,355	$350,068
12/31/2000[5]	$2,643,526	$2,355,179	$288,347	89%	8.50%	13.75%	17.50%	4.97%	$68,450	$147,653 [4]	($79,203)	$23,377	($55,826)
12/31/2001	$2,983,551	$2,613,220	$370,331	88%	8.35%	9.73%	19.01%	5.16%	$73,864	$167,801 [4]	($93,937)	($121,805)	($215,742)

(1) Includes $333,724 from Pension Obligation Bonds issued in 1994.
(2) Employer Contribution Rate excluding the pension obligation bonds is 19.17%.
(3) Includes initial recognition of Ventura pay elements, with terminal pay assumptions phased in over three years.
(4) Includes retiree health insurance payments.
(5) Reflects City of Pittsburg Termination

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CONTRA COSTA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

Solvency Test

	Aggregate Accrued Liability For (amounts in thousands)								
	(1)	(2)	(3)	(1)+(2)+(3)		Portion of Accrued Liability Covered by Reported Assets		
Valuation Date	Active Member Contributions	Retired Members and Beneficiaries	Vested Terminated and Active Members (Employer Financed Portion)	Total	Actuarial Value of Assets	(1)	(2)	(3)
12/31/1994	$ 166,906	$ 672,212	$ 657,162	$ 1,496,280	$1,428,466	100%	100%	90%
12/31/1995	$ 179,818	$ 790,640	$ 661,769	$ 1,632,227	$1,522,796	100%	100%	83%
12/31/1996	$ 193,790	$ 860,929	$ 676,160	$ 1,730,879	$1,629,592	100%	100%	85%
12/31/1997	$ 206,642	$ 944,701	$ 832,051	$ 1,983,394	$1,742,014	100%	100%	71%
12/31/1998	$ 210,483	$ 1,070,102	$ 1,039,720	$ 2,320,305	$1,868,521	100%	100%	57%
12/31/1999	$ 220,643	$ 1,189,931	$ 1,023,040	$ 2,433,614	$2,137,554	100%	100%	71%
12/31/2000	$ 235,308	$ 1,279,927	$ 1,128,291	$ 2,643,526	$2,355,179	100%	100%	74%
12/31/2001	$ 242,385	$ 1,533,583	$ 1,207,583	$ 2,983,551	$2,613,220	100%	100%	69%

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Special Studies

In conjunction with the December 31, 2001 valuation, the following special studies were requested by the Board and included in the following pages:

- **Results of Policy Application**

  Calculate the amounts required to carry out the Board's policy on the distributions of Unrestricted Earnings or Contingency Reserves.

- **Reduction in Contribution Rates**

  Calculate the amounts required to eliminate the employer and employee COLA contributions for one year.

The transfers required (and the Resultant Contribution rates) to reduce the employer and employee rates are provided in Tables A through F.

Table A
Summary of CCCERA Excess Earnings Policy Application
For New Contribution Rates Effective January 1, 2003
(For Entire Calendar Year)

		Transfer Assuming New Rates Effective January 1, 2003
Employee Transfer		
General Tier 1	$	3,082,000
General Tier 2		1,959,000
General Tier 3		3,008,000
Safety		4,903,000
Subtotal	$	12,952,000
Employer COLA Transfer (County)		
General Tier 1	$	5,266,000
General Tier 2		10,350,000
General Tier 3		10,330,000
Safety		7,977,000
Subtotal	$	33,923,000
Limited to Actual COLA Contribution	$	22,233,000
Employer COLA Transfer (District)		
General Tier 1	$	2,570,000
General Tier 2		44,000
General Tier 3		21,000
Safety		5,070,000
Subtotal	$	7,705,000
Employer Basic Transfer (County Only)		
General Tier 1	$	2,188,000
General Tier 2		3,307,000
General Tier 3		3,355,000
Safety		2,840,000
Subtotal	$	11,690,000
Total	$	54,580,000

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Table B

Employer Contribution Rates* With Board of Retirement Transfer**

(As a Percentage of Payroll)

BEFORE ADJUSTING COUNTY RATES TO PRE-POB CONDITION

For Year 2003

	Basic Without Employer Subvention	Basic With 50% Employer Subvention	COL Without Transfer	Net COL With Board of Retirement Transfer	Basic & COL with Board of Retirement Transfer
COUNTY					
General Tier 1	11.90%	14.70%	5.36%	0.00%	14.70%
General Tier 2	8.86%	10.05%	4.54%	0.00%	10.05%
General Tier 3	7.17%	10.40%	4.52%	0.00%	10.40%
Safety	13.80%	17.52%	5.52%	0.00%	17.52%
Total	9.60%	12.14%	4.82%	0.00%	12.14%
DISTRICTS					
General Tier 1	16.78%	19.58%	7.39%	0.00%	19.58%
General Tier 2	12.77%	13.96%	6.57%	0.00%	13.96%
General Tier 3	12.03%	15.26%	6.69%	0.00%	15.26%
Safety	18.44%	22.16%	10.28%	0.00%	22.16%
Total	17.69%	21.02%	9.06%	0.00%	21.02%

Annual Contribution Amount**

COUNTY					
General Tier 1	$ 8,479,000	$ 10,474,000	$ 3,819,000	$ -	$ 10,474,000
General Tier 2	$ 13,958,000	$ 15,832,000	$ 7,152,000	$ -	$ 15,832,000
General Tier 3	$ 11,071,000	$ 16,059,000	$ 6,979,000	$ -	$ 16,059,000
Safety	$ 10,708,000	$ 13,595,000	$ 4,283,000	$ -	$ 13,595,000
Subtotal	$ 44,216,000	$ 55,960,000	$ 22,233,000	$ -	$ 55,960,000
DISTRICTS					
General Tier 1	$ 5,834,000	$ 6,808,000	$ 2,570,000	$ -	$ 6,808,000
General Tier 2	$ 86,000	$ 94,000	$ 44,000	$ -	$ 94,000
General Tier 3	$ 37,000	$ 48,000	$ 21,000	$ -	$ 48,000
Safety	$ 9,095,000	$ 10,930,000	$ 5,070,000	$ -	$ 10,930,000
Subtotal	$ 15,052,000	$ 17,880,000	$ 7,705,000	$ -	$ 17,880,000
Total	$ 59,268,000	$ 73,840,000	$ 29,938,000	$ -	$ 73,840,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

	General Tier 1	General Tier 2	General Tier 3	Safety	Total
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403	$ 460,797,510
Districts	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760	$ 85,078,425
Total	$ 106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163	$ 545,875,935

* Based on 8.35% investment return assumption and 5.71% salary scale.

** Assumes contribution rates effective January 1, 2003.

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Table C

Employer Contribution Rates* With Board of Retirement Transfer**
(As a Percentage of Payroll)
AFTER ADJUSTING COUNTY RATES TO PRE-POB CONDITION
For Year 2003

	Basic Without Employer Subvention	Basic With 50% Employer Subvention	COL Without Transfer	Net COL With Board of Retirement Transfer	Basic & COL with Board of Retirement Transfer
COUNTY					
General Tier 1	16.78%	19.58%	7.39%	0.00%	19.58%
General Tier 2	12.77%	13.96%	6.57%	0.00%	13.96%
General Tier 3	12.03%	15.26%	6.69%	0.00%	15.26%
Safety	18.44%	22.16%	10.28%	0.00%	22.16%
Total	14.10%	16.65%	7.36%	0.00%	16.65%
DISTRICTS					
General Tier 1	16.78%	19.58%	7.39%	0.00%	19.58%
General Tier 2	12.77%	13.96%	6.57%	0.00%	13.96%
General Tier 3	12.03%	15.26%	6.69%	0.00%	15.26%
Safety	18.44%	22.16%	10.28%	0.00%	22.16%
Total	17.69%	21.02%	9.06%	0.00%	21.02%

Annual Contribution Amount**

COUNTY					
General Tier 1	$ 11,957,000	$ 13,952,000	$ 5,266,000	$ -	$ 13,952,000
General Tier 2	$ 20,117,000	$ 21,992,000	$ 10,350,000	$ -	$ 21,992,000
General Tier 3	$ 18,576,000	$ 23,563,000	$ 10,330,000	$ -	$ 23,563,000
Safety	$ 14,309,000	$ 17,195,000	$ 7,977,000	$ -	$ 17,195,000
Subtotal	$ 64,959,000	$ 76,702,000	$ 33,923,000	$ -	$ 76,702,000
DISTRICTS					
General Tier 1	$ 5,834,000	$ 6,808,000	$ 2,570,000	$ -	$ 6,808,000
General Tier 2	$ 86,000	$ 94,000	$ 44,000	$ -	$ 94,000
General Tier 3	$ 37,000	$ 48,000	$ 21,000	$ -	$ 48,000
Safety	$ 9,095,000	$ 10,930,000	$ 5,070,000	$ -	$ 10,930,000
Subtotal	$ 15,052,000	$ 17,880,000	$ 7,705,000	$ -	$ 17,880,000
Total	$ 80,011,000	$ 94,582,000	$ 41,628,000	$ -	$ 94,582,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

	General Tier 1	General Tier 2	General Tier 3	Safety	Total
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403	$ 460,797,510
Districts	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760	$ 85,078,425
Total	$106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163	$ 545,875,935

* Based on 8.35% investment return assumption and 5.71% salary scale.
** Assumes contribution rates effective January 1, 2003.

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Table D

Employee Contribution Rates* With Board of Retirement Transfer**

(As a Percentage of Payroll)

For Year 2003

	Basic Without Employer Subvention	Basic With 50% Employer Subvention	COL Without Transfer	Net COL With Board of Retirement Transfer	Basic & COL with County & Board of Retirement Transfer
General Tier 1	5.65%	2.82%	2.93%	0.00%	2.82%
General Tier 2	2.66%	1.33%	1.38%	0.00%	1.33%
General Tier 3	6.52%	3.26%	1.96%	0.00%	3.26%
Safety	7.60%	3.80%	3.95%	0.00%	3.80%
Total	5.48%	2.74%	2.44% ***	0.00%	2.74%
			Annual Contribution Amount**		
General Tier 1	$ 5,986,000	$ 2,993,000	$ 3,108,000	$ -	$ 2,993,000
General Tier 2	$ 4,208,000	$ 2,104,000	$ 2,185,000	$ -	$ 2,104,000
General Tier 3	$ 10,088,000	$ 5,044,000	$ 3,029,000	$ -	$ 5,044,000
Safety	$ 9,646,000	$ 4,823,000	$ 5,008,000	$ -	$ 4,823,000
Total	$ 29,928,000	$ 14,964,000	$ 13,330,000 ***	$ -	$ 14,964,000

Based on 12/31/2001 annual salaries adjusted for inflation to 12/31/2002:

	General Tier 1	General Tier 2	General Tier 3	Safety	Total
County	$ 71,254,875	$ 157,536,345	$ 154,409,888	$ 77,596,403	$ 460,797,510
Districts	$ 34,770,503	$ 673,455	$ 311,708	$ 49,322,760	$ 85,078,425
Total	$106,025,378	$ 158,209,800	$ 154,721,595	$ 126,919,163	$ 545,875,935

* Based on 8.35% investment return assumption and 5.71% salary scale.

** Transfer amount on refundable basis. Assumes adoption of rates effective on January 1, 2003

*** Transfer amount on nonrefundable basis is: $12,952,000

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Table E - Components of Employer Contribution Rates Before COLA Transfer

From December 31, 2001 Valuation - For Year 2003
4.25%, 8.35% Interest and 5.71% Salary Scale Assumptions

	County					Districts				
	Normal Cost	+	UAAL	=	Total	Normal Cost	+	UAAL	=	Total
General Tier 1 (Aggregate)										
Basic	10.49%		1.41%		11.90%	10.49%		6.29%		16.78%
Subvention	2.80%		0.00%		2.80%	2.80%		0.00%		2.80%
Basic + Subvention	13.29%		1.41%		14.70%	13.29%		6.29%		19.58%
COL	2.67%		2.69%		5.36%	2.67%		4.72%		7.39%
Total	15.96%		4.10%		20.06%	15.96%		11.01%		26.97%
General Tier 1 (Under $350)										
Basic	7.15%		0.97%		8.12%	7.15%		4.30%		11.45%
Subvention	1.90%		0.00%		1.90%	1.90%		0.00%		1.90%
Basic + Subvention	9.05%		0.97%		10.02%	9.05%		4.30%		13.35%
COL	1.83%		1.82%		3.65%	1.83%		3.22%		5.05%
Total	10.88%		2.79%		13.67%	10.88%		7.52%		18.40%
General Tier 1 (Over $350)										
Basic	10.72%		1.45%		12.17%	10.72%		6.44%		17.16%
Subvention	2.86%		0.00%		2.86%	2.86%		0.00%		2.86%
Basic + Subvention	13.58%		1.45%		15.03%	13.58%		6.44%		20.02%
COL	2.74%		2.74%		5.48%	2.74%		4.83%		7.57%
Total	16.32%		4.19%		20.51%	16.32%		11.27%		27.59%
General Tier 2										
Basic	6.00%		2.86%		8.86%	6.00%		6.77%		12.77%
Subvention	1.19%		0.00%		1.19%	1.19%		0.00%		1.19%
Basic + Subvention	7.19%		2.86%		10.05%	7.19%		6.77%		13.96%
COL	1.85%		2.69%		4.54%	1.85%		4.72%		6.57%
Total	9.04%		5.55%		14.59%	9.04%		11.49%		20.53%
Safety										
Basic	12.98%		0.82%		13.80%	12.98%		5.46%		18.44%
Subvention	3.72%		0.00%		3.72%	3.72%		0.00%		3.72%
Basic + Subvention	16.70%		0.82%		17.52%	16.70%		5.46%		22.16%
COL	3.35%		2.17%		5.52%	3.35%		6.93%		10.28%
Total	20.05%		2.99%		23.04%	20.05%		12.39%		32.44%

Table E (Continued) - Components of Employer Contribution Rates
Before COLA Transfer
From December 31, 2001 Valuation - For Year 2003
4.25%, 8.35% Interest and 5.71% Salary Scale Assumptions

	County					Districts				
	Normal Cost	+	UAAL	=	Total	Normal Cost	+	UAAL	=	Total
General Tier 3 (Aggregate)										
Basic	4.52%		2.65%		7.17%	4.52%		7.51%		12.03%
Subvention	3.23%		0.00%		3.23%	3.23%		0.00%		3.23%
Basic + Subvention	7.75%		2.65%		10.40%	7.75%		7.51%		15.26%
COL	1.83%		2.69%		4.52%	1.83%		4.86%		6.69%
Total	9.58%		5.34%		14.92%	9.58%		12.37%		21.95%
General Tier 3 (Under $350)										
Basic	3.08%		1.82%		4.90%	3.08%		5.13%		8.21%
Subvention	2.20%		0.00%		2.20%	2.20%		0.00%		2.20%
Basic + Subvention	5.28%		1.82%		7.10%	5.28%		5.13%		10.41%
COL	1.25%		1.83%		3.08%	1.25%		3.32%		4.57%
Total	6.53%		3.65%		10.18%	6.53%		8.45%		14.98%
General Tier 3 (Over $350)										
Basic	4.62%		2.72%		7.34%	4.62%		7.69%		12.31%
Subvention	3.30%		0.00%		3.30%	3.30%		0.00%		3.30%
Basic + Subvention	7.92%		2.72%		10.64%	7.92%		7.69%		15.61%
COL	1.88%		2.75%		4.63%	1.88%		4.98%		6.86%
Total	9.80%		5.47%		15.27%	9.80%		12.67%		22.47%

Table F - Components of Employer Contribution Rates
Components of County Contribution Rates
Before and After Retirement Board Basic and COLA Transfers

From December 31, 2001 Valuation - For Year 2003
4.25%, 8.35% Interest and 5.71% Salary Scale Assumptions

	County (Before Basic & COLA Transfers)						County (After Basic & COLA Transfers)					
	Normal Cost	+	UAAL	=	Total		Normal Cost	+	UAAL	=	Total	
General Tier 1 (Aggregate)												
Basic	10.49%		1.41%		11.90%		7.71%		1.12%		8.83%	
Subvention	2.80%		0.00%		2.80%		2.80%		0.00%		2.80%	
Basic + Subvention	13.29%		1.41%		14.70%		10.51%		1.12%		11.63%	
COL	2.67%		2.69%		5.36%		0.00%		0.00%		0.00%	
Total	15.96%		4.10%		20.06%		10.51%		1.12%		11.63%	
General Tier 1 (Under $350)												
Basic	7.15%		0.97%		8.12%		5.26%		0.77%		6.03%	
Subvention	1.90%		0.00%		1.90%		1.90%		0.00%		1.90%	
Basic + Subvention	9.05%		0.97%		10.02%		7.16%		0.77%		7.93%	
COL	1.83%		1.82%		3.65%		0.00%		0.00%		0.00%	
Total	10.88%		2.79%		13.67%		7.16%		0.77%		7.93%	
General Tier 1 (Over $350)												
Basic	10.72%		1.45%		12.17%		7.88%		1.15%		9.03%	
Subvention	2.86%		0.00%		2.86%		2.86%		0.00%		2.86%	
Basic + Subvention	13.58%		1.45%		15.03%		10.74%		1.15%		11.89%	
COL	2.74%		2.74%		5.48%		0.00%		0.00%		0.00%	
Total	16.32%		4.19%		20.51%		10.74%		1.15%		11.89%	
General Tier 2												
Basic	6.00%		2.86%		8.86%		4.50%		2.26%		6.76%	
Subvention	1.19%		0.00%		1.19%		1.19%		0.00%		1.19%	
Basic + Subvention	7.19%		2.86%		10.05%		5.69%		2.26%		7.95%	
COL	1.85%		2.69%		4.54%		0.00%		0.00%		0.00%	
Total	9.04%		5.55%		14.59%		5.69%		2.26%		7.95%	
Safety												
Basic	12.98%		0.82%		13.80%		9.49%		0.65%		10.14%	
Subvention	3.72%		0.00%		3.72%		3.72%		0.00%		3.72%	
Basic + Subvention	16.70%		0.82%		17.52%		13.21%		0.65%		13.86%	
COL	3.35%		2.17%		5.52%		0.00%		0.00%		0.00%	
Total	20.05%		2.99%		23.04%		13.21%		0.65%		13.86%	

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Table F (Continued) - Components of Employer Contribution Rates
Components of County Contribution Rates
Before and After Retirement Board Basic and COLA Transfers
From December 31, 2001 Valuation - For Year 2003
4.25%, 8.35% Interest and 5.71% Salary Scale Assumptions

	County (Before Basic & COLA Transfers)				County (After Basic & COLA Transfers)			
	Normal Cost	+	UAAL	= Total	Normal Cost	+	UAAL	= Total
General Tier 3 (Aggregate)								
Basic	4.52%		2.65%	7.17%	2.90%		2.10%	5.00%
Subvention	3.23%		0.00%	3.23%	3.23%		0.00%	3.23%
Basic + Subvention	7.75%		2.65%	10.40%	6.13%		2.10%	8.23%
COL	1.83%		2.69%	4.52%	0.00%		0.00%	0.00%
Total	9.58%		5.34%	14.92%	6.13%		2.10%	8.23%
General Tier 3 (Under $350)								
Basic	3.08%		1.82%	4.90%	1.98%		1.44%	3.42%
Subvention	2.20%		0.00%	2.20%	2.20%		0.00%	2.20%
Basic + Subvention	5.28%		1.82%	7.10%	4.18%		1.44%	5.62%
COL	1.25%		1.83%	3.08%	0.00%		0.00%	0.00%
Total	6.53%		3.65%	10.18%	4.18%		1.44%	5.62%
General Tier 3 (Over $350)								
Basic	4.62%		2.72%	7.34%	2.97%		2.15%	5.12%
Subvention	3.30%		0.00%	3.30%	3.30%		0.00%	3.30%
Basic + Subvention	7.92%		2.72%	10.64%	6.27%		2.15%	8.42%
COL	1.88%		2.75%	4.63%	0.00%		0.00%	0.00%
Total	9.80%		5.47%	15.27%	6.27%		2.15%	8.42%

Appendices

Appendix A Major Provisions of the Pension Plan

Major Provisions of the Present System
Benefit Sections 31676.11, 31676.16, 31751, 31664, and 31664.1
of the 1937 County Act

Briefly summarized below are the major provisions of the County Employees Retirement Law of 1937, as amended through December 31, 2001, and as adopted by Contra Costa County and special district employees.

A. GENERAL MEMBERS[1]

Tier 1 and Tier 3 Plans (Section 31676.11) San Ramon Fire Protection District (Section 31676.16)	Tier 2 Plan (Section 31751)
Coverage	
Tier 1:	
All General members hired before August 1, 1980 and electing not to transfer to Tier 2 Plan	All General members hired on or after August 1, 1980 and all General members hired before August 1, 1980 electing to transfer to the Tier 2 Plan
Tier 3:	
Tier 2 members can elect Tier 3 coverage (for future service) effective on the later of: • October 1, 1998 or • The day after achieving 5 years of service	
San Ramon Fire Protection District (Section 31676.16):	
All General employees of the San Ramon Fire Protection District.	
Final Average Salary (FAS)	
One year final average salary	Three year final average salary
Service Retirement	
Requirement	Requirement
Age 50 and 10 years of service, or with 30 years of service regardless of age.	Age 50 and 10 years of service, or with 30 years of service regardless of age.
Benefit (Section 31676.11)	Benefit

Retirement

Age	Benefit Formula
50	(1.24%xFAS-1/3x1.24%x$350)xYrs.
55	(1.67%xFAS-1/3x1.67%x$350)xYrs.
60	(2.18%xFAS-1/3x2.18%x$350)xYrs.
62	(2.35%xFAS-1/3x2.35%x$350)xYrs.
65	(2.61%xFAS-1/3x2.61%x$350)xYrs.

Maximum Benefit 100% of FAS

Retirement

Age	Benefit Formula
50	(0.83%xFASxYrs.-0.57%xYrs.*xPIA)
55	(1.13%xFASxYrs.-0.87%xYrs.*xPIA)
60	(1.43%xFASxYrs.-1.37%xYrs.*xPIA)
62	(1.55%xFASxYrs.-1.67%xYrs.*xPIA)
65	(1.73%xFASxYrs.-1.67%xYrs.*xPIA)

* Not greater than 30 years, where PIA is the Social Security Primary Insurance Amount.

[1] *San Ramon Fire Protection District has already adopted improved benefits for their General and Safety Members under 2% at 55 and 3% at 50 formulas, respectively.*

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Tier 1 and Tier 3 Plans (Section 31676.11)
San Ramon Fire Protection District
(Section 31676.16)

Tier 2 Plan (Section 31751)

Benefit (Section 31676.16)

Retirement Age	Benefit Formula
50	(1.43%xFAS–1/3x1.43%x$350)xYRS
55	(2.00%xFAS-1/3x2.00%x$350)xYRS
60	(2.26%xFAS-1/3x2.26%x$350)xYRS
62	(2.37%xFAS-1/3x2.37%x$350)xYRS
65	(2.42%xFAS-1/3x2.42%x$350)xYRS

Maximum Benefit –100% of FAS

Disability Retirement

Tier 1 and San Ramon Fire Protection District:

Requirements

(1) Service-connected: None

(2) Nonservice-connected: five years of service

Benefit

(1) Service-connected. 50% FAS or Service Retirement benefit, if greater.

(2) Nonservice-connected. 1-1/2% x FAS x years of service. If the benefit does not exceed one-third of FAS, the service is projected to 65, but total benefit cannot be more than one-third of FAS.

Tier 3:

Tier 3 and Tier 2 disability benefits are identical.

Requirements

(1) Service-connected: None

(2) Nonservice-connected: ten years of service

(3) Definition of disability is more strict than in Tier 1 Plan

Benefit

(1) Service-connected or nonservice-connected is 40% FAS plus 10% FAS for each minor child (maximum of three).

(2) Disability benefits are offset by other plans of the County except Workers Compensation and Social Security.

Death Before Retirement

Before eligible to retire for disability (Less than five years).

(1) One month's salary for each year of service

(2) Return of contributions

While eligible to retire (after five years) 60% of Service or Disability Retirement Benefit. Generally the benefit is 20% of FAS.

Line of duty death - 50% of FAS

Before eligible to retire (less than ten years).

(1) $2,000 lump sum benefit offset by any Social Security payment

(2) Return of contributions

While eligible to retire (ten years or service-connected death) 60% of Service or Disability Retirement Benefit (minimum benefit is 24% of FAS) plus, for each minor child, 20% of the allowance otherwise paid to the member. Minimum family benefit is 60% of the member's allowance. Maximum family benefit is 100% of member's allowance.

Tier 1 and Tier 3 Plans (Section 31676.11) San Ramon Fire Protection District (Section 31676.16)	Tier 2 Plan (Section 31751)
Death After Retirement	
After Service Retirement or Nonservice-Connected Disability - 60% of the allowance continued to the spouse or to minor children	After Service or Disability Retirement (1) 60% of allowance continued to spouse plus 20% of allowance to each minor child. Minimum benefit is 60% of allowance. Maximum benefit is 100% of allowance.
After Service-Connected Disability - 100% of the allowance continued to the spouse or to minor children	(2) Lump sum payment of $3,000 less any Social Security Lump sum payment
Lump sum payment of $1,000	
Withdrawal Benefits	
If less than five years of service, return of contributions	If less than five years of service, return of contributions
If greater than five years of service, right to have vested deferred retirement benefit	If greater than five years of service, right to have vested deferred retirement benefit
Cost of Living Benefit	
3% maximum change per year except for Tier 3 disability benefits which can increase 4% per year	4% maximum change per year
Employees' Contribution[1] Rates	
Basic - to provide for 1/2 of the Section 31676.11 benefit at age 55	40% of the full Section 31676.11 employee contribution rate
COL - to pay for 1/2 of future COL costs	COL - to pay for 1/2 of future COL costs
Employer Contribution Rates	
Enough to make up for the balance of the basic and COL contributions needed	Enough to make up the balance of the basic and COL contributions needed

Transfers from the Tier 1 Plan to the Tier 2 Plan were made on an individual voluntary irrevocable basis. Credit is given under the Tier 2 Plan for future service only. The COL maximum is 4% only for the credit under the Tier 2 Plan. Transferred Tier 2 Plan members keep the five year requirement for nonservice-connected disability. Those who were members before April 1, 1973 will be exempt from paying member contributions after 30 years of service.

[1] *We are working with the Retirement Association in developing the assumptions required to determine contribution rates for the enhanced 2% at 55 benefits. Members of San Ramon Fire Protection District will continue to pay the contribution rates determined for Tier 1 formula until new contribution rates for the enhanced 2% at 55 benefits are developed.*

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B. SAFETY MEMBERS

Coverage
All Safety members

Final Average Salary (FAS)
One year final average salary

Service Retirement
Requirement
Age 50 and 10 years of service, or with 20 years of service, or with 20 years of service regardless of age.

Benefit at Retirement (Section 31664)- (for all members except employees from San Ramon Fire Protection District)

Age	Benefit Formula
50	2.00% x FAS x Yrs.
55	2.62% x FAS x Yrs.
60	2.62% x FAS x Yrs.

For Employees of San Ramon Fire Protection District (Section 31664.1

Age	Benefit Formula
50	3.00% x FAS x Yrs.
55	3.00% x FAS x Yrs.
60	3.00% x FAS x Yrs.

Maximum Benefit: 100% of FAS

Disability Retirement
Requirements
(1) Service-connected: None
(2) Nonservice-connected: five years of service

Benefit
(1) Service-connected. 50% FAS or Service Retirement benefit if greater
(2) Nonservice-connected. 1.8% x FAS x years of service. Future service years projected to age 55. Generally leads to 1/3 FAS benefit.

Death Before Retirement
Before eligible to retire (less than five years)
(1) One month's salary for each year of service
(2) Return of contributions

While eligible to retire (after five years). 60% of Service or Disability Retirement Benefit. Generally the benefit is 20% of FAS

Line of duty death - 50% of FAS

Death After Retirement
After Service Retirement or Nonservice-Connected Disability - 60% of the allowance continued to the spouse or to minor children

After Service-Connected Disability - 100% of the allowance continued to the spouse or to minor children

Lump sum payment of $1,000

Withdrawal Benefits
If less than five years of service, return of contribution

If greater than five years of service, right to have vested deferred retirement benefit

Cost of Living Benefit
3% maximum change per year

Employees' Contribution Rates
Basic[1] - to provide for 1/2 of the Section 31664 benefit at age 50
COL - to pay for 1/2 of future COL costs

Employer Contribution Rate
Enough to make for the balance and COL costs

[1] *We are working with the Retirement Association in developing the assumptions required to determine contribution rates for the enhanced 3% at 50 benefit.*

Members for San Ramon Fire Protection District will continue to pay the contribution rates determined for Safety members under Section 31664 formula until new contribution rates for the enhanced 3% at 50 benefit are developed.

Appendix B Summary of Assumptions and Funding Methods

Assumptions Previously Adopted By the Board

Valuation Interest Rate	8.35%
Inflation Assumption	4.25%
Interest Rate Credited to Active Member Accounts	8.35%

Post-Retirement Mortality

(a) Service

General Tier 1, Tier 2, and Tier 3

Males	1994 Group Annuity Mortality Table (also known as the UP-94 Mortality Table) set back 1 year (Male)
Females	1994 Group Annuity Mortality Table (also known as the UP-94 Mortality Table) set forward 1 year (Female)

Safety

Members	1994 Group Annuity Mortality Table (also known as the UP-94 Mortality Table) set forward 1 year (Male)
Beneficiaries	1994 Group Annuity Mortality Table (also known as the UP-94 Mortality Table) set forward 1 year (Female)

(b) Disability

General Tier 1, Tier 2, and Tier 3	1981 General Disability Mortality Table set back 3 years
Safety	1981 Safety Disability Mortality Table

(c) For Employee Contribution Rate Purposes	1994 Group Annuity Mortality Table (also known as the UP-94 Mortality Table) (Male) set back three years for General Members 1994 Group Annuity Mortality Table (also known as the UP-94 Mortality Table) (Male) set forward one year for Safety Members
(d) For Optional Benefit Purposes	1994 Group Annuity Mortality Table (also known as the UP-94 Mortality Table) with a three year setback (Male)
Pre-Retirement Mortality	Based upon the Experience Analysis as of 12/31/2000
Withdrawal Rates	Based upon the Experience Analysis as of 12/31/2000
Disability Rates	Based upon the Experience Analysis as of 12/31/2000
Service Retirement Rates	Based upon the Experience Analysis as of 12/31/2000
Marriage Assumption at Retirement	80% for male members 55% for female members
Value of Assets for Contribution Rate Purposes	Actuarial Value as described in Actuarial Valuation Methods Section
Election for Tier 3 Membership	Assumes 75% of all eligible Tier 2 members will elect Tier 3 membership after five years of service.

Funding Method

The employer's liability is being funded on the Entry Age Normal Method with an Unfunded Actuarial Accrued Liability (UAAL). The current amortization period for the UAAL is 16 years as of December 31, 2001.

Terminal Pay Assumptions

Based on the following analysis, the Board adopted our recommendation to use a higher terminal pay assumption for members in General Tier 1 and a lower terminal pay assumption for members in General Tier 3.

The assumptions used in previous valuations are also shown in the table below.

Contra Costa County Employees Retirement Association

Evaluation of Terminal Pay Percentages for Recent Retirees

1. Number of Retirees

	Date of Retirement				
	10/1/1997 to 12/31/1997	1998	1999	2000	2001
General Tier 1	21	156	153	140	167
General Tier 2	17	59	78	66	101
General Tier 3			39	45	64
Safety	8	67	78	54	56
Total	46	282	348	305	388

2. Average Years of Service

	Date of Retirement					Average[1]
	10/1/1997 to 12/31/1997	1998	1999	2000	2001	10/1/1997 to 12/31/2001
General Tier 1	20	23	25	24	23	23.6
General Tier 2	13	13	14	14	14	13.8
General Tier 3			14	15	15	14.7
Safety	26	24	25	24	22	23.9

3. Equivalent Vacation Weeks Added to Final Average Pay

	Date of Retirement					Average[1]	Theoretical[2]
	10/1/1997 to 12/31/1997	1998	1999	2000	2001	10/1/1997 to 12/31/2001	Maximum For Non-Mgmt
General Tier 1	3.54	4.39	6.13	6.16	5.40	5.44	5
General Tier 2	2.28	2.34	3.49	4.06	3.48	3.33	3
General Tier 3			3.35	3.42	3.07	3.25	3
Safety	3.82	5.5	6.33	6.30	5.27	5.81	5

4. Terminal Pay as a % of Final Average Pay

	Date of Retirement					Average[1]	Assumptions Used in	Proposed
	10/1/1997 to 12/31/1997[3]	1998[3]	1999	2000	2001	10/1/1997 to 12/31/2001	1999 & 2000 Valuations	Assumptions for 12/31/2001
General Tier 1	5.71%	9.68%	13.23%	13.39%	12.16%	11.87%	11.07%	11.47%
General Tier 2	3.99%	3.12%	3.33%	4.93%	2.48%	3.39%	3.32%	3.32%
General Tier 3			7.99%	10.39%	5.40%	7.60%	9.40%	8.50%
Safety	7.15%	11.12%	12.70%	13.12%	10.62%	11.77%	11.72%	11.72%

(1) Weighted by number of retirees.

(2) Based on County Vacation Schedule (In Weeks) for Non-Management Employees:

Years of Service	# Of Weeks
Less than 15	3
15-19	4
20-24	5
25-29	6
30+	7

(3) Recalculated based on most recent data provided by CCCERA.

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Exhibit I

PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT

General Male Members - Tier 1

Age	With(0<Svc<1)	With(1<Svc<2)	With(2<Svc<3)	With(3<Svc<4)	With(4<Svc<5)	With(Svc>5)	Vested Term	Ord. Disab	Duty Disab	Ord. Dth	Duty Dth	Svc Ret
<= 20	0.1500	0.1000	0.1000	0.1000	0.1000	0.0412	0.0014	0.0000	0.0005	0.0002	0.0001	0.0000
21	0.1500	0.1000	0.1000	0.1000	0.1000	0.0399	0.0022	0.0000	0.0006	0.0002	0.0001	0.0000
22	0.1500	0.1000	0.1000	0.1000	0.1000	0.0389	0.0028	0.0000	0.0007	0.0002	0.0001	0.0000
23	0.1500	0.1000	0.1000	0.1000	0.1000	0.0379	0.0052	0.0000	0.0008	0.0002	0.0001	0.0000
24	0.1500	0.1000	0.1000	0.1000	0.1000	0.0372	0.0081	0.0000	0.0009	0.0002	0.0001	0.0000
25	0.1500	0.0750	0.0750	0.0750	0.0750	0.0350	0.0119	0.0004	0.0010	0.0002	0.0001	0.0000
26	0.1500	0.0750	0.0750	0.0750	0.0750	0.0328	0.0162	0.0004	0.0011	0.0002	0.0001	0.0000
27	0.1500	0.0750	0.0750	0.0750	0.0750	0.0305	0.0200	0.0004	0.0012	0.0002	0.0001	0.0000
28	0.1500	0.0750	0.0750	0.0750	0.0750	0.0283	0.0250	0.0006	0.0012	0.0002	0.0001	0.0000
29	0.1500	0.0750	0.0750	0.0750	0.0750	0.0261	0.0300	0.0006	0.0013	0.0002	0.0001	0.0000
30	0.1500	0.0600	0.0600	0.0600	0.0600	0.0239	0.0350	0.0008	0.0013	0.0003	0.0001	0.0000
31	0.1500	0.0600	0.0600	0.0600	0.0600	0.0217	0.0400	0.0008	0.0013	0.0003	0.0001	0.0000
32	0.1500	0.0600	0.0600	0.0600	0.0600	0.0194	0.0450	0.0008	0.0014	0.0003	0.0001	0.0000
33	0.1500	0.0600	0.0600	0.0600	0.0600	0.0172	0.0450	0.0007	0.0015	0.0003	0.0001	0.0000
34	0.1500	0.0600	0.0600	0.0600	0.0600	0.0150	0.0450	0.0007	0.0016	0.0004	0.0001	0.0000
35	0.1500	0.0500	0.0500	0.0500	0.0500	0.0128	0.0450	0.0008	0.0020	0.0004	0.0001	0.0000
36	0.1500	0.0500	0.0500	0.0500	0.0500	0.0117	0.0425	0.0008	0.0021	0.0004	0.0001	0.0000
37	0.1500	0.0500	0.0500	0.0500	0.0500	0.0105	0.0400	0.0008	0.0022	0.0004	0.0001	0.0000
38	0.1500	0.0500	0.0500	0.0500	0.0500	0.0095	0.0375	0.0013	0.0023	0.0005	0.0001	0.0000
39	0.1500	0.0500	0.0500	0.0500	0.0500	0.0085	0.0350	0.0015	0.0024	0.0005	0.0001	0.0000
40	0.1500	0.0450	0.0450	0.0450	0.0450	0.0058	0.0325	0.0016	0.0026	0.0006	0.0001	0.0000
41	0.1500	0.0450	0.0450	0.0450	0.0450	0.0054	0.0300	0.0017	0.0027	0.0006	0.0001	0.0000
42	0.1500	0.0450	0.0450	0.0450	0.0450	0.0049	0.0275	0.0018	0.0028	0.0007	0.0001	0.0000
43	0.1500	0.0450	0.0450	0.0450	0.0450	0.0045	0.0250	0.0019	0.0029	0.0007	0.0001	0.0000
44	0.1500	0.0450	0.0450	0.0450	0.0450	0.0041	0.0225	0.0020	0.0030	0.0008	0.0001	0.0000
45	0.1500	0.0350	0.0350	0.0350	0.0350	0.0025	0.0200	0.0021	0.0031	0.0008	0.0001	0.0000
46	0.1500	0.0350	0.0350	0.0350	0.0350	0.0022	0.0150	0.0022	0.0032	0.0009	0.0001	0.0000
47	0.1500	0.0350	0.0350	0.0350	0.0350	0.0020	0.0125	0.0023	0.0033	0.0009	0.0001	0.0000
48	0.1500	0.0350	0.0350	0.0350	0.0350	0.0018	0.0100	0.0024	0.0034	0.0010	0.0001	0.0000
49	0.1500	0.0350	0.0350	0.0350	0.0350	0.0016	0.0088	0.0025	0.0035	0.0011	0.0001	0.0000
50	0.1500	0.0200	0.0200	0.0200	0.0200	0.0000	0.0075	0.0025	0.0040	0.0017	0.0001	0.0300
51	0.1500	0.0200	0.0200	0.0200	0.0200	0.0000	0.0058	0.0025	0.0050	0.0023	0.0001	0.0343
52	0.1500	0.0200	0.0200	0.0200	0.0200	0.0000	0.0043	0.0025	0.0060	0.0029	0.0001	0.0343
53	0.1500	0.0200	0.0200	0.0200	0.0200	0.0000	0.0038	0.0025	0.0070	0.0035	0.0001	0.0329
54	0.1500	0.0200	0.0200	0.0200	0.0200	0.0000	0.0037	0.0025	0.0075	0.0041	0.0001	0.0299
55	0.1500	0.0150	0.0150	0.0150	0.0150	0.0000	0.0036	0.0025	0.0080	0.0048	0.0001	0.1018
56	0.1500	0.0150	0.0150	0.0150	0.0150	0.0000	0.0035	0.0025	0.0085	0.0053	0.0001	0.1018
57	0.1500	0.0150	0.0150	0.0150	0.0150	0.0000	0.0033	0.0025	0.0090	0.0060	0.0001	0.1018
58	0.1500	0.0150	0.0150	0.0150	0.0150	0.0000	0.0029	0.0025	0.0095	0.0068	0.0001	0.1018
59	0.1500	0.0150	0.0150	0.0150	0.0150	0.0000	0.0026	0.0025	0.0100	0.0076	0.0001	0.1016
60	0.1500	0.0100	0.0100	0.0100	0.0100	0.0000	0.0023	0.0025	0.0110	0.0086	0.0001	0.2476
61	0.1500	0.0100	0.0100	0.0100	0.0100	0.0000	0.0020	0.0025	0.0120	0.0097	0.0001	0.1519
62	0.1500	0.0100	0.0100	0.0100	0.0100	0.0000	0.0017	0.0025	0.0130	0.0109	0.0001	0.4357
63	0.1500	0.0100	0.0100	0.0100	0.0100	0.0000	0.0018	0.0025	0.0140	0.0123	0.0001	0.2471
64	0.1500	0.0100	0.0100	0.0100	0.0100	0.0000	0.0017	0.0025	0.0150	0.0139	0.0001	0.3411
65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0025	0.0150	0.0156	0.0001	0.4673
66	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0025	0.0150	0.0175	0.0001	0.3505
67	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0025	0.0150	0.0194	0.0001	0.3400
68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0025	0.0150	0.0214	0.0001	0.3040
69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0025	0.0150	0.0234	0.0001	0.2896
70	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000

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PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT
General Female Members - Tier 1

Age	With(0<Svc<1)	With(1<Svc<2)	With(2<Svc<3)	With(3<Svc<4)	With(4<Svc<5)	With(Svc>5)	Vested Term	Ord. Disab	Duty Disab	Ord. Dth	Duty Dth	Svc Ret
<= 20	0.5000	0.1000	0.1000	0.1000	0.1000	0.0319	0.0000	0.0000	0.0005	0.0001	0.0001	0.0000
21	0.5000	0.1000	0.1000	0.1000	0.1000	0.0318	0.0000	0.0000	0.0006	0.0001	0.0001	0.0000
22	0.5000	0.1000	0.1000	0.1000	0.1000	0.0306	0.0000	0.0000	0.0007	0.0001	0.0001	0.0000
23	0.5000	0.1000	0.1000	0.1000	0.1000	0.0280	0.0000	0.0000	0.0008	0.0001	0.0001	0.0000
24	0.5000	0.1000	0.1000	0.1000	0.1000	0.0254	0.0000	0.0000	0.0009	0.0001	0.0001	0.0000
25	0.4500	0.0750	0.0750	0.0750	0.0750	0.0221	0.1000	0.0001	0.0010	0.0002	0.0001	0.0000
26	0.4250	0.0750	0.0750	0.0750	0.0750	0.0189	0.1000	0.0001	0.0011	0.0002	0.0001	0.0000
27	0.4000	0.0750	0.0750	0.0750	0.0750	0.0169	0.1000	0.0001	0.0012	0.0002	0.0001	0.0000
28	0.3750	0.0750	0.0750	0.0750	0.0750	0.0150	0.1000	0.0001	0.0012	0.0002	0.0001	0.0000
29	0.3500	0.0750	0.0750	0.0750	0.0750	0.0131	0.0950	0.0001	0.0013	0.0002	0.0001	0.0000
30	0.3000	0.0600	0.0600	0.0600	0.0600	0.0125	0.0750	0.0001	0.0015	0.0003	0.0001	0.0000
31	0.2800	0.0600	0.0600	0.0600	0.0600	0.0120	0.0650	0.0001	0.0016	0.0003	0.0001	0.0000
32	0.2600	0.0600	0.0600	0.0600	0.0600	0.0110	0.0500	0.0001	0.0017	0.0003	0.0001	0.0000
33	0.2400	0.0600	0.0600	0.0600	0.0600	0.0100	0.0500	0.0001	0.0018	0.0003	0.0001	0.0000
34	0.2200	0.0600	0.0600	0.0600	0.0600	0.0090	0.0400	0.0001	0.0019	0.0004	0.0001	0.0000
35	0.2000	0.0500	0.0500	0.0500	0.0500	0.0080	0.0313	0.0007	0.0029	0.0004	0.0001	0.0000
36	0.1800	0.0500	0.0500	0.0500	0.0500	0.0075	0.0305	0.0007	0.0030	0.0004	0.0001	0.0000
37	0.1700	0.0500	0.0500	0.0500	0.0500	0.0070	0.0292	0.0007	0.0031	0.0004	0.0001	0.0000
38	0.1600	0.0500	0.0500	0.0500	0.0500	0.0065	0.0280	0.0011	0.0033	0.0004	0.0001	0.0000
39	0.1500	0.0500	0.0500	0.0500	0.0500	0.0060	0.0273	0.0011	0.0034	0.0005	0.0001	0.0000
40	0.1500	0.0450	0.0450	0.0450	0.0450	0.0050	0.0246	0.0012	0.0036	0.0005	0.0001	0.0000
41	0.1500	0.0450	0.0450	0.0450	0.0450	0.0040	0.0218	0.0013	0.0037	0.0005	0.0001	0.0000
42	0.1500	0.0450	0.0450	0.0450	0.0450	0.0030	0.0190	0.0013	0.0038	0.0005	0.0001	0.0000
43	0.1500	0.0450	0.0450	0.0450	0.0450	0.0020	0.0162	0.0014	0.0040	0.0006	0.0001	0.0000
44	0.1500	0.0450	0.0450	0.0450	0.0450	0.0010	0.0133	0.0015	0.0041	0.0006	0.0001	0.0000
45	0.1400	0.0350	0.0350	0.0350	0.0350	0.0009	0.0116	0.0016	0.0042	0.0007	0.0001	0.0000
46	0.1300	0.0350	0.0350	0.0350	0.0350	0.0008	0.0113	0.0018	0.0043	0.0008	0.0001	0.0000
47	0.1200	0.0350	0.0350	0.0350	0.0350	0.0007	0.0110	0.0020	0.0044	0.0009	0.0001	0.0000
48	0.1100	0.0350	0.0350	0.0350	0.0350	0.0006	0.0106	0.0024	0.0045	0.0010	0.0001	0.0000
49	0.1000	0.0350	0.0350	0.0350	0.0350	0.0005	0.0102	0.0026	0.0046	0.0011	0.0001	0.0000
50	0.1000	0.0200	0.0200	0.0200	0.0200	0.0000	0.0037	0.0028	0.0055	0.0012	0.0001	0.0315
51	0.1000	0.0200	0.0200	0.0200	0.0200	0.0000	0.0035	0.0030	0.0060	0.0013	0.0001	0.0237
52	0.1000	0.0200	0.0200	0.0200	0.0200	0.0000	0.0033	0.0032	0.0065	0.0014	0.0001	0.0221
53	0.1000	0.0200	0.0200	0.0200	0.0200	0.0000	0.0029	0.0034	0.0070	0.0015	0.0001	0.0250
54	0.1000	0.0200	0.0200	0.0200	0.0200	0.0000	0.0025	0.0038	0.0075	0.0016	0.0001	0.0488
55	0.1000	0.0150	0.0150	0.0150	0.0150	0.0000	0.0023	0.0042	0.0080	0.0017	0.0001	0.0650
56	0.1000	0.0150	0.0150	0.0150	0.0150	0.0000	0.0021	0.0044	0.0085	0.0018	0.0001	0.0900
57	0.1000	0.0150	0.0150	0.0150	0.0150	0.0000	0.0019	0.0046	0.0090	0.0019	0.0001	0.1000
58	0.1000	0.0150	0.0150	0.0150	0.0150	0.0000	0.0017	0.0048	0.0095	0.0020	0.0001	0.1100
59	0.1000	0.0150	0.0150	0.0150	0.0150	0.0000	0.0015	0.0050	0.0100	0.0021	0.0001	0.1200
60	0.1000	0.0100	0.0100	0.0100	0.0100	0.0000	0.0015	0.0060	0.0105	0.0022	0.0001	0.1800
61	0.1000	0.0100	0.0100	0.0100	0.0100	0.0000	0.0013	0.0070	0.0110	0.0023	0.0001	0.1300
62	0.1000	0.0100	0.0100	0.0100	0.0100	0.0000	0.0009	0.0080	0.0120	0.0024	0.0001	0.4000
63	0.1000	0.0100	0.0100	0.0100	0.0100	0.0000	0.0006	0.0090	0.0130	0.0025	0.0001	0.2500
64	0.1000	0.0100	0.0100	0.0100	0.0100	0.0000	0.0024	0.0100	0.0140	0.0026	0.0001	0.2000
65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0150	0.0028	0.0001	0.3009
66	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0150	0.0030	0.0001	0.3510
67	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0150	0.0032	0.0001	0.3510
68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0150	0.0034	0.0001	0.3510
69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0150	0.0036	0.0001	0.5015
70	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000

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PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT
General Male Members - Tier 2

Age	With(0<Svc<1)	With(1<Svc<2)	With(2<Svc<3)	With(3<Svc<4)	With(4<Svc<5)	With(Svc>5)	Vested Term	Ord. Disab	Duty Disab	Ord. Dth	Duty Dth	Svc Ret
<= 20	0.1000	0.1360	0.1360	0.1360	0.1360	0.0800	0.0272	0.0000	0.0001	0.0002	0.0001	0.0000
21	0.1000	0.1311	0.1311	0.1311	0.1311	0.0800	0.0272	0.0000	0.0001	0.0002	0.0001	0.0000
22	0.1000	0.1262	0.1262	0.1262	0.1262	0.0800	0.0272	0.0000	0.0001	0.0002	0.0001	0.0000
23	0.1000	0.1250	0.1250	0.1250	0.1250	0.0800	0.0227	0.0000	0.0001	0.0002	0.0001	0.0000
24	0.1000	0.1250	0.1250	0.1250	0.1250	0.0800	0.0181	0.0000	0.0001	0.0002	0.0001	0.0000
25	0.1000	0.1250	0.1250	0.1250	0.1250	0.0783	0.0162	0.0004	0.0001	0.0002	0.0001	0.0000
26	0.1000	0.1250	0.1250	0.1250	0.1250	0.0699	0.0125	0.0004	0.0001	0.0002	0.0001	0.0000
27	0.1000	0.1250	0.1250	0.1250	0.1250	0.0684	0.0070	0.0004	0.0001	0.0002	0.0001	0.0000
28	0.1000	0.1250	0.1250	0.1250	0.1250	0.0670	0.0091	0.0006	0.0001	0.0002	0.0001	0.0000
29	0.1000	0.1250	0.1250	0.1250	0.1250	0.0649	0.0086	0.0006	0.0001	0.0002	0.0001	0.0000
30	0.1000	0.1000	0.1000	0.1000	0.1000	0.0547	0.0085	0.0008	0.0002	0.0003	0.0001	0.0000
31	0.1000	0.1000	0.1000	0.1000	0.1000	0.0523	0.0103	0.0008	0.0002	0.0003	0.0001	0.0000
32	0.1000	0.0950	0.0950	0.0950	0.0950	0.0498	0.0121	0.0008	0.0002	0.0003	0.0001	0.0000
33	0.1000	0.0900	0.0900	0.0900	0.0900	0.0474	0.0137	0.0008	0.0002	0.0003	0.0001	0.0000
34	0.1000	0.0900	0.0900	0.0900	0.0900	0.0443	0.0153	0.0008	0.0002	0.0004	0.0001	0.0000
35	0.1000	0.0851	0.0851	0.0851	0.0851	0.0411	0.0112	0.0010	0.0003	0.0004	0.0001	0.0000
36	0.1000	0.0851	0.0851	0.0851	0.0851	0.0378	0.0124	0.0010	0.0003	0.0004	0.0001	0.0000
37	0.1000	0.0851	0.0851	0.0851	0.0851	0.0345	0.0136	0.0010	0.0003	0.0004	0.0001	0.0000
38	0.1000	0.0851	0.0851	0.0851	0.0851	0.0312	0.0168	0.0010	0.0003	0.0005	0.0001	0.0000
39	0.1000	0.0851	0.0851	0.0851	0.0851	0.0280	0.0200	0.0012	0.0004	0.0005	0.0001	0.0000
40	0.1000	0.0697	0.0697	0.0697	0.0697	0.0247	0.0145	0.0012	0.0004	0.0006	0.0001	0.0000
41	0.1000	0.0697	0.0697	0.0697	0.0697	0.0228	0.0168	0.0014	0.0005	0.0006	0.0001	0.0000
42	0.1000	0.0697	0.0697	0.0697	0.0697	0.0210	0.0191	0.0016	0.0005	0.0007	0.0001	0.0000
43	0.1000	0.0697	0.0697	0.0697	0.0697	0.0192	0.0171	0.0018	0.0005	0.0007	0.0001	0.0000
44	0.1000	0.0697	0.0697	0.0697	0.0697	0.0172	0.0147	0.0020	0.0006	0.0008	0.0001	0.0000
45	0.1000	0.0779	0.0779	0.0779	0.0779	0.0155	0.0133	0.0022	0.0006	0.0008	0.0001	0.0000
46	0.1000	0.0779	0.0779	0.0779	0.0779	0.0137	0.0119	0.0024	0.0006	0.0009	0.0001	0.0000
47	0.1000	0.0779	0.0779	0.0779	0.0779	0.0120	0.0103	0.0027	0.0006	0.0009	0.0001	0.0000
48	0.1000	0.0779	0.0779	0.0779	0.0779	0.0103	0.0102	0.0029	0.0006	0.0010	0.0001	0.0000
49	0.1000	0.0779	0.0779	0.0779	0.0779	0.0085	0.0102	0.0031	0.0006	0.0011	0.0001	0.0000
50	0.1000	0.0608	0.0608	0.0608	0.0608	0.0068	0.0101	0.0032	0.0006	0.0017	0.0001	0.0295
51	0.1000	0.0608	0.0608	0.0608	0.0608	0.0063	0.0091	0.0033	0.0006	0.0023	0.0001	0.0249
52	0.1000	0.0608	0.0608	0.0608	0.0608	0.0059	0.0083	0.0034	0.0007	0.0029	0.0001	0.0268
53	0.1000	0.0608	0.0608	0.0608	0.0608	0.0054	0.0095	0.0035	0.0007	0.0035	0.0001	0.0305
54	0.1000	0.0608	0.0608	0.0608	0.0608	0.0054	0.0108	0.0036	0.0007	0.0041	0.0001	0.0338
55	0.1000	0.0500	0.0500	0.0500	0.0500	0.0021	0.0094	0.0037	0.0009	0.0048	0.0001	0.0636
56	0.1000	0.0500	0.0500	0.0500	0.0500	0.0020	0.0104	0.0038	0.0010	0.0053	0.0001	0.0602
57	0.1000	0.0500	0.0500	0.0500	0.0500	0.0020	0.0114	0.0039	0.0012	0.0060	0.0001	0.0568
58	0.1000	0.0500	0.0500	0.0500	0.0500	0.0019	0.0092	0.0040	0.0014	0.0068	0.0001	0.0576
59	0.1000	0.0500	0.0500	0.0500	0.0500	0.0019	0.0070	0.0042	0.0015	0.0076	0.0001	0.0576
60	0.1000	0.0500	0.0500	0.0500	0.0500	0.0016	0.0087	0.0044	0.0017	0.0086	0.0001	0.1439
61	0.1000	0.0400	0.0400	0.0400	0.0400	0.0013	0.0049	0.0046	0.0017	0.0097	0.0001	0.1268
62	0.1000	0.0300	0.0300	0.0300	0.0300	0.0010	0.0012	0.0048	0.0018	0.0109	0.0001	0.1580
63	0.1000	0.0200	0.0200	0.0200	0.0200	0.0006	0.0059	0.0050	0.0018	0.0123	0.0001	0.1156
64	0.1000	0.0100	0.0100	0.0100	0.0100	0.0003	0.0105	0.0055	0.0020	0.0139	0.0001	0.1082
65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0022	0.0156	0.0001	0.1944
66	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0065	0.0024	0.0175	0.0001	0.1471
67	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0070	0.0025	0.0194	0.0001	0.1158
68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0075	0.0028	0.0214	0.0001	0.3788
69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0029	0.0234	0.0001	0.4085
70	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000

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PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT
General Female Members - Tier 2

Age	With(0<Svc<1)	With(1<Svc<2)	With(2<Svc<3)	With(3<Svc<4)	With(4<Svc<5)	With(Svc>5)	Vested Term	Ord. Disab	Duty Disab	Ord. Dth	Duty Dth	Svc Ret
<= 20	0.1806	0.1360	0.1360	0.1360	0.1360	0.0275	0.0056	0.0000	0.0001	0.0001	0.0001	0.0000
21	0.1741	0.1311	0.1311	0.1311	0.1311	0.0275	0.0056	0.0000	0.0001	0.0001	0.0001	0.0000
22	0.1677	0.1262	0.1262	0.1262	0.1262	0.0275	0.0056	0.0000	0.0001	0.0001	0.0001	0.0000
23	0.1576	0.1214	0.1214	0.1214	0.1214	0.0275	0.0050	0.0000	0.0001	0.0001	0.0001	0.0000
24	0.1478	0.1165	0.1165	0.1165	0.1165	0.0275	0.0043	0.0000	0.0001	0.0001	0.0001	0.0000
25	0.1345	0.1248	0.1248	0.1248	0.1248	0.0275	0.0043	0.0003	0.0001	0.0002	0.0001	0.0000
26	0.1216	0.1135	0.1135	0.1135	0.1135	0.0275	0.0041	0.0003	0.0001	0.0002	0.0001	0.0000
27	0.1093	0.1078	0.1078	0.1078	0.1078	0.0275	0.0037	0.0003	0.0001	0.0002	0.0001	0.0000
28	0.1093	0.1021	0.1021	0.1021	0.1021	0.0275	0.0063	0.0003	0.0001	0.0002	0.0001	0.0000
29	0.1093	0.1021	0.1021	0.1021	0.1021	0.0275	0.0067	0.0003	0.0001	0.0002	0.0001	0.0000
30	0.1057	0.0900	0.0900	0.0900	0.0900	0.0250	0.0071	0.0004	0.0001	0.0003	0.0001	0.0000
31	0.1057	0.0900	0.0900	0.0900	0.0900	0.0250	0.0067	0.0004	0.0001	0.0003	0.0001	0.0000
32	0.1057	0.0900	0.0900	0.0900	0.0900	0.0250	0.0071	0.0004	0.0001	0.0003	0.0001	0.0000
33	0.1057	0.0900	0.0900	0.0900	0.0900	0.0250	0.0078	0.0004	0.0001	0.0003	0.0001	0.0000
34	0.1057	0.0900	0.0900	0.0900	0.0900	0.0250	0.0085	0.0004	0.0001	0.0004	0.0001	0.0000
35	0.1057	0.0800	0.0800	0.0800	0.0800	0.0225	0.0100	0.0009	0.0002	0.0004	0.0001	0.0000
36	0.1057	0.0800	0.0800	0.0800	0.0800	0.0225	0.0116	0.0009	0.0002	0.0004	0.0001	0.0000
37	0.1057	0.0800	0.0800	0.0800	0.0800	0.0225	0.0132	0.0012	0.0002	0.0004	0.0001	0.0000
38	0.1057	0.0800	0.0800	0.0800	0.0800	0.0225	0.0119	0.0012	0.0002	0.0004	0.0001	0.0000
39	0.1057	0.0800	0.0800	0.0800	0.0800	0.0225	0.0107	0.0015	0.0002	0.0005	0.0001	0.0000
40	0.1057	0.0700	0.0700	0.0700	0.0700	0.0200	0.0094	0.0015	0.0002	0.0005	0.0001	0.0000
41	0.1057	0.0700	0.0700	0.0700	0.0700	0.0194	0.0081	0.0015	0.0002	0.0005	0.0001	0.0000
42	0.1057	0.0700	0.0700	0.0700	0.0700	0.0181	0.0069	0.0015	0.0003	0.0005	0.0001	0.0000
43	0.1057	0.0700	0.0700	0.0700	0.0700	0.0168	0.0075	0.0015	0.0003	0.0006	0.0001	0.0000
44	0.1057	0.0700	0.0700	0.0700	0.0700	0.0156	0.0082	0.0015	0.0003	0.0006	0.0001	0.0000
45	0.0982	0.0650	0.0650	0.0650	0.0650	0.0142	0.0084	0.0015	0.0003	0.0007	0.0001	0.0000
46	0.0955	0.0650	0.0650	0.0650	0.0650	0.0134	0.0085	0.0017	0.0003	0.0008	0.0001	0.0000
47	0.0928	0.0650	0.0650	0.0650	0.0650	0.0125	0.0086	0.0018	0.0003	0.0009	0.0001	0.0000
48	0.0921	0.0650	0.0650	0.0650	0.0650	0.0117	0.0078	0.0020	0.0003	0.0010	0.0001	0.0000
49	0.0914	0.0650	0.0650	0.0650	0.0650	0.0110	0.0069	0.0022	0.0003	0.0011	0.0001	0.0000
50	0.0753	0.0600	0.0600	0.0600	0.0600	0.0126	0.0065	0.0027	0.0010	0.0012	0.0001	0.0373
51	0.0747	0.0600	0.0600	0.0600	0.0600	0.0117	0.0061	0.0033	0.0015	0.0013	0.0001	0.0371
52	0.0741	0.0600	0.0600	0.0600	0.0600	0.0101	0.0057	0.0038	0.0021	0.0014	0.0001	0.0391
53	0.0741	0.0600	0.0600	0.0600	0.0600	0.0087	0.0061	0.0044	0.0022	0.0015	0.0001	0.0410
54	0.0741	0.0600	0.0600	0.0600	0.0600	0.0076	0.0065	0.0049	0.0023	0.0016	0.0001	0.0504
55	0.0741	0.0550	0.0550	0.0550	0.0550	0.0077	0.0069	0.0055	0.0024	0.0017	0.0001	0.0458
56	0.0741	0.0550	0.0550	0.0550	0.0550	0.0072	0.0071	0.0058	0.0025	0.0018	0.0001	0.0501
57	0.0741	0.0550	0.0550	0.0550	0.0550	0.0069	0.0073	0.0061	0.0028	0.0019	0.0001	0.0534
58	0.0741	0.0550	0.0550	0.0550	0.0550	0.0066	0.0072	0.0064	0.0030	0.0020	0.0001	0.0475
59	0.0741	0.0550	0.0550	0.0550	0.0550	0.0063	0.0071	0.0069	0.0033	0.0021	0.0001	0.0455
60	0.0741	0.0500	0.0500	0.0500	0.0500	0.0045	0.0073	0.0100	0.0035	0.0022	0.0001	0.1496
61	0.0643	0.0500	0.0500	0.0500	0.0500	0.0043	0.0075	0.0125	0.0035	0.0023	0.0001	0.1233
62	0.0513	0.0500	0.0500	0.0500	0.0500	0.0043	0.0077	0.0175	0.0035	0.0024	0.0001	0.1721
63	0.0529	0.0500	0.0500	0.0500	0.0500	0.0043	0.0085	0.0225	0.0035	0.0025	0.0001	0.0744
64	0.0545	0.0500	0.0500	0.0500	0.0500	0.0041	0.0093	0.0275	0.0035	0.0026	0.0001	0.2760
65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0325	0.0035	0.0028	0.0001	0.2916
66	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0375	0.0035	0.0030	0.0001	0.2533
67	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0425	0.0035	0.0032	0.0001	0.3078
68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0475	0.0035	0.0034	0.0001	0.4142
69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0525	0.0035	0.0036	0.0001	0.3333
70	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	1.0000

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PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT
General Male Members - Tier 3

Age	With(0<Svc<1)	With(1<Svc<2)	With(2<Svc<3)	With(3<Svc<4)	With(4<Svc<5)	With(Svc>5)	Vested Term	Ord. Disab	Duty Disab	Ord. Dth	Duty Dth	Svc Ret
<= 20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0412	0.0000	0.0000	0.0001	0.0002	0.0001	0.0000
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0399	0.0000	0.0000	0.0001	0.0002	0.0001	0.0000
22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0389	0.0000	0.0000	0.0001	0.0002	0.0001	0.0000
23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0379	0.0000	0.0000	0.0001	0.0002	0.0001	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0372	0.0000	0.0000	0.0001	0.0002	0.0001	0.0000
25	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	0.0500	0.0004	0.0001	0.0002	0.0001	0.0000
26	0.0000	0.0000	0.0000	0.0000	0.0000	0.0328	0.0500	0.0004	0.0001	0.0002	0.0001	0.0000
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0305	0.0500	0.0004	0.0001	0.0002	0.0001	0.0000
28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0283	0.0500	0.0006	0.0001	0.0002	0.0001	0.0000
29	0.0000	0.0000	0.0000	0.0000	0.0000	0.0261	0.0500	0.0006	0.0001	0.0002	0.0001	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0239	0.0450	0.0008	0.0002	0.0003	0.0001	0.0000
31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0217	0.0400	0.0008	0.0002	0.0003	0.0001	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0194	0.0350	0.0008	0.0002	0.0003	0.0001	0.0000
33	0.0000	0.0000	0.0000	0.0000	0.0000	0.0172	0.0325	0.0007	0.0003	0.0003	0.0001	0.0000
34	0.0000	0.0000	0.0000	0.0000	0.0000	0.0150	0.0300	0.0007	0.0003	0.0004	0.0001	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000	0.0128	0.0300	0.0009	0.0003	0.0004	0.0001	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.0117	0.0300	0.0009	0.0003	0.0004	0.0001	0.0000
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0300	0.0008	0.0004	0.0004	0.0001	0.0000
38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0095	0.0300	0.0008	0.0003	0.0005	0.0001	0.0000
39	0.0000	0.0000	0.0000	0.0000	0.0000	0.0085	0.0300	0.0009	0.0004	0.0005	0.0001	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.0000	0.0058	0.0300	0.0009	0.0005	0.0006	0.0001	0.0000
41	0.0000	0.0000	0.0000	0.0000	0.0000	0.0054	0.0325	0.0010	0.0005	0.0006	0.0001	0.0000
42	0.0000	0.0000	0.0000	0.0000	0.0000	0.0049	0.0325	0.0010	0.0005	0.0007	0.0001	0.0000
43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0045	0.0300	0.0011	0.0006	0.0007	0.0001	0.0000
44	0.0000	0.0000	0.0000	0.0000	0.0000	0.0041	0.0300	0.0011	0.0006	0.0008	0.0001	0.0000
45	0.0000	0.0000	0.0000	0.0000	0.0000	0.0025	0.0250	0.0012	0.0006	0.0008	0.0001	0.0000
46	0.0000	0.0000	0.0000	0.0000	0.0000	0.0022	0.0200	0.0012	0.0006	0.0009	0.0001	0.0000
47	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0150	0.0012	0.0006	0.0009	0.0001	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0018	0.0125	0.0012	0.0006	0.0010	0.0001	0.0000
49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0016	0.0100	0.0012	0.0006	0.0011	0.0001	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0065	0.0012	0.0006	0.0017	0.0001	0.0100
51	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0061	0.0012	0.0006	0.0023	0.0001	0.0054
52	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0058	0.0012	0.0006	0.0029	0.0001	0.0001
53	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0053	0.0013	0.0007	0.0035	0.0001	0.0010
54	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0052	0.0014	0.0007	0.0041	0.0001	0.0019
55	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0017	0.0009	0.0048	0.0001	0.0136
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0020	0.0010	0.0053	0.0001	0.0180
57	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0023	0.0012	0.0060	0.0001	0.0225
58	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0027	0.0013	0.0068	0.0001	0.0234
59	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0032	0.0015	0.0076	0.0001	0.0242
60	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0037	0.0017	0.0086	0.0001	0.0561
61	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0042	0.0018	0.0097	0.0001	0.0308
62	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0048	0.0019	0.0109	0.0001	0.0909
63	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0058	0.0019	0.0123	0.0001	0.0754
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0070	0.0020	0.0139	0.0001	0.1389
65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0082	0.0024	0.0156	0.0001	0.2669
66	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0098	0.0025	0.0175	0.0001	0.2206
67	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0115	0.0026	0.0194	0.0001	0.2553
68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0153	0.0028	0.0214	0.0001	0.3040
69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0163	0.0029	0.0234	0.0001	0.2896
70	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000

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PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT
General Female Members - Tier 3

Age	With(0<Svc<1)	With(1<Svc<2)	With(2<Svc<3)	With(3<Svc<4)	With(4<Svc<5)	With(Svc>5)	Vested Term	Ord. Disab	Duty Disab	Ord. Dth	Duty Dth	Svc Ret
<= 20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0319	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0318	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000
22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0306	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000
23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0279	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0253	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000
25	0.0000	0.0000	0.0000	0.0000	0.0000	0.0219	0.0500	0.0003	0.0001	0.0002	0.0001	0.0000
26	0.0000	0.0000	0.0000	0.0000	0.0000	0.0211	0.0500	0.0003	0.0001	0.0002	0.0001	0.0000
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0203	0.0500	0.0003	0.0001	0.0002	0.0001	0.0000
28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0195	0.0500	0.0003	0.0001	0.0002	0.0001	0.0000
29	0.0000	0.0000	0.0000	0.0000	0.0000	0.0187	0.0500	0.0003	0.0001	0.0002	0.0001	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0179	0.0450	0.0004	0.0001	0.0003	0.0001	0.0000
31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0171	0.0400	0.0004	0.0001	0.0003	0.0001	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0163	0.0350	0.0004	0.0001	0.0003	0.0001	0.0000
33	0.0000	0.0000	0.0000	0.0000	0.0000	0.0155	0.0350	0.0004	0.0001	0.0003	0.0001	0.0000
34	0.0000	0.0000	0.0000	0.0000	0.0000	0.0144	0.0350	0.0004	0.0001	0.0004	0.0001	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000	0.0112	0.0300	0.0009	0.0002	0.0004	0.0001	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.0110	0.0300	0.0009	0.0002	0.0004	0.0001	0.0000
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0290	0.0012	0.0002	0.0004	0.0001	0.0000
38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0106	0.0285	0.0012	0.0002	0.0004	0.0001	0.0000
39	0.0000	0.0000	0.0000	0.0000	0.0000	0.0104	0.0275	0.0015	0.0002	0.0005	0.0001	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.0000	0.0102	0.0281	0.0015	0.0002	0.0005	0.0001	0.0000
41	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0246	0.0015	0.0002	0.0005	0.0001	0.0000
42	0.0000	0.0000	0.0000	0.0000	0.0000	0.0098	0.0212	0.0015	0.0003	0.0005	0.0001	0.0000
43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0095	0.0178	0.0015	0.0003	0.0006	0.0001	0.0000
44	0.0000	0.0000	0.0000	0.0000	0.0000	0.0076	0.0165	0.0015	0.0003	0.0006	0.0001	0.0000
45	0.0000	0.0000	0.0000	0.0000	0.0000	0.0056	0.0165	0.0015	0.0003	0.0007	0.0001	0.0000
46	0.0000	0.0000	0.0000	0.0000	0.0000	0.0055	0.0165	0.0017	0.0003	0.0008	0.0001	0.0000
47	0.0000	0.0000	0.0000	0.0000	0.0000	0.0054	0.0165	0.0018	0.0003	0.0009	0.0001	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0043	0.0165	0.0020	0.0003	0.0010	0.0001	0.0000
49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0035	0.0165	0.0022	0.0003	0.0011	0.0001	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0065	0.0027	0.0013	0.0012	0.0001	0.0223
51	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0061	0.0033	0.0013	0.0013	0.0001	0.0138
52	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0058	0.0038	0.0015	0.0014	0.0001	0.0098
53	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0053	0.0044	0.0015	0.0015	0.0001	0.0110
54	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0052	0.0049	0.0017	0.0016	0.0001	0.0214
55	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0055	0.0018	0.0017	0.0001	0.0279
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0058	0.0019	0.0018	0.0001	0.0379
57	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0061	0.0020	0.0019	0.0001	0.0451
58	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0064	0.0021	0.0020	0.0001	0.0432
59	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0069	0.0021	0.0021	0.0001	0.0564
60	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0087	0.0022	0.0022	0.0001	0.0689
61	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0106	0.0024	0.0023	0.0001	0.0590
62	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0125	0.0026	0.0024	0.0001	0.1495
63	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0144	0.0028	0.0025	0.0001	0.1033
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0162	0.0030	0.0026	0.0001	0.1888
65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0181	0.0030	0.0028	0.0001	0.1660
66	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0190	0.0030	0.0030	0.0001	0.2093
67	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0201	0.0030	0.0032	0.0001	0.2249
68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0211	0.0030	0.0034	0.0001	0.3510
69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0223	0.0030	0.0036	0.0001	0.5015
70	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000

PROBABILITIES OF SEPARATION PRIOR TO RETIREMENT
Safety Members

Age	With(0<Svc<1)	With(1<Svc<2)	With(2<Svc<3)	With(3<Svc<4)	With(4<Svc<5)	With(Svc>5)	Vested Term	Ord. Disab	Duty Disab	Ord. Dth	Duty Dth	Svc Ret
<= 20	0.1000	0.0668	0.0668	0.0668	0.0668	0.0200	0.0024	0.0000	0.0008	0.0001	0.0001	0.0000
21	0.1000	0.0668	0.0668	0.0668	0.0668	0.0200	0.0034	0.0000	0.0010	0.0001	0.0001	0.0000
22	0.1000	0.0668	0.0668	0.0668	0.0668	0.0200	0.0044	0.0000	0.0011	0.0001	0.0001	0.0000
23	0.1000	0.0668	0.0668	0.0668	0.0668	0.0200	0.0065	0.0000	0.0013	0.0001	0.0001	0.0000
24	0.1000	0.0668	0.0668	0.0668	0.0668	0.0200	0.0089	0.0000	0.0014	0.0001	0.0001	0.0000
25	0.0800	0.0624	0.0624	0.0624	0.0624	0.0200	0.0118	0.0005	0.0006	0.0001	0.0001	0.0000
26	0.0700	0.0581	0.0581	0.0581	0.0581	0.0200	0.0140	0.0005	0.0007	0.0001	0.0001	0.0000
27	0.0600	0.0538	0.0538	0.0538	0.0538	0.0200	0.0165	0.0005	0.0008	0.0001	0.0001	0.0000
28	0.0550	0.0495	0.0495	0.0495	0.0495	0.0200	0.0178	0.0005	0.0009	0.0001	0.0001	0.0000
29	0.0525	0.0451	0.0451	0.0451	0.0451	0.0200	0.0190	0.0005	0.0010	0.0001	0.0001	0.0000
30	0.0500	0.0408	0.0408	0.0408	0.0408	0.0118	0.0190	0.0006	0.0046	0.0001	0.0002	0.0000
31	0.0475	0.0408	0.0408	0.0408	0.0408	0.0111	0.0189	0.0006	0.0050	0.0001	0.0002	0.0000
32	0.0450	0.0408	0.0408	0.0408	0.0408	0.0104	0.0187	0.0006	0.0052	0.0001	0.0002	0.0000
33	0.0425	0.0408	0.0408	0.0408	0.0408	0.0096	0.0157	0.0007	0.0055	0.0001	0.0002	0.0000
34	0.0400	0.0400	0.0400	0.0400	0.0400	0.0085	0.0128	0.0007	0.0057	0.0001	0.0002	0.0000
35	0.0375	0.0375	0.0375	0.0375	0.0375	0.0078	0.0125	0.0006	0.0060	0.0002	0.0002	0.0000
36	0.0350	0.0350	0.0350	0.0350	0.0350	0.0071	0.0120	0.0006	0.0065	0.0002	0.0002	0.0000
37	0.0340	0.0340	0.0340	0.0340	0.0340	0.0064	0.0115	0.0007	0.0070	0.0002	0.0002	0.0000
38	0.0330	0.0330	0.0330	0.0330	0.0330	0.0057	0.0110	0.0007	0.0075	0.0002	0.0003	0.0000
39	0.0320	0.0320	0.0320	0.0320	0.0320	0.0050	0.0105	0.0007	0.0080	0.0002	0.0003	0.0000
40	0.0310	0.0310	0.0310	0.0310	0.0310	0.0050	0.0100	0.0006	0.0085	0.0002	0.0003	0.0000
41	0.0300	0.0300	0.0300	0.0300	0.0300	0.0050	0.0100	0.0006	0.0090	0.0002	0.0003	0.0010
42	0.0290	0.0290	0.0290	0.0290	0.0290	0.0050	0.0093	0.0006	0.0097	0.0003	0.0003	0.0011
43	0.0280	0.0280	0.0280	0.0280	0.0280	0.0045	0.0079	0.0006	0.0100	0.0003	0.0004	0.0012
44	0.0270	0.0270	0.0270	0.0270	0.0270	0.0040	0.0060	0.0007	0.0105	0.0003	0.0004	0.0012
45	0.0260	0.0260	0.0260	0.0260	0.0260	0.0035	0.0043	0.0012	0.0110	0.0003	0.0004	0.0015
46	0.0250	0.0250	0.0250	0.0250	0.0250	0.0030	0.0036	0.0013	0.0115	0.0003	0.0004	0.0020
47	0.0225	0.0225	0.0225	0.0225	0.0225	0.0025	0.0028	0.0014	0.0120	0.0003	0.0004	0.0025
48	0.0200	0.0200	0.0200	0.0200	0.0200	0.0020	0.0026	0.0015	0.0130	0.0004	0.0005	0.0030
49	0.0175	0.0175	0.0175	0.0175	0.0175	0.0015	0.0024	0.0017	0.0140	0.0004	0.0005	0.0035
50	0.0130	0.0130	0.0130	0.0130	0.0130	0.0010	0.0020	0.0005	0.0150	0.0004	0.0005	0.0075
51	0.0125	0.0125	0.0125	0.0125	0.0125	0.0008	0.0020	0.0005	0.0160	0.0004	0.0005	0.0150
52	0.0100	0.0100	0.0100	0.0100	0.0100	0.0006	0.0020	0.0006	0.0170	0.0005	0.0005	0.0200
53	0.0050	0.0050	0.0050	0.0050	0.0050	0.0003	0.0020	0.0007	0.0200	0.0005	0.0005	0.0300
54	0.0010	0.0010	0.0010	0.0010	0.0010	0.0003	0.0020	0.0007	0.0225	0.0005	0.0005	0.0400
55	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0017	0.0250	0.0005	0.0006	0.2000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0018	0.0250	0.0005	0.0006	0.1700
57	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0020	0.0250	0.0005	0.0006	0.1700
58	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0022	0.0250	0.0005	0.0006	0.1800
59	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0023	0.0250	0.0005	0.0006	0.2000
60	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
61	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
62	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
63	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
66	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
67	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
70	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000

Exhibit II

YEARS OF LIFE EXPECTANCY AFTER SERVICE RETIREMENT

	General		Safety	
Age	Male	Female	Member	Beneficiary
50	30.94	33.29	29.09	33.29
51	30.01	32.34	28.18	32.34
52	29.09	31.40	27.28	31.40
53	28.18	30.47	26.38	30.47
54	27.28	29.53	25.49	29.53
55	26.38	28.61	24.61	28.61
56	25.49	27.68	23.74	27.68
57	24.61	26.77	22.88	26.77
58	23.74	25.86	22.04	25.86
59	22.88	24.97	21.20	24.97
60	22.04	24.09	20.38	24.09
61	21.20	23.22	19.57	23.22
62	20.38	22.36	18.78	22.36
63	19.57	21.52	18.01	21.52
64	18.78	20.69	17.26	20.69
65	18.01	19.88	16.53	19.88
66	17.26	19.09	15.81	19.09
67	16.53	18.30	15.11	18.30
68	15.81	17.53	14.43	17.53
69	15.11	16.77	13.77	16.77
70	14.43	16.01	13.11	16.01
71	13.77	15.26	12.48	15.26
72	13.11	14.53	11.85	14.53
73	12.48	13.81	11.25	13.81
74	11.85	13.11	10.66	13.11
75	11.25	12.43	10.08	12.43
76	10.66	11.76	9.52	11.76
77	10.08	11.11	8.98	11.11
78	9.52	10.49	8.46	10.49
79	8.98	9.88	7.97	9.88
80	8.46	9.30	7.51	9.30
81	7.97	8.74	7.07	8.74
82	7.51	8.20	6.65	8.20
83	7.07	7.68	6.24	7.68
84	6.65	7.18	5.86	7.18
85	6.24	6.71	5.48	6.71
86	5.86	6.25	5.12	6.25
87	5.48	5.83	4.78	5.83
88	5.12	5.42	4.45	5.42
89	4.78	5.05	4.15	5.05
90	4.45	4.70	3.87	4.70
91	4.15	4.37	3.61	4.37
92	3.87	4.07	3.37	4.07
93	3.61	3.79	3.15	3.79
94	3.37	3.53	2.95	3.53
95	3.15	3.28	2.77	3.28
96	2.95	3.06	2.61	3.06
97	2.77	2.85	2.46	2.85
98	2.61	2.65	2.33	2.65
99	2.46	2.48	2.21	2.48
100	2.33	2.31	2.09	2.31
101	2.21	2.16	1.98	2.16
102	2.09	2.02	1.87	2.02
103	1.98	1.89	1.77	1.89
104	1.87	1.78	1.68	1.78
105	1.77	1.70	1.62	1.70
106	1.68	1.63	1.57	1.63
107	1.62	1.57	1.53	1.57
108	1.57	1.53	1.51	1.53
109	1.53	1.50	1.49	1.50
110	1.51	1.47	1.47	1.47

	Male	Female
General	94 GAM Male -1	94 GAM Female +1
	Member	Beneficiary
Safety	94 GAM Male +1	94 GAM Female +1

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YEARS OF LIFE EXPECTANCY AFTER DISABILITY RETIREMENT

GENERAL MEMBERS

Age	Male & Female	Age	Male & Female	Age	Male & Female
20	41.73	50	22.56	80	8.28
21	40.73	51	22.06	81	7.83
22	39.73	52	21.57	82	7.41
23	38.73	53	21.08	83	7.00
24	37.98	54	20.59	84	6.63
25	37.26	55	20.11	85	6.27
26	36.56	56	19.63	86	5.94
27	35.87	57	19.16	87	5.63
28	35.19	58	18.68	88	5.34
29	34.53	59	18.21	89	5.06
30	33.87	60	17.75	90	4.80
31	33.23	61	17.29	91	4.55
32	32.60	62	16.83	92	4.31
33	31.98	63	16.37	93	4.09
34	31.37	64	15.91	94	3.87
35	30.76	65	15.45	95	3.66
36	30.17	66	14.99	96	3.46
37	29.58	67	14.53	97	3.26
38	29.00	68	14.07	98	3.07
39	28.43	69	13.60	99	2.89
40	27.87	70	13.13	100	2.71
41	27.31	71	12.66	101	2.54
42	26.76	72	12.18	102	2.37
43	26.21	73	11.70	103	2.20
44	25.67	74	11.21	104	2.04
45	25.14	75	10.72	105	1.88
46	24.61	76	10.22	106	1.72
47	24.09	77	9.73	107	1.55
48	23.57	78	9.24	108	1.38
49	23.06	79	8.76	109	1.21
				110	1.04

1981 Disability Table Setback 3 Years

YEARS OF LIFE EXPECTANCY AFTER DISABILITY RETIREMENT

SAFETY MEMBERS

Age	Male & Female	Age	Male & Female	Age	Male & Female
20	49.29	50	23.59	80	7.00
21	48.39	51	22.80	81	6.63
22	47.48	52	22.03	82	6.27
23	46.58	53	21.26	83	5.94
24	45.68	54	20.50	84	5.63
25	44.79	55	19.77	85	5.34
26	43.89	56	19.06	86	5.06
27	43.01	57	18.40	87	4.80
28	42.12	58	17.78	88	4.55
29	41.24	59	17.20	89	4.31
30	40.36	60	16.64	90	4.09
31	39.48	61	16.11	91	3.87
32	38.61	62	15.59	92	3.66
33	37.74	63	15.08	93	3.46
34	36.88	64	14.58	94	3.26
35	36.02	65	14.09	95	3.07
36	35.16	66	13.61	96	2.89
37	34.31	67	13.13	97	2.71
38	33.45	68	12.66	98	2.54
39	32.61	69	12.18	99	2.37
40	31.77	70	11.70	100	2.20
41	30.93	71	11.21	101	2.04
42	30.09	72	10.72	102	1.88
43	29.26	73	10.22	103	1.72
44	28.43	74	9.73	104	1.55
45	27.61	75	9.24	105	1.38
46	26.80	76	8.76	106	1.21
47	25.98	77	8.28	107	1.04
48	25.18	78	7.83	108	0.88
49	24.38	79	7.41	109	0.71
				110	0.50

1981 Disability Table (Safety)

Ratio of Current Compensation to Compensation Anticipated At Retirement Age

Age	General	Safety
20	0.047	0.087
21	0.053	0.095
22	0.058	0.105
23	0.065	0.115
24	0.071	0.125
25	0.078	0.137
26	0.085	0.149
27	0.092	0.161
28	0.099	0.174
29	0.107	0.188
30	0.115	0.202
31	0.124	0.216
32	0.132	0.230
33	0.141	0.245
34	0.151	0.261
35	0.161	0.277
36	0.171	0.293
37	0.182	0.310
38	0.194	0.328
39	0.206	0.346
40	0.218	0.366
41	0.231	0.387
42	0.245	0.409
43	0.260	0.432
44	0.275	0.456
45	0.291	0.480
46	0.307	0.506
47	0.325	0.532
48	0.343	0.560
49	0.361	0.589
50	0.381	0.619
51	0.401	0.651
52	0.422	0.683
53	0.444	0.717
54	0.466	0.753
55	0.490	0.791
56	0.515	0.831
57	0.541	0.872
58	0.568	0.914
59	0.597	0.957
60	0.626	1.000
61	0.657	
62	0.689	
63	0.723	
64	0.758	
65	0.796	
66	0.834	
67	0.874	
68	0.915	
69	0.957	
70	1.000	

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Appendix C System Membership and Benefit Statistics

System Membership and Benefit Statistics
Active Members*

	December 31, 2001	December 31, 2000	Percent Change
1. General Tier 1			
Number			
Non Vested	437	352	24.1%
Vested	1,220	1,329	(8.2%)
Average Age	48.46	49.02	(1.1%)
Average Years of Service*	15.64	16.63	(6.0%)
Annual Salary			
Total	$101,702,815	$100,103,577	1.6%
Average	$61,378	$59,550	3.1%
2. General Tier 2			
Number			
Non Vested	2,873	2,508	14.6%
Vested	505	611	(17.3%)
Average Age	41.48	41.46	0.0%
Average Years of Service*	2.90	3.19	(9.1%)
Annual Salary			
Total	$151,760,601	$134,724,339	12.6%
Average	$44,926	$43,195	4.0%
3. General Tier 3			
Number			
Non Vested	2	45	(95.6%)
Vested	2,492	2,398	3.9%
Average Age	48.20	47.65	1.2%
Average Years of Service*	12.35	12.19	1.3%
Annual Salary			
Total	$148,413,594	$140,090,465	5.9%
Average	$59,508	$57,344	3.8%
4. General Total			
Number			
Non Vested	3,312	2,905	14.0%
Vested	4,217	4,338	(2.8%)
Average Age	45.24	45.30	(0.1%)
Average Years of Service*	8.83	9.34	(5.5%)
Annual Salary			
Total	$401,877,010	$374,918,381	7.2%
Average	$53,377	$51,763	3.1%
5. Safety			
Number			
Non Vested	579	490	18.2%
Vested	1,121	1,151	(2.6%)
Average Age	40.78	40.75	0.1%
Average Years of Service	11.35	11.78	(3.7%)
Annual Salary			
Total	$121,744,376	$113,465,137	7.3%
Average	$71,614	$69,144	3.6%

* *In preparing the age and service distribution charts for December 31, 2001, we have used the total service from all tiers combined (instead of using service just for the latest tier of membership only in December 31, 2000).*

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System Membership and Benefit Statistics
Retired Members

	December 31,2001	December 31, 2000	Percent Change
Retired Members			
A. Service Retirement			
i. Number	4,080	3838	6.3%
ii. Annual Allowance			
Basic Only	$71,869,786	$62,381,226	15.2%
Dollar Power	$2,326,336	$0	
COLA without Dollar Power	$20,765,421	$17,848,308	16.3%
COLA	$23,091,757	$17,848,308	29.4%
Total	$94,961,543	$80,229,534	18.4%
Average Monthly Amount*	$1,940	$1,742	11.3%
B. Disability Retirement			
i. Number	823	777	5.9%
ii. Annual Allowance			
Basic Only	$16,645,925	$14,562,031	14.3%
Dollar Power	$716,593	$0	
COLA without Dollar Power	$4,969,461	$4,321,403	15.0%
COLA	$5,686,054	$4,321,403	31.6%
Total	$22,331,978	$18,883,434	18.3%
Average Monthly Amount*	$2,261	$2,025	11.7%
C. Beneficiaries			
i. Number	994	943	5.4%
ii. Annual Allowance			
Basic Only	$8,336,359	$7,263,336	14.8%
Dollar Power	$1,735,087	$0	
COLA without Dollar Power	$4,736,589	$3,971,959	19.3%
COLA	$6,471,676	$3,971,959	62.9%
Total	$14,808,035	$11,235,295	31.8%
Average Monthly Amount*	$1,241	$993	25.0%
Inactive Vested Members			
A. Number**	955	877	8.9%

* Includes member who received retroactive benefit adjustments as a result of the Paulson Settlement.

** Includes only members who have terminated employement with CCCERA.

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Average Annual Salary And Membership Distribution of Active General Tier 1 Members As Of December 31, 2001

Age Group	YEARS OF SERVICE 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	TOTAL
0-19	2									2
	23,871									23,871
20-24	8									8
	33,349									33,349
25-29	40	3								43
	46,904	53,629								47,374
30-34	56	11	8	1						76
	49,055	49,371	60,116	63,366						50,453
35-39	86	25	23	6						140
	54,791	58,358	62,252	53,867						56,614
40-44	71	37	39	14	41	2				204
	58,002	55,776	63,866	65,716	57,398	51,209				59,061
45-49	72	32	48	24	86	59	2			323
	60,574	66,503	68,759	63,160	62,936	53,050	56,520			61,799
50-54	64	26	39	31	102	108	51	4		425
	54,970	73,702	64,661	73,964	64,936	63,606	56,540	53,065		63,147
55-59	29	19	30	23	52	85	80	10		328
	67,208	56,563	67,698	71,518	61,618	69,224	68,347	65,959		66,814
60-64	5	1	7	4	24	26	15	7	1	90
	67,844	68,422	57,273	59,805	60,029	64,838	64,032	82,460	38,687	63,896
65-69	4		2	3	3	1	1	1		15
	49,775		78,020	62,446	48,338	45,321	50,748	64,018		56,505
70-74							1			1
							34,965			34,965
75+					2					2
					97,641					97,641
Total	437	154	196	106	310	281	150	22	1	1,657
	55,228	61,131	65,376	67,800	62,498	63,050	63,404	68,777	38,687	61,378

Total Salary	$101,702,815
Average Age	48.46
Average Service	15.64

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Average Annual Salary And Membership Distribution of Active General Tier 2 Members As Of December 31, 2001

Age Group	YEARS OF SERVICE 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	TOTAL
0-19	3									3
	24,427									24,427
20-24	111	1								112
	33,583	32,750								33,576
25-29	339	6								345
	40,490	45,914								40,584
30-34	471	41	8							520
	45,796	50,286	41,564							46,085
35-39	470	43	25	5						543
	45,544	47,790	47,075	42,136						45,761
40-44	418	42	29	9	3					501
	45,310	45,732	48,278	44,242	43,263					45,486
45-49	431	50	46	10	8					545
	45,644	41,981	53,503	53,787	49,168					46,172
50-54	336	30	29	13	6					414
	45,312	45,875	47,763	58,630	45,131					45,940
55-59	198	18	21	7	4		1			249
	43,756	50,980	51,750	48,414	50,734		83,240			45,354
60-64	70	14	10	7	3		1			105
	47,315	41,645	53,438	44,489	56,027		54,880			47,274
65-69	21	7	3	2						33
	40,212	51,390	68,743	35,160						44,871
70-74		1		2	1					4
		33,727		39,267	55,834					42,024
75+	2	2								4
	48,147	69,707								58,927
Total	2,870	255	171	55	25		2			3,378
	44,340	46,488	50,193	49,238	48,831		69,060			44,926

Total Salary	$151,760,601
Average Age	41.48
Average Service	2.9

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Average Annual Salary And Membership Distribution of Active General Tier 3 Members As Of December 31, 2001

Age Group	YEARS OF SERVICE 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	TOTAL
0-19										
20-24										
25-29		7								7
		54,003								54,003
30-34		66	33	2						101
		57,418	46,243	52,082						53,661
35-39		129	154	34	5					322
		62,944	61,668	55,632	56,459					61,461
40-44		109	203	71	38					421
		52,669	61,300	65,002	51,636					58,818
45-49		133	197	123	45	6	1			505
		57,211	61,407	66,902	66,678	54,026	87,273			62,074
50-54	1	144	209	122	62	10	2			550
	47,970	54,340	58,428	63,970	70,302	87,652	43,393			60,383
55-59		95	148	90	40	13	5			391
		52,262	58,170	58,100	70,208	90,785	65,139			59,123
60-64	1	32	56	44	15	2				150
	38,080	49,253	50,831	56,861	57,826	111,120				53,682
65-69		7	19	8	2	1				37
		37,052	51,648	45,088	60,239	38,687				47,582
70-74		3	2	1	1					7
		70,501	63,510	42,665	61,173					63,194
75+		1	2							3
		28,130	52,399							44,309
Total	2	726	1,023	495	208	32	8			2,494
	43,025	55,788	59,085	62,178	64,717	82,557	62,469			59,508

Total Salary	$148,413,594
Average Age	48.2
Average Service	12.35

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Average Annual Salary And Membership Distribution of Active Safety Members As Of December 31, 2001

Age Group	YEARS OF SERVICE 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	TOTAL
0-19										
20-24	27									27
	52,147									52,147
25-29	170	5								175
	53,792	66,356								54,151
30-34	191	72	33							296
	59,049	65,750	76,527							62,628
35-39	94	70	136	23						323
	63,335	68,788	75,990	83,145						71,256
40-44	48	27	80	95	23					273
	64,029	67,248	77,560	84,093	89,155					77,411
45-49	16	13	27	47	93	32				228
	64,491	60,224	74,519	82,524	84,988	93,750				81,620
50-54	12	14	22	28	64	79	21			240
	63,221	63,889	74,397	82,545	79,924	84,183	93,317			80,526
55-59	14	8	6	14	19	29	27	1		118
	58,039	68,046	68,660	77,117	78,775	83,659	83,830	76,371		77,213
60-64	6	5	3			1	2			17
	56,013	54,700	53,778			58,854	81,116			58,353
60+	1	1		1						3
	26,313	48,274		60,002						44,863
Total	579	215	307	208	199	141	50	1		1,700
	58,417	66,233	75,853	82,840	83,248	86,067	87,706	76,371		71,614

Total Salary	$121,744,376
Average Age	40.78
Average Service	11.35

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Average Annual Benefit And Membership Distribution of Retired General Tier 1 Members And Beneficiaries As Of December 31, 2001

Age Group	YEARS OF RETIREMENT 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	TOTAL
0-19	2	3								5
	11,675	3,448								6,739
20-24		4								4
		9,284								9,284
25-29	1	2		1						4
	8,107	11,853		7,625						9,860
30-34	2	4	1							7
	31,408	9,168	8,157							15,378
35-39	3	4	2							9
	11,013	12,272	5,713							10,395
40-44	6	5	1	3						15
	20,758	13,925	17,040	5,353						15,151
45-49	11	13	2	5	1	3				35
	17,811	20,049	18,145	10,924	11,137	1,662				16,103
50-54	108	21	8	8	8	5				158
	17,170	18,012	17,863	11,580	12,345	5,332				16,415
55-59	205	99	26	11	10	3				354
	27,305	14,704	17,015	16,989	14,968	10,570				22,215
60-64	256	133	78	19	8	2		1		497
	34,041	19,615	14,067	13,744	13,668	12,536		16,981		26,781
65-69	166	249	129	80	11	8	4	1		648
	34,041	29,862	18,281	11,945	13,923	13,737	9,357	8,258		25,785
70-74	44	173	227	145	77	15	3	1	1	686
	18,612	28,735	26,262	14,852	8,548	17,403	9,796	20,409	8,762	21,695
75-79	39	53	163	218	165	36	2	2		678
	15,335	23,064	23,904	20,923	12,582	7,925	7,505	14,021		18,706
80-84	34	34	46	148	177	85	7	2		533
	16,773	13,719	16,917	20,143	16,884	14,016	8,145	11,138		16,989
85-89	12	15	12	34	73	72	31	2	3	254
	6,286	6,971	12,903	15,713	16,045	15,143	10,170	6,580	4,662	13,673
90+	6	5	4	3	3	40	33	6	5	105
	9,916	9,458	8,518	3,838	9,066	13,598	9,793	6,512	7,669	10,706
Total	895	817	699	675	533	269	80	15	9	3,992
	27,248	23,473	21,371	17,506	13,965	13,272	9,716	9,880	6,788	20,741

Total Retired Benefit	$82,796,823
Average Age	70.91
Average Years Retired	12.43

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Average Annual Benefit And Membership Distribution of Retired General Tier 2 Members And Beneficiaries As Of December 31, 2001

Age Group	YEARS OF RETIREMENT 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	TOTAL
0-19	3									3
	5,595									5,595
20-24										
25-29	6	1	2							9
	6,776	14,773	6,335							7,566
30-34	3	2	3							8
	17,250	9,310	3,895							10,257
35-39		1	1							2
		13,531	16,146							14,839
40-44	1	2								3
	27,441	9,250								15,313
45-49	1	3	1							5
	16,769	13,744	18,569							15,314
50-54	53	6	3	2						64
	6,838	15,612	13,774	12,991						7,975
55-59	93	28	3	2						126
	7,435	5,283	16,307	9,336						7,198
60-64	89	31	7							127
	8,735	8,042	4,604							8,338
65-69	97	47	10	3						157
	8,637	7,595	3,278	8,876						7,988
70-74	19	47	9	4	1					80
	7,548	8,467	10,358	934	192					7,981
75-79	8	15	15	2	1					41
	5,821	4,837	5,598	1,561	15,005					5,395
80-84		3	4	1						8
		4,391	2,971	2,516						3,447
85-89										
90+										
Total	373	186	58	14	2					633
	8,076	7,732	6,955	5,761	7,599					7,799

Total Retired Benefit	$4,936,836
Average Age	62.42
Average Years Retired	4.62

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Average Annual Benefit And Membership Distribution of Retired General Tier 3 Members And Beneficiaries As Of December 31, 2001

Age Group	YEARS OF RETIREMENT 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	TOTAL
0-19	1									1
	3,497									3,497
20-24										
25-29	1									1
	6,986									6,986
30-34	2									2
	7,806									7,806
35-39	1									1
	10,049									10,049
40-44										
45-49	3									3
	20,882									20,882
50-54	23									23
	4,051									4,051
55-59	49									49
	6,154									6,154
60-64	67									67
	6,337									6,337
65-69	29									29
	4,221									4,221
70-74	6									6
	5,044									5,044
75-79										
80-84										
85-89										
90+										
Total	182									182
	5,883									5,883

Total Retired Benefit	$1,070,747
Average Age	59.35
Average Years Retired	0.79

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Average Annual Benefit And Membership Distribution of Retired Safety Members And Beneficiaries As Of December 31, 2001

Age Group	YEARS OF RETIREMENT 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	TOTAL
0-19		1								1
		33,316								33,316
20-24		3								3
		6,518								6,518
25-29			2							2
			14,756							14,756
30-34	3	1	1		1					6
	28,424	6,853	7,203		22,738					20,344
35-39	14	7	1							22
	35,620	22,734	7,203							30,228
40-44	17	11	4	1						33
	33,358	31,545	31,048	26,972						32,280
45-49	21	13	5	3						42
	32,575	29,241	30,184	21,390						30,459
50-54	52	30	16	6	7		1			112
	36,105	27,924	28,401	20,088	24,099		8,288			30,956
55-59	135	45	15	19	10	1				225
	58,844	29,598	32,984	22,517	23,873	36,429				46,550
60-64	57	83	30	17	8	5	2			202
	55,295	56,042	38,978	26,288	25,580	24,858	23,774			48,495
65-69	15	52	51	26	9	2	2			157
	33,667	42,425	52,224	35,824	25,041	18,390	16,158			42,041
70-74	3	19	18	51	24	12	2	1		130
	28,315	30,582	31,166	43,636	34,988	21,966	25,123	17,924		35,568
75-79	5	6	4	17	32	17	6	3		90
	28,994	27,799	27,617	43,874	46,487	31,119	17,747	9,239		36,876
80-84	2	7	2	1	7	16	5	1		41
	26,673	24,265	36,469	57,665	40,102	33,392	21,359	23,313		31,680
85-89	2		4	2	2	3	5			18
	33,669		31,459	17,090	14,440	29,303	18,467			24,249
90+			3	1						4
			17,704	6,006						14,780
Total	326	278	156	144	100	56	23	5		1,088
	48,049	39,176	38,617	35,326	34,971	28,791	19,305	13,791		39,787

Total Retired Benefit	$43,288,441
Average Age	62.24
Average Years Retired	10.52

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Summary of Monthly Allowances Being Paid as of December 31, 2001

	General Members			
		Monthly Allowance		
Service	Number	Basic	Cost of Living	Total
Unmodified	3,166 $	3,930,358 $	1,344,930 $	5,275,288
Option1	183	201,307	49,977	251,285
Option 2, 3 &4	199	216,043	42,933	258,976
Total	3,548 $	4,347,709 $	1,437,840 $	5,785,549
Disability				
Unmodified	448 $	543,690 $	205,067 $	748,757
Option1	24	27,209	8,242	35,451
Option 2, 3 &4	10	10,576	1,968	12,544
Total	482 $	581,475 $	215,278 $	796,753
Beneficiaries				
Total	779 $	464,431 $	354,361 $	818,792
Total	4,809 $	5,393,614 $	2,007,479 $	7,401,093

	Safety Members			
		Monthly Allowance		
Service	Number	Basic	Cost of Living	Total
Unmodified	506 $	1,585,427 $	475,026 $	2,060,454
Option1	14	21,454	5,276	26,729
Option 2, 3 &4	12	34,559	6,171	40,730
Total	532 $	1,641,440 $	486,473 $	2,127,913
Disability				
Unmodified	332 $	792,214 $	254,021 $	1,046,236
Option1	4	4,614	2,500	7,115
Option 2, 3 &4	5	8,856	2,039	10,895
Total	341 $	805,685 $	258,560 $	1,064,245
Beneficiaries				
Total	215 $	230,266 $	184,945 $	415,211
Total	1,088 $	2,677,392 $	929,978 $	3,607,370

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Appendix D Members' Contribution Rates

8.35% Interest Rate

General Tier 1 Members' Contribution Rates
(Expressed as a Percentage of Monthly Payroll)

Calculated Under Recommended Assumptions

Entry	Basic		COLA		Total	
Age	First $350	Over $350	First $350	Over $350	First $350	Over $350
15	3.97%	5.96%	2.06%	3.09%	6.03%	9.05%
16	3.97%	5.96%	2.06%	3.09%	6.03%	9.05%
17	3.97%	5.96%	2.06%	3.09%	6.03%	9.05%
18	3.97%	5.96%	2.06%	3.09%	6.03%	9.05%
19	3.97%	5.96%	2.06%	3.09%	6.03%	9.05%
20	3.97%	5.96%	2.06%	3.09%	6.03%	9.05%
21	3.97%	5.96%	2.06%	3.10%	6.03%	9.06%
22	3.98%	5.97%	2.07%	3.10%	6.05%	9.07%
23	3.99%	5.99%	2.07%	3.11%	6.06%	9.10%
24	4.01%	6.01%	2.08%	3.12%	6.09%	9.13%
25	4.03%	6.04%	2.09%	3.14%	6.12%	9.18%
26	4.05%	6.08%	2.10%	3.15%	6.15%	9.23%
27	4.08%	6.12%	2.12%	3.18%	6.20%	9.30%
28	4.11%	6.16%	2.13%	3.20%	6.24%	9.36%
29	4.14%	6.21%	2.15%	3.23%	6.29%	9.44%
30	4.18%	6.27%	2.17%	3.25%	6.35%	9.52%
31	4.22%	6.33%	2.19%	3.28%	6.41%	9.61%
32	4.26%	6.39%	2.21%	3.32%	6.47%	9.71%
33	4.30%	6.45%	2.23%	3.35%	6.53%	9.80%
34	4.35%	6.52%	2.26%	3.39%	6.61%	9.91%
35	4.40%	6.59%	2.28%	3.42%	6.68%	10.01%
36	4.44%	6.67%	2.31%	3.46%	6.75%	10.13%
37	4.50%	6.74%	2.33%	3.50%	6.83%	10.24%
38	4.55%	6.82%	2.36%	3.54%	6.91%	10.36%
39	4.60%	6.91%	2.39%	3.59%	6.99%	10.50%
40	4.66%	6.99%	2.42%	3.63%	7.08%	10.62%
41	4.72%	7.08%	2.45%	3.67%	7.17%	10.75%
42	4.78%	7.17%	2.48%	3.72%	7.26%	10.89%
43	4.84%	7.26%	2.51%	3.77%	7.35%	11.03%
44	4.90%	7.36%	2.55%	3.82%	7.45%	11.18%
45	4.97%	7.46%	2.58%	3.87%	7.55%	11.33%
46	5.04%	7.56%	2.62%	3.92%	7.66%	11.48%
47	5.11%	7.66%	2.65%	3.98%	7.76%	11.64%
48	5.18%	7.77%	2.69%	4.03%	7.87%	11.80%
49	5.25%	7.88%	2.73%	4.09%	7.98%	11.97%
50	5.33%	7.99%	2.77%	4.15%	8.10%	12.14%
51	5.41%	8.11%	2.81%	4.21%	8.22%	12.32%
52	5.49%	8.23%	2.85%	4.27%	8.34%	12.50%
53	5.57%	8.35%	2.89%	4.34%	8.46%	12.69%
54	5.65%	8.48%	2.94%	4.40%	8.59%	12.88%
55	5.65%	8.48%	2.94%	4.40%	8.59%	12.88%
56	5.65%	8.48%	2.94%	4.40%	8.59%	12.88%
57	5.65%	8.48%	2.94%	4.40%	8.59%	12.88%
58	5.65%	8.48%	2.94%	4.40%	8.59%	12.88%
59	5.65%	8.48%	2.94%	4.40%	8.59%	12.88%
60	5.65%	8.48%	2.94%	4.40%	8.59%	12.88%

Calculated Using the Following Assumptions

Interest Rate:	8.35%	Inflation:	4.25%
COLA Loading:	51.92%	Mortality Table:	94 GAM Male -3

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General Tier 2 Members' Contribution Rates
(Expressed as a Percentage of Monthly Payroll)

Calculated Under Recommended Assumptions

Entry Age	Basic	COLA	Total
15	2.27%	1.18%	3.45%
16	2.27%	1.18%	3.45%
17	2.27%	1.18%	3.45%
18	2.27%	1.18%	3.45%
19	2.27%	1.18%	3.45%
20	2.27%	1.18%	3.45%
21	2.27%	1.18%	3.45%
22	2.27%	1.18%	3.45%
23	2.28%	1.18%	3.46%
24	2.29%	1.19%	3.48%
25	2.30%	1.19%	3.49%
26	2.31%	1.20%	3.51%
27	2.33%	1.21%	3.54%
28	2.34%	1.21%	3.55%
29	2.36%	1.23%	3.59%
30	2.38%	1.24%	3.62%
31	2.41%	1.25%	3.66%
32	2.43%	1.26%	3.69%
33	2.46%	1.28%	3.74%
34	2.48%	1.29%	3.77%
35	2.51%	1.30%	3.81%
36	2.54%	1.32%	3.86%
37	2.57%	1.33%	3.90%
38	2.60%	1.35%	3.95%
39	2.63%	1.37%	4.00%
40	2.66%	1.38%	4.04%
41	2.70%	1.40%	4.10%
42	2.73%	1.42%	4.15%
43	2.76%	1.43%	4.19%
44	2.80%	1.45%	4.25%
45	2.84%	1.47%	4.31%
46	2.88%	1.50%	4.38%
47	2.92%	1.52%	4.44%
48	2.96%	1.54%	4.50%
49	3.00%	1.56%	4.56%
50	3.04%	1.58%	4.62%
51	3.09%	1.60%	4.69%
52	3.13%	1.62%	4.75%
53	3.26%	1.69%	4.95%
54	3.39%	1.76%	5.15%
55	3.39%	1.76%	5.15%
56	3.39%	1.76%	5.15%
57	3.39%	1.76%	5.15%
58	3.39%	1.76%	5.15%
59	3.39%	1.76%	5.15%
60	3.39%	1.76%	5.15%

Calculated Using the Following Assumptions

Interest Rate:	8.35%	Inflation:	4.25%
COLA Loading:	51.92%	Mortality Table:	94 GAM Male -3

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General Tier 3 Members' Contribution Rates
(Expressed as a Percentage of Monthly Payroll)

Calculated Under Recommended Assumptions

Entry	Basic		COLA		Total	
Age	First $350	Over $350	First $350	Over $350	First $350	Over $350
15	3.97%	5.96%	1.19%	1.79%	5.16%	7.75%
16	3.97%	5.96%	1.19%	1.79%	5.16%	7.75%
17	3.97%	5.96%	1.19%	1.79%	5.16%	7.75%
18	3.97%	5.96%	1.19%	1.79%	5.16%	7.75%
19	3.97%	5.96%	1.19%	1.79%	5.16%	7.75%
20	3.97%	5.96%	1.19%	1.79%	5.16%	7.75%
21	3.97%	5.96%	1.19%	1.79%	5.16%	7.75%
22	3.98%	5.97%	1.20%	1.79%	5.18%	7.76%
23	3.99%	5.99%	1.20%	1.80%	5.19%	7.79%
24	4.01%	6.01%	1.20%	1.80%	5.21%	7.81%
25	4.03%	6.04%	1.21%	1.81%	5.24%	7.85%
26	4.05%	6.08%	1.22%	1.82%	5.27%	7.90%
27	4.08%	6.12%	1.22%	1.84%	5.30%	7.96%
28	4.11%	6.16%	1.23%	1.85%	5.34%	8.01%
29	4.14%	6.21%	1.24%	1.87%	5.38%	8.08%
30	4.18%	6.27%	1.25%	1.88%	5.43%	8.15%
31	4.22%	6.33%	1.27%	1.90%	5.49%	8.23%
32	4.26%	6.39%	1.28%	1.92%	5:54%	8.31%
33	4.30%	6.45%	1.29%	1.94%	5.59%	8.39%
34	4.35%	6.52%	1.31%	1.96%	5.66%	8.48%
35	4.40%	6.59%	1.32%	1.98%	5.72%	8.57%
36	4.44%	6.67%	1.33%	2.00%	5.77%	8.67%
37	4.50%	6.74%	1.35%	2.03%	5.85%	8.77%
38	4.55%	6.82%	1.37%	2.05%	5.92%	8.87%
39	4.60%	6.91%	1.38%	2.07%	5.98%	8.98%
40	4.66%	6.99%	1.40%	2.10%	6.06%	9.09%
41	4.72%	7.08%	1.42%	2.13%	6.14%	9.21%
42	4.78%	7.17%	1.43%	2.15%	6.21%	9.32%
43	4.84%	7.26%	1.45%	2.18%	6.29%	9.44%
44	4.90%	7.36%	1.47%	2.21%	6.37%	9.57%
45	4.97%	7.46%	1.49%	2.24%	6.46%	9.70%
46	5.04%	7.56%	1.51%	2.27%	6.55%	9.83%
47	5.11%	7.66%	1.53%	2.30%	6.64%	9.96%
48	5.18%	7.77%	1.56%	2.33%	6.74%	10.10%
49	5.25%	7.88%	1.58%	2.37%	6.83%	10.25%
50	5.33%	7.99%	1.60%	2.40%	6.93%	10.39%
51	5.41%	8.11%	1.62%	2.44%	7.03%	10.55%
52	5.49%	8.23%	1.65%	2.47%	7.14%	10.70%
53	5.57%	8.35%	1.67%	2.51%	7.24%	10.86%
54	5.65%	8.48%	1.70%	2.55%	7.35%	11.03%
55	5.65%	8.48%	1.70%	2.55%	7.35%	11.03%
56	5.65%	8.48%	1.70%	2.55%	7.35%	11.03%
57	5.65%	8.48%	1.70%	2.55%	7.35%	11.03%
58	5.65%	8.48%	1.70%	2.55%	7.35%	11.03%
59	5.65%	8.48%	1.70%	2.55%	7.35%	11.03%
60	5.65%	8.48%	1.70%	2.55%	7.35%	11.03%

Calculated Using the Following Assumptions

Interest Rate:	8.35%	Inflation:	4.25%
COLA Loading:	30.03%	Mortality Table:	94 GAM Male -3

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Safety Members' Contribution Rates
(Expressed as a Percentage of Monthly Payroll)

Calculated Under Recommended Assumptions

Entry Age	Basic	COLA	Total
15	7.55%	3.92%	11.47%
16	7.55%	3.92%	11.47%
17	7.55%	3.92%	11.47%
18	7.55%	3.92%	11.47%
19	7.55%	3.92%	11.47%
20	7.55%	3.92%	11.47%
21	7.56%	3.92%	11.48%
22	7.58%	3.94%	11.52%
23	7.61%	3.95%	11.56%
24	7.64%	3.97%	11.61%
25	7.68%	3.99%	11.67%
26	7.73%	4.01%	11.74%
27	7.79%	4.04%	11.83%
28	7.85%	4.08%	11.93%
29	7.92%	4.11%	12.03%
30	8.00%	4.15%	12.15%
31	8.08%	4.19%	12.27%
32	8.17%	4.24%	12.41%
33	8.27%	4.29%	12.56%
34	8.37%	4.35%	12.72%
35	8.48%	4.40%	12.88%
36	8.58%	4.45%	13.03%
37	8.70%	4.52%	13.22%
38	8.82%	4.58%	13.40%
39	8.93%	4.64%	13.57%
40	9.06%	4.70%	13.76%
41	9.18%	4.77%	13.95%
42	9.31%	4.83%	14.14%
43	9.44%	4.90%	14.34%
44	9.57%	4.97%	14.54%
45	9.71%	5.04%	14.75%
46	9.84%	5.11%	14.95%
47	9.99%	5.19%	15.18%
48	10.14%	5.26%	15.40%
49	10.29%	5.34%	15.63%
50	10.29%	5.34%	15.63%
51	10.29%	5.34%	15.63%
52	10.29%	5.34%	15.63%
53	10.29%	5.34%	15.63%
54	10.29%	5.34%	15.63%
55	10.29%	5.34%	15.63%
56	10.29%	5.34%	15.63%
57	10.29%	5.34%	15.63%
58	10.29%	5.34%	15.63%
59	10.29%	5.34%	15.63%
60	10.29%	5.34%	15.63%

Calculated Using the Following Assumptions

Interest Rate:	8.35%	Inflation:	4.25%
COLA Loading:	51.92%	Mortality Table:	94 GAM Male +1

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Appendix E Glossary of Actuarial Terminology

AAL: See Actuarial Accrued Liability

Accrued Benefit: The amount of an individual's benefit (whether or not vested) as of a specified date, determined in accordance with the terms of a pension plan and based on compensation (if applicable) and service to that date.

Actuarial Accrued Liability: "Target assets" which would be on hand were the Association's current level of benefits to have been funded as a level percentage of pay each year from date of entry into the Association by all current members and interest at the current investment return assumption were credited each year. It also includes the actuarial present value of all retired members and beneficiaries future benefits.

Actuarial Asset Value: The value of Assets used by the actuary in the actuarial valuation. In order to reduce the impact of asset value fluctuation and to capture the long term intrinsic value of the Association's assets, actuaries sometimes use smoothing methods. These methods usually reflect the current market value of assets in some manner.

Actuarial Assumptions: Those assumptions such as interest (investment return), salary increases, termination from service and mortality needed by the actuary to complete an actuarial valuation.

Actuarial Gain (Loss): The difference between actual experience and actuarial assumption anticipated experience during the period between two actuarial valuation dates.

Actuarial Present Value: The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

(a) adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, Social Security, marital status, etc.)

(b) multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and

(c) discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

Actuary: A business mathematician trained in mathematics, risk analysis and finance. An actuary is assigned the task of determining the contribution required to maintain financial balance as to inflow and outflow of assets from a retirement Association.

Assets: Underlying funds available to provide for the Association's benefits. It reflects the accumulation of all contributions and investment earnings.

Contribution to the Unfunded Actuarial Accrued Liability (UAAL): That annual contribution rate which, if paid annually over the UAAL amortization period, would accumulate to the amount necessary to fully fund the UAAL. Accumulation includes annual crediting of interest at the assumed investment earnings rate. The contribution is calculated to remain as a level percentage of future active member payroll (including payroll of new members as they enter the Association) assuming a constant number of active members. In order to remain as a level percentage of payroll, amortization payments are scheduled to increase at the annual inflation rate.

Entry Age Normal Actuarial Funding Method: An actuarial method for pre-funding future retirement benefits. Under this method the member contribution stream plus the employer contribution stream is determined as that level of percentage of payroll sufficient to finance benefits and employee contribution refunds for new entrant.

GASB: The Government Accounting Standards Board which promulgates financial reporting and disclosure requirements for governmental entities, including public retirement Associations.

GASB Statement No. 25: A set of disclosures promulgated by GASB to provide users of financial standards information as to the funding status of a public retirement Association. GASB No. 25 specifies the Pension Benefit Obligation as a standardized target level of the actuarial value of assets.

Investment Return Assumption: The average rate of investment earnings which is assumed to be earned by Association funds.

Normal Cost: That annual contribution rate which, if paid annually from a member's first year of membership through the year of retirement, would accumulate to the amount necessary to fully fund the member's retirement benefits. Accumulation includes annual crediting of interest at the assumed investment earnings rate. The contribution rate is expressed as a level percentage of the member's compensation.

Pension Benefit Obligation: A standardized disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to date.

UAAL: (See Unfunded Actuarial Accrued Liability).